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AMPOL AUSTRALIA PTY LTD

**STATEMENT OF
ENVIRONMENTAL
EFFECTS**

DEMOLITION AND
REMEDiation OF
TRANGIE SERVICE
STATION
NARROMINE STREET,
TRANGIE

wsp



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Statement of Environmental Effects Demolition and Remediation of Trangie Service Station Narromine Street, Trangie

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ABBREVIATIONS

AST	Aboveground storage tanks
CEMP	Construction Environmental Management Plan
Council	Narromine Shire Council
DCP	Development Control Plan
DCP 2011	Narromine Development Control Plan 2011
ENM	Excavated Natural Material
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ESA	Environmental site assessment
LEP	Local Environmental Plan
LEP 2011	Narromine Local Environmental Plan 2011
mBGL	Metres below ground level
mAHD	Metres Australian Height Datum
POEO	<i>Protection of the Environment Operations Act 1997</i>
RAP	Remediation Action Plan
SEE	Statement of Environmental Effects
SEPP	State Environmental Planning Policy
VENM	Virgin Excavated Natural Material
UST	Underground storage tank
WH&S	Work Health and Safety

1 PROJECT BACKGROUND

1.1 OVERVIEW OF PROPOSED DEVELOPMENT

This Statement of Environmental Effects (SEE) has been prepared on behalf of Ampol Australia Pty Ltd (Ampol) to accompany a Development Application for the excavation, demolition and removal, and remediation of a service station at 76 Narromine Street, Trangie, NSW – Lot 101 DP832919 ('the site'). This includes removal of all aboveground and below ground infrastructure including the underground storage tanks (USTs) and aboveground storage tank (AST), pump infrastructure, fill points, storage areas, and remediation of the site ('the proposal'). The location of the proposal is shown in Figure 3-1.

State Environmental Planning Policy No. 55 – Remediation of land (SEPP No. 55) provides for state-wide planning approach to remediation of contaminated land, including identifying when consent is required. Clause 9 of SEPP No. 55 defines Category 1 remediation as remediation work that requires development consent.

1.1.1 *CONSENT AUTHORITY*

Narromine Shire Council (Council) are the consent authority for the proposed development.

2 PROPOSED DEVELOPMENT

2.1 PROPOSAL

The proposal involves demolition and remediation of an Ampol service station at 76 Narromine Street, Trangie, NSW (Lot 101 DP832919). The remediation would involve excavation and removal of all aboveground and underground infrastructure and buildings. The proposal involves removing:

- a retail building with a concrete hardstand forecourt
- one bunded AST
- four USTs
- two pump islands (comprising five bowsers).

The proposal also involves removing contaminated soil on the site, including underneath existing infrastructure, validation sampling post-tank removal and backfilling with approved imported material.

2.1.1 ENVIRONMENTAL SITE ASSESSMENT

An Environmental Site Assessment (ESA) (Appendix A) has been prepared by WSP (2021) for the proposed remediation. The primary objective for the ESA was to attempt to intersect groundwater and, if encountered, to assess the nature and extent of potential hydrocarbon impact in groundwater. A secondary objective was to assess the soil contamination status of the site. The detailed methodology of sampling undertaken onsite is outlined in the ESA.

The ESA found:

- Based on the analytical results of the soil there are limited contamination of the soil at site with no exceedances of the adopted site criteria recorded.
- Standing water levels in the monitoring wells installed onsite varied from between 19.045 metres below top of casing (mBTC) and 19.325 mBTC. Groundwater was inferred to flow towards the west, although it is noted that the groundwater is relatively flat at the site.
- Analytical results of the groundwater were below the adopted site criteria with the exception of an isolated concentration of toluene in one monitoring well that exceeded the nominated freshwater ecosystem guidelines.
- Groundwater was encountered at a depth exceeding 19 metres below ground level (mBGL) and the nearby surface water bodies (Goan Waterhole located 250 metres to the northeast) are situated above the standing water levels, and thus are not considered to be surface water receptors. The nearest receiving water body will be several kilometres away, and thus it is considered that no complete exposure pathway to a freshwater ecosystem exists.
- No active exposure pathways have been identified, and therefore risks to human health and the environment under the current scenario are not considered significant. Based on the available information the contamination status in soil and groundwater at the site does not preclude its continued use as a service station.

2.1.2 REMEDIATION

A Remediation Action Plan (RAP) has been prepared to support the ESA to document the proposed remediation works associated with the site demolition and the tank removal works, and to provide a framework for the remediation and/or management of the hydrocarbon impacted soil near the fuel infrastructure that is to be removed. The RAP is attached as Appendix B of this document.

The remediation would be undertaken to allow for future divestment and redevelopment of the site for non-sensitive commercial/industrial land use.

The objectives of the RAP are to:

- Document any previously identified contamination risks to human health and/or the environment, in order to inform the methodology for completing and validating the infrastructure decommissioning/removal works.
- Set remediation objectives that would enable the remedial goals to be achieved.
- Document the remediation and validation actions and methodologies required to confirm achievement of objectives.
- Provide a framework for the safe work practices and environmental management techniques to be implemented whilst undertaking fuel infrastructure removal works.

Prior to commencement of remedial works at the site, the following activities would need to be completed:

- Receipt of all relevant regulatory approvals for the use of the chosen remediation technology
- Preparation of a health, environmental and safety plan (HESP) and a construction, environment management plan (CEMP) prior to commencement of site works
- Induction of all site personnel to ensure that they are aware of the health, safety and environmental management requirements relating to the excavation of potentially contaminated soils
- Confirmation that the contractor conducting the excavation has adequate safety equipment (for example, adequate fencing, barrier boards, barricades and warning signage) to secure the work area and minimise the danger to contractor personnel and the public for the duration of the remediation works (see Section 5.2 of Appendix B).

2.1.3 LANDFORM AND REVEGETATION

The proposed landform would be a flat site with slight grade for drainage. Levels would be similar to adjoining roadways with some drainage channels as required to avoid ponding of water as far as practicable. The site would be backfilled with Virgin Excavated Natural Material (VENM) and / or Excavated Natural Material (ENM) to achieve an appropriate landform.

3 SITE AND SURROUNDING AREA

3.1 LOCATION

The site is a rectangular shaped lot situated on the northern side of Narromine Street, at 76 Narromine Street, Trangie, NSW (Lot 101 DP832919). Directly to the site's northeast is a bitumen sealed carpark that has provisions for heavy vehicle parking. The Main Western Railway is located around 80 metres north east of the site boundary, with the Trangie Railway Station located over 100 metres north of the site. Goan Waterhole is located around 250 metres to the northeast of the site. The site location is shown in Figure 3-1 and the layout plan is shown in Figure 3-2.



Figure 3-1 Site location plan



Figure 3-2 Site layout plan

3.2 SITE AREA

The subject site is approximately 2,200 square metres in size (SixMaps, 2021).

3.3 EXISTING DEVELOPMENT

The site is an operational service station with ingress and egress driveways from Narromine Street, Trangie. The central portion of the site is a retail store with a canopy over the bowser area and a concrete hardstand forecourt below. An isolated pump island with two bowser is located at the site's west. Three USTs are present at the north-western side of the retail building, comprising two 4,500 litre tanks and one 10,500 litre tank. One 4,500 litre diesel UST is present at the south-eastern side of the retail building, and one diesel 59,500 litre AST is present at the north-eastern side of the retail building. The surface cover of the site is generally hard packed gravel.

Photo 3-1 provides an overview of some of the aboveground infrastructure at 76 Narromine Street, Trangie. The AST can be seen positioned behind the retail building, with pump islands in front and adjacent to the retail building.



Photo 3-1 Aboveground infrastructure at 76 Narromine Street, Trangie, NSW.

A search of the NSW EPA public register identified no sites within 500 metres of the subject site that hold an environmental protection licence under the *Protection of the Environment Operations Act 1997* (POEO Act). Auscott Marketing Pty Ltd hold the nearest environment protection licence for the Trangie Gin, located over five kilometres to the site's southeast. This would not be expected to pose a risk of contamination to the subject site.

The Trangie Ampol site at 76 Narromine Street, Trangie is listed as a contaminated service station site notified to the NSW EPA, according to the NSW EPA 'list of notified sites' (searched 2 November 2021). The site is not considered to require regulation under the *Contaminated Land Management Act 1997* (CLM Act), meaning that the NSW EPA has completed an assessment of the contamination at the site and decided that regulation under the CLM Act is not required.

No additional surrendered licenses or penalty clean-up notices are associated with sites within a 500 metres radius of the site.

3.4 PHYSICAL FEATURES

3.4.1 TOPOGRAPHY

The site is generally flat with a slight fall to Narromine Street.

3.4.2 SURFACE WATER

Goan Waterhole is located around 250 metres to the northeast of the site, while the Trangie Cowal is located over two kilometres in the same direction. The Macquarie River is located over 10 kilometres from the site.

The ESA (WSP, 2021) identified that the waterbody is above the standing water level recorded for groundwater at the site, and as such, the Goan Waterhole would not be considered a surface water receptor for impacts to groundwater. However, surface water should be considered during remediation works onsite. Measures would be implemented to prevent impacts to nearby waterbodies as a result of surface water leaving the site.

3.4.3 GROUNDWATER

A review of the registered groundwater bore database conducted on 2 November 2021 (MinView, (<https://minview.geoscience.nsw.gov.au/#/?lon=148.5&lat=-32.5&z=7&l=>)) indicated 12 registered groundwater bores occur within a one kilometre radius of the site. The majority of these bores are used for water supply, however many are recorded as no longer functioning. Three of the identified groundwater bores occur within 500 metres of the site and provide town or domestic water supply. A summary of the groundwater bores is provided in Table 2.3 of Appendix A.

Drilling investigations undertaken for historical monitoring events at the site recorded that groundwater was not encountered. Recent investigations undertaken by WSP for the ESA in September 2021 (Appendix A) found that

groundwater was encountered at depths of around 19 mBTC, and groundwater is inferred to flow to the west, based on elevations.

Analytical results of the groundwater were below adopted site criteria with the exception of toluene that exceeded the nominated freshwater ecosystem criteria in one groundwater well. However, due to elevations and groundwater flow, the nearest receiving waterbody would be several kilometres away, and no adverse impacts to the waterbody would be anticipated by the exceedance.

3.4.4 ACID SULFATE SOILS

The ePlanning Spatial Viewer (Planning Portal), accessed 2 November 2021, indicated that soils underlying the site are mapped as having no known probability of acid sulfate soils. A review of the Australian Soil Resource Information System database (<http://www.asris.csiro.au>, conducted on 2 November 2021) indicated the site has an extremely low probability of acid sulfate soil occurrence.

3.4.5 ABORIGINAL HERITAGE

The site is located within the Trangie Local Aboriginal Land Council. A basic search of the Aboriginal Heritage Information Management System on 4 November 2021, with a buffer of 50 metres, recorded one Aboriginal site and no Aboriginal places (Appendix C). The Aboriginal site is shown on the AHIMS search as north of the proposed remediation site that has been heavily disturbed by previous activities associated with the service station.

All remediation works would occur within the historically disturbed and cleared area. The remediation works are unlikely to impact the Aboriginal site and the area would be avoided.

3.4.6 NON-ABORIGINAL HERITAGE

A search of the State Heritage Inventory (accessed 2 November 2021) identified no known heritage items within or directly adjacent to the Trangie Ampol site. The Trangie Soldiers Memorial Hall is listed as being of local heritage significant under the Narromine Local Environmental Plan 2011 (LEP 2011) (Narromine Shire Council, 2011a), and is the nearest heritage listed item to the Trangie Ampol site. The Soldiers Memorial Hall is located approximately 250 metres southwest of the Trangie Ampol site and would not be impacted by the remediation works.

3.4.7 BUSHFIRE

The site is not mapped as bushfire prone land according to the ePlanning Spatial Viewer (accessed 2 November 2021), and the proposed proposal does not involve subdivision or a special fire protection purpose.

3.4.8 SURROUNDING LAND USES

The surrounding land use of properties adjoining the site includes:

- **North** – land directly to the north is zoned as general residential, moving into rail infrastructure associated with the Trangie Railway Station and rural land further north. A grain silo, Goan Waterhole and agricultural properties (Narromine Shire Council, 2011a) are also present to the site's north.
- **East** – land directly to the east is zoned as general residential, with rail infrastructure and road infrastructure beyond. Cleared agricultural properties with on-farm dams, zoned primary production, dominate the landscape further to the east (Narromine Shire Council, 2011a).
- **South** – land directly to the south is a classified road (Narromine Street and Mitchell Highway east and west), with general residential and local centre land further south.
- **West** – land directly to the west is a classified road (Narromine Street and Mitchell Highway east and west). Local centre and residential properties dominate the township further west and include commercial, educational and recreational properties.

4 STATUTORY PLANNING CONTROLS

4.1 NARROMINE LOCAL ENVIRONMENTAL PLAN 2011

The Narromine LEP 2011 is the principal planning instrument for the Narromine Shire, including the township of Trangie and its regional surrounds. The LEP outlines the planning controls for the Narromine local government area. Consistency of the proposal with the Narromine LEP 2011 is presented in Table 4.1.

Table 4.1 Narromine LEP 2011

CLAUSE	CONSISTENCY
1.2 Aims	The proposed remediation site would be in keeping with the aims of the LEP including to protect and conserve the natural environment including surface and ground water, soil, air and native vegetation by encouraging sustainable development.
2.1 Land use zone	The site is zoned R1 – General Residential Environmental protection works are permitted without consent.
2.3 Zone objectives	The objectives of the R1 General Residential zone are: — To provide for the housing needs of the community. — To provide for a variety of housing types and densities. — To enable other land uses that provide facilities or services to meet the day to day needs of residents. The proposal would remediate the site for non-sensitive commercial/industrial land use. Remediation would also offer an opportunity for future development of a similar nature to provide services to meet the day to day needs of residents.
5.3 Development near zone boundaries	The proposal would not involve the construction or development of a facility that would be incompatible with surrounding land uses in adjoining zones.
5.10 Heritage conservation	The proposal would be unlikely to impact heritage items.
5.21 Flood planning	No part of the site is on land that is mapped as flood prone. The site would be backfilled with VENM and/or ENM to achieve an appropriate landform to minimise ponding. Erosion and sediment controls would be in place during the works and until the site is stabilised.
6.1 Earthworks	The proposal involves the excavation, transportation and disposal of potentially contaminated soils. The site has been historically cleared and disturbed for the purpose of a service station and no groundwater is anticipated to be intercepted during the works. The implementation of safeguards outlined within the RAP would minimise risk of adverse impacts to the environment. Furthermore, the proposal is for the demolition and remediation of a former service station site and would likely have an overall benefit to the local environmental conditions. The SEE, ESA and RAP meet the requirements of 6.1(3) to consider the environmental impacts of earthworks relating to mater such as drainage patterns, soil, fill material to be excavated and potential impacts to waterways.

CLAUSE	CONSISTENCY
6.3 Stormwater	It is unlikely that the proposal would impact nearby watercourses or riparian land. Erosion and sediment controls would be in place during the works and would be retained until the site is stabilised.
6.4 Terrestrial biodiversity	The proposal is not located on land mapped as a “Sensitive Area” and would be unlikely to impact native fauna and flora and their habitats. Environmental controls including erosion and sediment controls would be in place during the works to minimise the risk of adverse impacts to biodiversity offsite.
6.5 Riparian land and watercourses	The proposal is not located on land mapped as a “Sensitive Area” and is not located within 40 metres of a watercourse. Environmental controls including erosion and sediment controls would be in place during the works to minimise the risk of adverse impacts to waterways and water quality.
6.6 Groundwater vulnerability	The proposal is not located on land mapped as “Vulnerable Land” and is not likely to encounter groundwater at the site.

4.2 STATE ENVIRONMENTAL PLANNING POLICIES

4.2.1 SEPP (STATE AND REGIONAL DEVELOPMENT) 2011

State Environmental Planning Policy (State and Regional Development) 2011 identifies state significant development, state significant infrastructure, critical state significant infrastructure and regionally significant development. Schedule 1 of the SEPP identifies remediation of land that is Category 1 remediation work on significantly contaminated land if the work is required to be carried out under the CLM Act <https://www.legislation.nsw.gov.au/-/view/act/1997/140> by a management order that requires:

- a) the taking of action of the kind referred to in section 16 (d) or (g) of that Act, or
- b) the preparation of a plan of management that provides for the taking of any such action.

The proposed remediation is not a result of a management order under the CLM Act and as such would not be considered state significant development.

4.2.2 SEPP NO. 55 – REMEDIATION OF LAND

State Environmental Planning Policy No. 55 (SEPP No. 55) provides for statewide planning approach to remediation of contaminated land, including identifying when consent is required. Clause 9 of SEPP No. 55 defines Category 1 remediation as remediation work that requires development consent including remediation:

‘... (f) carried out or to be carried out on any land in a manner that does not comply with a policy made under the contaminated land planning guidelines by the council for any local government area in which the land is situated (or if the land is within the unincorporated area, the Minister). ...’

The proposal is to be carried out in the Narromine local government area, within the township of Trangie. It is understood that a development application is required, and as such, the proposal is defined as Category 1 remediation work.

4.3 OTHER NSW LEGISLATION

4.3.1 ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2000

In accordance with Section 4.10 of the EP&A Act, Schedule 3 of the Environmental Planning and Assessment Regulation 2000 identifies designated development that requires an Environmental Impact Statement. Clause 15 Contaminated soil treatment works of Schedule 3 of the regulations identifies designated development in relation to contaminated soil as follows:

‘...Contaminated soil treatment works (being works for on-site or off-site treatment of contaminated soil, including incineration or storage of contaminated soil, but excluding excavation for treatment at another site)—

(a) that treat or store contaminated soil not originating from the site on which the development is proposed to be carried out and are located—

- (i) within 100 metres of a natural waterbody or wetland, or*
- (ii) in an area of high watertable or highly permeable soils, or*
- (iii) within a drinking water catchment, or*
- (iv) on land that slopes at more than 6 degrees to the horizontal, or*
- (v) on a floodplain, or*
- (vi) within 100 metres of a dwelling not associated with the development, or*

(b) that treat more than 1,000 cubic metres per year of contaminated soil not originating from the site on which the development is located, or

(c) that treat contaminated soil originating exclusively from the site on which the development is located and—

- (i) incinerate more than 1,000 cubic metres per year of contaminated soil, or*
- (ii) treat otherwise than by incineration and store more than 30,000 cubic metres of contaminated soil, or*
- (iii) disturb more than an aggregate area of 3 hectares of contaminated soil... ’*

The proposal does not fit the above description as it involves excavation for treatment (disposal) at another site and as such is not considered designated development and does not require preparation of an Environmental Impact Statement.

4.3.2 PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997

Section 43 of the POEO Act enables an environment protection licence to be issued for carrying out of scheduled activities at any premises, as required under Section 48. Section 48 refers to premises-based activities listed under Schedule 1 of the Act. Clause 15 Contaminated soil treatment of Schedule 1 of the POEO Act identifies contaminated soil treatment that requires an environment protection licence as follows:

‘...(1) This clause applies to contaminated soil treatment, meaning the on site or off site treatment of contaminated soil (including, in either case, incineration or storage of contaminated soil but excluding excavation for treatment at another site).

(2) The activity to which this clause applies is declared to be a scheduled activity if:

(a) in any case, it has the capacity to treat more than 1,000 cubic metres per year of contaminated soil received from off site, or

(b) where it treats contaminated soil originating exclusively on site, it has a capacity:

(i) to incinerate more than 1,000 cubic metres per year of contaminated soil, or

(ii) to treat (otherwise than by incineration) and store more than 30,000 cubic metres of contaminated soil, or

(iii) to disturb more than an aggregate area of 3 hectares of contaminated soil...’

The proposal does not fit the above description as it involves excavation for treatment (disposal) at another site and as such does not require an environment protection licence.

4.3.3 CONTAMINATED LAND MANAGEMENT ACT 1997

The CLM Act enables the NSW EPA to issue a management order or declare land to be significantly contaminated.

The site has historically been notified to the NSW EPA. The NSW EPA has determined that contamination at the site does not warrant their regulation.

4.4 NARROMINE DEVELOPMENT CONTROL PLAN 2011

The Narromine Development Control Plan 2011 (Narromine DCP 2011) guides development under the Narromine LEP 2011. The DCP provides detailed provisions through objectives and development controls. Chapters of the DCP relevant to the proposal are discussed in Table 4.2 (Narromine Shire Council, 2011b).

Table 4.2 Narromine DCP 2011

PLANNING OUTCOMES	CONTROLS	CONSISTENCY
Chapter 3 – Submitting a Development Application		
Types of Development	Local Development If your development does not meet the exempt or complying development provisions, or is a major proposal (examples include but not limited to redevelopment of a commercial or industrial site, major internal renovation or extension of a dwelling or building, large subdivision, intensive agricultural use etc), it will require the submission of a development application.	The remediation works are considered local development and require development consent by the Narromine Shire Council.
Submitting a Development Application	Information to be included in an Application A development application must contain the following information: (a) The name and address of the applicant, (b) A description of the development to be carried out, (c) The address, and formal particulars of title, of the land on which the development is to be carried out, (d) An indication as to whether the land is, or is part of, critical habitat, (e) an indication as to whether the development is likely to significantly affect threatened species, populations or ecological communities, or their habitats, unless the development is taken to be development that is not likely to have such an effect because it is biodiversity compliant development, (f) A list of any authorities from which concurrence must be obtained before the development may lawfully be carried out,	The information included within this SEE and the ESA and RAP meets the requirements of the information to be included in a development application. The estimated cost of the proposal is \$350,000. Ampol have historically leased the site. Written approval from the landowner is attached to this SEE (Appendix D).

PLANNING OUTCOMES	CONTROLS	CONSISTENCY
	(g) A list of any approvals of the kind referred to in section 91 (1) of the Act that must be obtained before the development may lawfully be carried out, (h) The estimated cost of the development, (i) Written approval of all owners of the property. If there is more than one property owner, ALL owners consent must be provided with the application. This can be a letter signed by the relevant people or body (businesses, companies and the like) indicating that they have no objection to the lodgement of the development application. (j) A list of the documents accompanying the application. Documentation Requirements There are statutory requirements for the supporting information that must accompany various applications. These are detailed in schedule 1 of the <i>Environmental Planning and Assessment Regulations 2000</i> (EP&A). Incomplete development applications may be returned to the applicant. Council staff will assist where possible to ascertain whether additional information is required to be submitted with your application.	
	Site Plan This section gives a more detailed list of the requirements for a site plan. The site plan must be drawn to scale and include the following: — The location, boundary dimensions, site area and north point of the land;	A demolition plan is provided in Appendix F that identifies all aboveground and underground infrastructure to be removed from the site. Remediation would occur in accordance with the RAP (see Appendix B).

PLANNING OUTCOMES	CONTROLS	CONSISTENCY
	— Legal description of the property: Lot, Deposited Plan (DP), Street number (if available) street name and location. This information can be found on the rates notice for the property; — The location and uses of existing buildings on the land; — Existing levels of the land in relation to buildings and roads; — The location and uses of buildings on sites adjoining the land; — The location of any proposed buildings or works (including extensions or additions to existing buildings or works) in relation to the land's boundaries and adjoining development; — Contours or spot levels (especially on flood prone land and where cut or fill will be required); — Existing vegetation and any proposals to remove vegetation; — Vehicle access, parking and turning areas (including construction details); — Drainage and services (location of existing and proposed)(including on site sewerage systems); — Fences boundaries and easements (if any); — Any notable features e.g. waterways/dams (natural and artificial); — Existing and proposed landscaping. — Proposed parking arrangements, entry and exit points for vehicles, and provision for movement of vehicles within the site (including dimensions where appropriate); and — Proposed methods of draining the land; Site Plans can be submitted in 2 parts – one being the existing site, and the other being the site showing the proposed development.	

PLANNING OUTCOMES	CONTROLS	CONSISTENCY
	Floor Plan	A floor plan has not been prepared for the site as the proposal would not involve the construction of a building.
	Elevations Elevation plans should show: Proposed finished levels of the land in relation to other existing and proposed buildings and roads.	An elevation plan has not been prepared for the site as the proposal would only involve the backfill of excavations onsite, and the final landform would be flat. The final landform would avoid ponding on the surface, with no further land formation required.
Statement of Environmental Effects	Statement of Environmental Effects All development applications (except designated development) must be accompanied by a statement of environmental effects (SEE). Small scale developments such as carports, sheds and dwellings located on residential areas (village and residential zones) can use the basic SEE template attached to the development application form. All other types of development must provide a separate written SEE covering the matters referred to below. - Details of compliance with all relevant Environmental Planning instruments (EPI's). This includes any State Environmental Planning Policies (SEPP) and the Narromine Local Environmental Plan (LEP); - Details of compliance with the relevant sections of this Development Control Plan (DCP); - Suitability of the land for the development. Issues such as past use, potential contamination (especially for sites that have been used in the past for uses such as certain agricultural uses, industrial uses, service stations and any past use that may have used or even stored hazardous chemicals) and surrounding land uses (current and past) are best covered in this section;	This SEE has been prepared to meet the 'Statement of Environmental Effects' requirements outlined within the Narromine DCP 2011. Relevant environmental planning instruments have been considered throughout Chapter 4 of this SEE. SEPPs relevant to the development are discussed in Section 4.2, the provisions of the Narromine LEP 2011 (Narromine Shire Council, 2011a) are considered in Section 4.1 and consistency of the proposed development with the Narromine DCP 2011 is discussed within this Section (Section 4.4). The proposal is for the demolition and remediation of a former service station site. The proposal would include the removal of all above and below ground infrastructure, with potential contaminated soil and materials to be disposed of in accordance with the <i>NSW Waste Classification Guidelines</i> (NSW EPA, 2014) and the RAP (Appendix B). Remediation of the site would be undertaken to allow for future redevelopment of the site for non-sensitive commercial/industrial land use. The physical features of the site are outlined in Section 3.4 of this SEE. The site is not considered flood prone land or bushfire prone land according to the ePlanning Spatial Viewer (accessed 2 November 2021). The site is not mapped as an area of high salinity (ePlanning Spatial Viewer, accessed 3 November 2021). The site has historically been notified to the NSW EPA. The NSW EPA has determined that contamination at the site does not warrant their regulation (see

PLANNING OUTCOMES	CONTROLS	CONSISTENCY
	- Whether the site is affected by natural hazards such as bushfire or flooding and how the proposal complies with the relevant standards (such as planning for bushfire protection documents and AS 3959- 2009, or Councils flood policy); - Whether the site is affected by issues such as salinity, contamination and threatened species located on site or near the site; - Traffic impacts of the proposed development such as vehicular access, manoeuvring and car parking. Loading and unloading facilities are to be detailed for commercial and industrial development; - The physical character, location, siting, bulk, scale, shape, height, density and external appearance of any building; - On site disposal of waste; - Waste management for large residential developments, commercial and industrial developments.	Section 3.3 and Section 4.3.3). The proposal seeks to minimise impacts to the environment by removing all infrastructure and potentially contaminated soil. Physical features of the site are considered in Section 3.4, 4.1, and 5.2.1. The site does not contain mature trees or extensive groundcover and has negligible habitat potential for native flora or fauna species. The proposal is unlikely to have an impact on threatened species. There would be ample parking space and manoeuvring space for staff vehicles and equipment required for remediation works. Vehicles would access the site using existing ingress and egress driveways from Narromine Street. The contractor would be responsible for developing a WH&S Plan and CEMP. An indicative waste management plan is provided in Appendix E. The CEMP would include an updated waste management sub-plan outlining estimated quantities and types of waste to be generated by the remediation works. Waste generated from the remediation work would be classified and taken offsite to be disposed of at a licenced facility, in accordance with the <i>NSW Waste Classification Guidelines</i> (NSW EPA 2014).
Chapter 4 – Notification Requirements		
Notification Requirements	Refer to Narromine Shire Council’s <i>Community Participation Plan 2019</i> for guidance on notified development.	The development application and supporting documentation would be subject to the notification and exhibition of development applications outlined within the Narromine Shire Council’s <i>Community Participation Plan 2019</i> .
Chapter 5a – Residential Development		
Fencing	To ensure fences and walls, where used, improve amenity for residents and contribute positively to the streetscape and adjacent buildings.	Temporary fencing would be installed onsite for the duration of the remediation works to exclude public access from the site.
Landscaping	Landscaping for single dwellings must complement the streetscape character and additionally;	The proposal does not relate to the construction of a dwelling onsite, however, landscaping of the site following remediation would involve importing clean

PLANNING OUTCOMES	CONTROLS	CONSISTENCY
	— Consist of low water usage, native vegetation; — Not include species which are identified as weeds — Minimise the effects to overhead and underground services and utilities.	material to form a level surface and natural establishment of native grass species over time.
Access and Car Parking	All land must have legal access to a public road. Usually this is in the form of direct vehicular access to a public road. In certain circumstances where direct access to a road is not possible, a right of way carriage way can be created over adjoining land. Where access is provided to a formed Crown Road or a road not under the responsibility of the Council or the Roads and Maritime Services (RMS), the responsibility for maintenance is with the landowners.	The site has existing ingress and egress driveways from Narromine Street, Trangie. Construction vehicles would access the site using these existing entry and exit points.
Chapter 5h – Other Development		
Asbestos and other potential contaminants	Any development that involves the demolition or renovation of buildings containing asbestos material or other contaminate must incorporate appropriate safety measures for its removal and safe disposal.	The remediation works would involve the demolition and excavation of potentially contaminated materials. The RAP further details site conditions and remediation activities, as well as site-specific mitigation measures. Low and medium risk asbestos containing materials have been identified within buildings onsite. Demolition would be undertaken in accordance with the Hazardous Materials Assessment prepared for the site (Appendix G). The report includes recommendations as a general guide for the safe removal of asbestos containing materials in accordance with relevant guidelines and standards.

Mitigation measures proposed, such as erosion and sediment control and processes for identification and classification of waste for disposal would be implemented during demolition and remediation to minimise potential impact to the environment. Site specific mitigation measures are included in the RAP and would be included within the subsequent CEMP to be prepared by the contractor. Demolition would be undertaken in accordance with the Hazardous Materials Assessment prepared for the site. Once remediation works are complete, there would be a net benefit to the environment by removal of potentially polluting uses, and remediating land would allow for future redevelopment for non-sensitive commercial/industrial land use.

5 EVALUATION

5.1 STATUTORY PLANNING CONSIDERATIONS

Council is required to consider relevant matters listed under Section 4.15(1) of the EP&A Act. Matters for consideration include:

‘...(a) the provisions of—

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

(v) (Repealed)

that apply to the land to which the development application relates...’

Relevant environmental planning instruments and other planning controls are discussed in Section 4 of this SEE. The proposal is permitted, without consent, in the zone and generally complies with the Narromine LEP 2011 (Narromine Shire Council, 2011a) and Narromine DCP 2011 (Narromine Shire Council, 2011b).

5.2 ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACTS

Section 4.15(1)(b) of the EP&A Act requires Council to consider:

‘...(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality...’

Impacts of the proposed development are presented in Section 4 and also discussed below.

5.2.1 IMPACTS ON THE NATURAL ENVIRONMENT

The proposed development would remediate the site by removing refuelling infrastructure, importing clean material to a level surface and natural establishment of grass species over time. Erosion and sediment controls would be implemented during the works.

Minor, short-term noise impacts have the potential to occur with the operation of equipment required for remediation works. Works would only occur during standard construction hours to minimise impacts to sensitive receivers. The contractor would implement further mitigation measures to reduce potential for noise impacts to sensitive receivers, to be outlined within the CEMP.

Minor, short-term impacts to air quality have the potential to occur with dust emissions from earthworks onsite. A water cart would be used onsite if required and available to manage dust emissions during periods of high wind. Where extreme wind conditions produce significant dust emissions, earthworks would cease.

It is unlikely groundwater would be encountered during the remediation works. Mitigation measures to reduce the potential for impacts to groundwater would be outlined within the CEMP and would be implemented by the contractor.

Overall, remediation of the site would have a positive effect on the environment.

5.2.2 *IMPACTS ON THE BUILT ENVIRONMENT*

Buildings on site are proposed to be demolished as part of the remediation works. Fuel supply infrastructure, both aboveground and below ground would be removed and this would have a positive impact on the built environment.

5.2.3 *SOCIAL AND ECONOMIC IMPACTS*

Proposed remediation would remove existing, redundant infrastructure from the site, and would provide opportunities for future use of the site for commercial or non-sensitive purposes. This would provide positive social and economic impacts for the township of Trangie.

5.2.4 *SUBMISSIONS*

Council may consider any submissions received.

5.2.5 *PUBLIC INTEREST*

Public interest is best served by allowing the site to be remediated. This would remove potentially contaminated waste and obsolete service station infrastructure from the site and allow for options for future use of the site. As such, it is in the public interest to undertake the proposed demolition and remediation works.

6 CONCLUSION

6.1 CONCLUSION

The proposed development involves remediation of land known as the Trangie Ampol Service Station, located at 76 Narromine Street, Trangie, NSW (Lot 101 DP832919). The development application relates to demolition and remediation of a service station. This would include the removal of all aboveground and underground storage tanks, buildings and infrastructure, the associated offsite transport and disposal of excavated material, and site re-establishment including backfilling with VENM and/or ENM.

The proposed development is in keeping with the R1 General Residential zoning of the site as environmental protection works are a permissible form of development. The proposal generally complies with relevant environmental planning instruments and would have a positive environmental impact.

The proposal is appropriate when considered under the matters for consideration under Section 4.15 of the *Environmental Planning and Assessment Act 1979*.

7 REFERENCES

- ePlanning Spatial Viewer Planning Portal, November 2021, accessed via [ePlanning Spatial Viewer \(nsw.gov.au\)](https://epanning.spatialviewer.nsw.gov.au).
- Narromine Shire Council, 2011a, *Narromine Local Environmental Plan 2011*.
- Narromine Shire Council, 2011b, *Narromine Development Control Plan 2011*.
- NSW EPA, 2014, *NSW Waste Classification Guidelines*.
- SafeWork Australian, 2018, *How to Safely Remove Asbestos: Code of Practice*.
- SixMaps, 2021, *Spatial Viewer*.
- WSP, 2021, *Ampol Trangie (Site ID: 20820), 76 Narromine St, Trangie NSW Environmental Site Assessment - October 2021*
- WSP, 2021, *Ampol Trangie Service Station (Site ID: 20820), 76 Narromine St, Trangie Remediation Action Plan (RAP)*
- NSW EPA, 2014, *Waste Classification Guidelines*

8 LIMITATIONS

- 1 This Report has been prepared by WSP Australia Pty Limited (“WSP”) for the benefit of Ampol Australia Petroleum Pty Ltd (“Ampol”), the registered proprietor or tenant of the site requested to be investigated by WSP (“Site”) under its agreement with Ampol dated 21 March 2018 (“Agreement”).
- 2 The nature and extent of the environmental consulting and remediation works at the site detailed in the Report reflects the scope of the Services set out in the Request for Proposal under the Agreement and the Scope of Works set out in section 1.2 of Schedule 1 of the Agreement (“Scope of Works”).
- 3 A potential purchaser (but not including a purchaser’s successor in title) of the site may rely on the findings contained in the Report for the purpose of considering the possible (but not actual) level of contamination of or at that Site at the time of the contamination assessment of the Site was undertaken (“Permitted Purpose”).
- 4 The registered proprietor of the land to which the report relates at the time of writing the report (but not including any proprietor’s successor in title) may rely on the findings contained in the Report for the purpose of assessing the possible level of contamination of that site (“Permitted Purpose”) and subject to the limitations set out in the Scope of Works.
- 5 The findings contained in the Report are subject to the qualifications, assumptions and limitations set out in the Report or otherwise communicated to, or by, Ampol. To the extent of any inconsistency between this Limitation Statement and the qualifications, assumptions and limitations in the Report, this Limitation Statement shall prevail.
- 6 The Report may contain information provided by others. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of this information. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the Report (“Conclusions”) are based in whole or in part on this information, those Conclusions are contingent upon the accuracy and completeness of that information. WSP accepts no responsibility for the reliability, accuracy, completeness or adequacy of information provided by others.
- 7 WSP has prepared the Report without regard to any special or particular interest of any person (including that of a potential purchaser), other than Ampol when undertaking the Services or setting out its findings in the Report.
- 8 The Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose and does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise in relation to the Site (“Investment Decision”).
- 9 Matters material to a potential purchaser, may have been omitted from the Report, or may not have been investigated because of the scope of the Services. It follows that a potential purchaser should be cognisant of the restrictions inherent in or otherwise set out in the Report and should commission the preparation of a contamination assessment of the Site that caters for its own interests and scope of services, and which will provide findings in relation to the level of contamination of or at the Site at the time the potential purchaser is making an Investment Decision.
- 10 The Report has not and will not be updated for events occurring after the date of the Report or any other matter which may have a material effect on its contents which come to light after the date of the Report. WSP will not be obliged to inform a potential purchaser of any matter arising or coming to its attention after the date of the Report, which may affect or qualify the Report.
- 11 WSP is not liable to a potential purchaser in respect of errors or omissions in the Report which a potential purchaser knows of, or ought to be aware of, from:
 - a its own actual knowledge and inquiries
 - b inquiries made by its advisers; or
 - c matters which a potential purchaser should have been aware of by making reasonable inquiry (including the inquiries recommended at Item 9 above).

To the fullest extent permitted at law, WSP, its related bodies corporate, its officers, employees and agents assume no liability and will not be liable to any potential purchaser for, or in relation to, any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of income or profit, revenue or loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, business interruption and pure economic loss) of any kind (and whether arising in contract, tort (including negligence), under statute, in equity or otherwise, suffered or incurred by a potential purchaser (or any other third party) arising out of or in connection with any matter outside the ambit of the Permitted Purpose in relation to the Report or findings expressed in the Report.

APPENDIX A

ENVIRONMENTAL SITE ASSESSMENT

AMPOL AUSTRALIA PETROLEUM PTY
LTD

OCTOBER 2021

CONFIDENTIAL

**AMPOL TRANGIE
(SITE ID: 20820), 76
NARROMINE ST,
TRANGIE NSW
ENVIRONMENTAL
SITE ASSESSMENT -
OCTOBER 2021**

wsp



Question today *Imagine tomorrow* Create for the future

Ampol Trangie (Site ID: 20820), 76 Narromine St, Trangie NSW
Environmental Site Assessment - October 2021

Ampol Australia Petroleum Pty Ltd

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REV	DATE	DETAILS
A	27/10/2021	Draft
B	28/10/2021	Final

	NAME	DATE	SIGNATURE
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Reviewed by:	Lyle Carpenter	27/10/2021	
Approved by:	Lyle Carpenter	27/10/2021	

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2021_10_28_20820_Trangie_WSP_PS126485- Confidential
CLM-REP-001_ESA Report_RevB



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ABBREVIATIONS

ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture, and Resource Management Council of Australia and New Zealand
BTEX	Benzene, toluene, ethylbenzene and xylene
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
C ₆ -C ₁₀	Light petroleum hydrocarbon chain fraction (for example petrol)
>C ₁₀ -C ₁₆	Medium petroleum hydrocarbon chain fraction (for example jet fuel, kerosene, diesel)
>C ₁₆ -C ₃₄	Medium-heavy petroleum hydrocarbon chain fraction (for example diesel, lube oils)
>C ₃₄ -C ₄₀	Heavy petroleum hydrocarbon chain fraction (for example lube oils, waxes)
EPA	Environmental Protection Authority
GIL	Groundwater investigation levels
GME	Groundwater monitoring event
HSL	Health screening level
LNAPL	Light non-aqueous phase liquid
LOR	Limit of reporting
mAHD	metres relative to Australian Height Datum
mBGL	metres below ground level
mBTOC	metres below top of casing
MNA	Monitored natural attenuation
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
PAHs	Polycyclic aromatic hydrocarbons
ppm	Parts per million
RPD	Relative per cent differences
SWL	Standing water level
TRH	Total recoverable hydrocarbon
UPSS	Underground petroleum storage system
VOCs	Volatile organic compounds
µg/L	Micrograms per litre
µS/cm	MicroSiemens per centimetre

EXECUTIVE SUMMARY

Ampol Australia Petroleum Pty Ltd (Ampol) engaged WSP Australia Pty Ltd (WSP) to undertake an environmental site assessment (ESA) at the Ampol service station located at 76 Narromine Street, Trangie, New South Wales (NSW), 2823 ('the site').

OBJECTIVES

The primary objective for the ESA was to attempt to intersect groundwater and, if encountered, to assess the nature and extent of potential hydrocarbon impact in groundwater. A secondary objective is to assess the soil contamination status of the site.

SCOPE OF WORK

The scope of works included:

- installation of three new groundwater monitoring wells (MW03B, MW05 and MW06) to a depth of 21 mBGL;
 - drilling of ten boreholes across the site to a depth of either 1.5 metres below ground level (mBGL) (five bores) or 3.0 mBGL (five bores) around the underground petroleum storage system (UPSS);
 - soil sampling and analysis of two samples per borehole and groundwater well location for polycyclic aromatic hydrocarbons (PAH), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN) and lead;
 - soil sampling and analysis of one sample per borehole and groundwater well for asbestos
 - gauging of all on-site groundwater wells
 - sampling of newly installed wells using a no-purge technique for TRH, BTEXN, PAH and lead; and
 - interpretation of results and preparation of this ESA report.
-

RESULTS AND CONCLUSIONS

The following are the pertinent results of the investigation:

- Based on the analytical results of the soil there are limited contamination of the soil at site with no exceedances of the adopted site criteria recorded.
- Standing water levels in the monitoring wells varied from between 19.045 mBTOC and 19.325 mBTOC. Groundwater was inferred to flow towards the west, although it is noted that the groundwater is relatively flat at the site.
- Analytical results of the groundwater were below the adopted site criteria with the exception of an isolated concentration of toluene in MW03B that exceeded the nominated freshwater ecosystem guidelines.
- We note that groundwater was encountered at a depth exceeding 19 mBGL and the nearby surface water bodies (e.g. Goan Waterhole located 250 m to the north-east) are situated above the SWL, and thus are not considered to be surface water receptors. The nearest receiving water body will be several kilometres away, and thus it is considered that no complete exposure pathway to a freshwater ecosystem exists.

- No active exposure pathways have been identified, and therefore risks to human health and the environment under the current scenario are not considered significant. Based on the available information the contamination status in soil and groundwater at the site does not preclude its continued use as a service station.

1 INTRODUCTION

1.1 PURPOSE

Ampol Australia Petroleum Pty Ltd (Ampol) engaged WSP Australia Pty Ltd (WSP) to undertake an environmental site assessment (ESA) at the Ampol service station located at 76 Narromine Street, Trangie NSW 2823 ('the site'). The purpose of the report is to provide an evaluation of current groundwater quality and refine the conceptual site model for the site. The location of the site is shown in Figure 1, Appendix A.

1.2 BACKGROUND

The location and the layout of the site are shown in Figures 1 and 2 respectively (Appendix A). The site is occupied by an operating service station and retail shop. The site is comprised of fill materials of gravelly sands overlying silty clay. Previously soil sampling has not identified hydrocarbon impacts. Eight monitoring wells already exist at the site, however none of these wells are deep enough to encounter the regional groundwater aquifer. Groundwater is expected to occur at depths greater than 18 mBGL.

1.3 OBJECTIVES

The primary objective for the ESA was to attempt to intersect groundwater and, if encountered, to assess the nature and extent of potential hydrocarbon impact in groundwater. A secondary objective is to assess the soil contamination status of the site.

1.4 SCOPE OF WORK

The scope of works included:

- installation of three new groundwater monitoring wells (MW03B, MW05 and MW06) to a depth of 21 mBGL;
- drilling of ten boreholes across the site to a depth of either 1.5 metres below ground level (mBGL) (five bores) or 3.0 mBGL (five bores) around the underground petroleum storage system (UPSS);
- soil sampling and analysis of two samples per borehole and groundwater well location for polycyclic aromatic hydrocarbons (PAH), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN) and lead;
- soil sampling and analysis of one sample per borehole and groundwater well for asbestos;
- gauging of all on-site groundwater wells;
- sampling of newly installed wells using a no-purge technique for TRH, BTEXN, PAH and lead; and
- interpretation of results and preparation of this ESA report.

2 SITE CHARACTERISTICS

2.1 LOCATION AND IDENTIFICATION

The site is located within the township of Trangie approximately 300 km north west of Sydney. General site details are summarised in Table 2.1.

Table 2.1 Summary of general information

SITE NAME	AMPOL TRANGIE
Site address	76 Narromine Street, Trangie NSW 2823
Ampol site identification	20820
Legal identification	Lot 101 in DP 832919
Local government area	Narromine Shire Council
Zoning	R1 – General Residential: The local LEP states that the objectives of this zone are to provide for the housing needs of the community. To provide for a variety of housing types and densities. To enable other land uses that provide facilities or services to meet the day to day needs of residents.
Current land use	Service station

2.2 SURROUNDING LAND USE

Surrounding land uses include:

- North: Rural properties, cleared land, railway tracks and grain storage facility.
- South: Narromine Street. Residential properties.
- East: Rural properties, cleared land and railway tracks.
- West: Commercial and residential properties.

2.3 GEOLOGY

The Narromine 1:250,000 Geological Map (2nd edition 1997) indicates that the regional geology in the vicinity of the site is characterised by Quaternary aged alluvium comprised red silt with some pebble bands and quartz grit.

Previous intrusive investigations at the site (AECOM, 2011) indicated that the site specific geology comprises clayey sand and sandy gravel fill material to 0.2 metres below ground level (mBGL) underlain by stiff silty clay.

2.4 HYDROGEOLOGY

Groundwater was not encountered during the previous drilling investigation and it was not possible to establish a groundwater flow direction. Due to the surface water bodies located to the north (e.g. Goan Waterhole, Trangie Cowal, Macquarie River), groundwater is expected to flow to the north.

A review of the Department of Primary Industries registered groundwater bore database (www.allwaterdata.water.nsw.gov.au) conducted on 31 July 2017 identified three registered groundwater bores within a 500 m radius of the site. The wells are summarised in Table 2.2.

Table 2.2 Groundwater well database summary

BORE ID	LOCATION	TOTAL DEPTH (m)	STATUS	PURPOSE
GW065699	North	108.0	Converted	Town water supply
GW053089	South west	96.0	Converted	Town water supply
GW005691	West	40.3	Cancelled	Domestic, Irrigation

The nearest surface water body identified was the Goan Waterhole located approximately 250 m north-east of the site.

2.5 SUMMARY OF PREVIOUS INVESTIGATIONS

WSP has previously been provided with a groundwater monitoring well report for the site completed by AECOM (AECOM 2011, *Groundwater Monitoring Well Report – Caltex Trangie (20820)*), in addition WSP has previously completed assessment works at the site in 2017 (WSP 2018, Trangie Service Station (Site ID: 20820) Environmental Site Assessment).

Prior to the 2017 investigation, the well network consisted of four on-site wells. Monitoring wells MW01 to MW04 were installed by AECOM in 2009 (AECOM, 2011). During the AECOM 2009 GME, the wells MW01 and MW03 were dry and MW02 and MW04 contained an insufficient amount of water for sample collection during the subsequent sampling event. Hydrocarbon odours were noted on bailers during groundwater gauging in MW01 and MW03.

During the 2009 drilling investigation, all the soil samples analysed were below the laboratory limit of reporting (LOR) for TRH and BTEX. Lead was the only analyte having concentrations above the laboratory limit of reporting (LOR) with results ranging between 5 and 11 mg/kg. The soil PID readings ranged from 6.5 to 19.8 parts per million (ppm).

In 2017, Ampol (operating as Caltex) commissioned WSP to undertake an ESA at the site to evaluate groundwater quality and refine the CSM. WSP installed four additional groundwater monitoring wells; MW01A was installed on-site near existing well MW01, MW02A was installed on-site near existing well MW02, MW03A was installed on-site near existing well MW03 and MW04A was installed on-site near existing well MW04. During the 2017, ESA no groundwater samples were collected due to insufficient groundwater. Prior to the 2021 assessment, there was no historical groundwater contaminant data available.

3 METHODOLOGY

3.1 FIELDWORK CHRONOLOGY

The scope and rationale for the intrusive investigation and groundwater monitoring works completed as part of the ESA are summarised in Table 3.1. These works are detailed further in the following subsection.

Table 3.1 Fieldwork chronology summary

DATE	SCOPE	RATIONALE
21/09/2021 – 23/09/2021	Drilling and installation of 3 groundwater monitoring wells. Drilling of ten boreholes.	Evaluate groundwater conditions at the site. Evaluate soil conditions at the site.
27/09/2021	Groundwater monitoring event (GME) of three new monitoring wells.	Confirm groundwater flow direction and determine status of groundwater contamination at the site.

3.2 METHODOLOGY

Borehole drilling, groundwater monitoring well installation and groundwater sampling methodologies are summarised in Table 3.2.

Table 3.2 Fieldwork methodologies summary

ITEM	DESCRIPTION
Service location	Underground service plans from the Dial Before You Dig (DBYD) online service were obtained prior to the commencement of the investigations and were used to assist with locating underground services. Borehole locations were cleared prior to commencement of intrusive works by an appropriately qualified service locator.
Borehole drilling	Consistent with WSP and Ampol standard operating procedures, each drilling location was advanced first using non-destructive methodologies to a target depth of 1.5 mBGL. A drill rig equipped with solid flight augurs was utilised to advance boreholes to the required target depths, or as close as reasonably practical, based on the hydrogeological profile recorded in the bore and well construction logs of existing wells at the site.

ITEM	DESCRIPTION
Sub-surface field logging/screening	Subsurface conditions were logged by a suitably qualified and experienced environmental scientist. Field observations included: — the accurate recording of all environmentally relevant observations; — documentation of all work undertaken including significant events impacting on work; and — records of stratigraphy and any other relevant information during borehole advancement (e.g. in situ testing, and any groundwater inflow or levels). Logging of soils was undertaken in accordance with AS1726-1993 Geotechnical Site Investigations and the Unified Soil Classification System (USCS). The headspace of each soil sample was screened in the field using a calibrated handheld PID to assess the presence of volatile organic compounds (VOCs) and the reading was recorded on the field borelogs.
Soil sampling	Soil samples were generally collected at approximately 0.5 mBGL, 1.0 mBGL and every metre thereafter, or at any change in lithology or where there were noticeable indications of contamination. Soil samples were placed in 150 mL laboratory supplied jars, leaving no headspace, and closed using Teflon-coated lids.
Soil QA/QC samples	Soil sample field blind duplicate and triplicate pairs were collected at a frequency of 1 pair for every 20 primary samples collected. A field prepared rinsate blank was prepared for each day of sampling. Laboratory prepared and supplied trip blank soils were transported with the sample batch during the sample event and provided to the selected primary laboratory for analysis.
Soil sample analytical suite	Two soil samples per borehole were analysed for TRH, BTEXN, PAH and leads. One soil sample per borehole in fill material were analysed for asbestos.
Well construction	Monitoring wells were constructed with 50 mm, class 18 threaded, flush-jointed polyvinyl chloride (PVC) screen and casing. Organic solvents or glues were not used during construction and installation of the monitoring wells. A filter pack comprising of clean graded gravels of suitable size (2 mm and 5 mm average grain size, silica material) to provide sufficient inflow of groundwater was installed within the annular space between the borehole and the well casing. The filter pack generally extends from the base of the screened interval to approximately 0.5 m above the termination of the slotted casing. In order to minimise the likelihood of surface water or perched water infiltrating the groundwater, a bentonite plug comprising pelleted or granulated bentonite was placed above the filter pack to a minimum thickness of 0.5 m. Grout was then used to complete the well at the ground surface and steel well covers were installed. Wells were constructed in accordance with industry best-practice guidelines, specifically the National Uniform Drillers Licensing Committee (2011), <i>Minimum construction requirements for water bores in Australia</i>, Third Edition. Borelogs of all wells installed as part of this ESA program are provided in Appendix E.

ITEM	DESCRIPTION
Well development	All newly installed monitoring wells were developed following installation to remove fines from the borehole and to allow the flow of groundwater representative of the formation into the bore for subsequent sampling. Development of these wells was undertaken using a stainless-steel bailer, and excess water stored in an oily water drum on-site for future off-site disposal. Wells were allowed to settle for a minimum of 6 days prior to sampling.
Well survey	Following construction, the location of each groundwater well was surveyed. The highest point on the top of the internal PVC casing (TOC) and the ground surface adjacent to the well were surveyed relative to Australian Height Datum (AHD) and marked for future gauging reference. A copy of the survey for the monitoring locations in the study area is included as Appendix F.
Well gauging	All on-site and off-site wells were gauged for depth to standing water level (SWL) and the presence of light non-aqueous phase liquid (LNAPL) using an air, oil, water interface probe. In the event LNAPL was detected, a HDPE disposable bailer was used to confirm the apparent LNAPL thickness.
Groundwater monitoring	Groundwater sampling was carried out in accordance with the Australian/New Zealand Standard – <i>Water Quality sampling, Part 11: Guidance on sampling of ground waters</i>, AS/NZS 5667.11, 1998 and WSP documented standard field procedures. A GME of three groundwater monitoring wells was undertaken. Groundwater samples were collected in laboratory-supplied containers using no-purge Hydrasleeve™ sampling methodology. All samples were labelled with the project number, well ID, date obtained, and name of sampler. Groundwater physio-chemical parameters comprising pH, dissolved oxygen, electrical conductivity, temperature, and reduction/oxidation potential (redox) were measured using a calibrated YSI™ water quality meter (WQM). Groundwater was visually assessed for turbidity and evidence of contamination such as odour or visible hydrocarbon sheen. All non-disposable equipment was washed with Decon 90 and rinsed with clean water before and after each sample was collected. Disposable nitrile gloves were worn during sampling and were changed between samples to minimise the potential for cross-contamination.
Groundwater QA/QC samples	Groundwater sample field blind duplicate and triplicate pairs were collected at a frequency of 1 pair of duplicates for every 20 primary samples collected. A field prepared rinsate blank was prepared at the end of the GME using a decontaminated Hydrasleeve™ bottom weight. Laboratory prepared and supplied trip blank and trip spike waters were transported with the sample batch during the sample event and provided to the selected primary laboratory for analysis with the sample batch.
Groundwater analytical schedule	Groundwater samples were analysed for TRH, BTEXN, PAH and lead.
Sample preservation and transportation	All samples were collected in laboratory supplied containers with appropriate preservatives, where required. Samples were kept chilled prior to and during delivery to the selected NATA accredited laboratories. Appropriate chain of custody documentation accompanied all samples to verify transportation and preservation details.

ITEM	DESCRIPTION
Waste Classification	Waste soil and rock cuttings generated as part of the drilling of the boreholes were stored on-site in designated 405 L soil drums pending receipt of the waste classification laboratory data prior to being transported by appropriately licensed contractors for off-site disposal at appropriately licensed waste receiving facilities. All soil samples collected for waste classification were analysed for TRH, BTEXN, PAHs and lead. The analytical waste classification data and comparison to NSW EPA (2014) <i>Waste Classification Guidelines</i> are provided as Table B2, Appendix C, and copies of the waste disposal documentation for the wastes are provided as Appendix H.
Equipment Decontamination	All reusable sampling equipment was cleaned with suitable phosphate free detergent and rinsed with water between sampling episodes. Drilling equipment was decontaminated between drilling locations.

3.3 LABORATORY ANALYSES

Two laboratories accredited by the NATA were used to conduct soil and groundwater analyses for the investigation. The primary analytical laboratory was Eurofins Pty Ltd (Eurofins) in Sydney NSW, while the secondary analytical laboratory was Australian Laboratory Services Pty Ltd (ALS) in Smithfield NSW.

3.4 LABORATORY DATA QUALITY AND PLANNING

All sampling adhered to WSP DQO processes.

Soil and groundwater duplicate pairs were collected at a frequency of one in 20 primary samples and were analysed for the same analytes as the corresponding primary sample. Duplicate samples included:

- two soil duplicate sample pairs, QC01 (intra-laboratory) and QC01A (inter-laboratory) from MW03B_1.0 and QC02 (intra-laboratory) and QC02A (inter-laboratory) from DBH05_0.5 collected during borehole advancement works from a total of 15 primary soil samples; and
- one groundwater duplicate sample pair, QC1W (intra-laboratory) and QC1WA (inter-laboratory), collected with groundwater sample MW05 from a total of three primary groundwater samples.

One laboratory-supplied water trip blank and one trip spike accompanied the soil and groundwater sample batch during collection and transport and were analysed for volatile TRH and BTEXN to assess the potential for cross-contamination and loss of volatiles.

One rinsate blank was collected during the GME and analysed for TRH, BTEXN, PAH and lead.

Each laboratory undertook internal quality assurance and quality control (QA/QC), including the analysis of laboratory control spikes, surrogate recoveries, laboratory duplicates and method blanks. Laboratory documentation, including chain of custody and certificates of analysis, is provided in Appendix G.

4 SITE ASSESSMENT CRITERIA

The *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 1999* (NEPM, as amended 2013) Schedule B1 Investigation Levels for Soil, Groundwater and Soil Vapour has been used to assess impacts at the site, as it provides a framework for the use of investigation and screening levels based on a matrix of human health and ecological risks.

Criteria used to evaluate analytical data are not threshold values at which an environmental problem is likely to occur. Rather, if the trigger values are exceeded, further action is required which may include additional site-specific assessment to determine if there is a risk or whether management/remedial action should be undertaken.

4.1 POTENTIAL RECEPTORS

To assess risk based on contaminant concentrations, it is necessary to evaluate the potential on- and off-site receptors adjacent and specifically downgradient of the site. Based on soil bore logs, the sub-surface profile at the site generally consists fill materials of gravelly sands to approximately 0.3 mBGL overlying silty clay.

Taking into consideration the service station land use at the site (and potential non-sensitive commercial / industrial site use), it is considered appropriate to assess risk to on-site receptors based on commercial/industrial site use, including specific criteria for maintenance and trench workers. As the land use of the adjacent properties of the site including residential homes, it is considered appropriate to assess risk to potential off-site receptors using residential land use criteria.

A review of the registered groundwater bores in the vicinity of the site indicated three registered groundwater bores within a 500 m radius of the site, 2 of which are town water supply and one that has been cancelled, further details are provided in section 2.4. Although the two current bores are listed for use of groundwater abstraction, these wells intersect aquifers at a depth greater than 90 mBGL and it is believed that the depth of the extraction wells is too great to be affected by any possible hydrocarbon impacts.

Previously groundwater flow was assumed to flow to the north towards the surface water bodies to the north of the site, however based on surveying data and current gauging results, groundwater was inferred to flow to the west. It is noted that there was minimal variation in the SWL between the wells during this GME and overall the groundwater is relatively flat. The ultimate surface water receptor is considered likely to be freshwater, and therefore due the NEPM (2013) investigation levels for freshwater with a 95% level of species protection have been selected.

4.2 SOIL CRITERIA

To assess the presence and extent of soil contamination at a site, the NEPM (2013) provides health investigation levels (HILs) and health screening levels (HSLs) for the assessment of impacted soil.

HILs provide an assessment of potential risk to human health from chronic exposure to contaminants and have been developed based on land use setting for low density residential use (HIL A) to commercial/industrial use (HIL D).

HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via the vapour intrusion and inhalation pathway. The HSLs depend on predominant soil physicochemical properties and land use scenarios. The HSLs are divided into four generic land use settings which range from low density residential (HSL A) to commercial/industrial sites (HSL D). The HSLs methodology also further specifies subsurface profile, with criteria presented for sand, silt and clay soils at several depth intervals. The sub-surface profile comprises clay, the NEPM (2013) specifies that the most conservative category must be utilised where grain size has not been measured. Therefore, HSL D (commercial/industrial) and HSL A/B (residential) criteria in sand between 0 and >4 metres have been adopted.

The Cooperative Research Council for Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report No. 10 (Friebel and Nadebaum, 2011) provides HSLs for petroleum hydrocarbons specifically for direct contact of intrusive maintenance workers with contaminated media and for vapour inhalation in shallow trenches. The criteria for sand have been adopted as the most conservative option for the purposes of this investigation.

Ecological screening criteria have not been adopted for soil as there are no identified ecological receptors for soil on-site.

A summary of the relevant adopted soil assessment criteria is outlined below in Table 4.1.

Table 4.1 Adopted soil assessment criteria

ANALYTE	HSL D, CLAY ¹ (mg/kg) 0 - <1 m	HSL A/B, CLAY ² (mg/kg) 0 - <1 m	HIL D CLAY (mg/kg)	HIL A/B CLAY (mg/kg)	MAINTENANCE WORKERS ³ (mg/kg)	
					SAND 0 TO <2 m	DIRECT CONTACT
TRH C ₆ –C ₁₀ less BTEX (F1)	310	60	-	-	NL	26,000
TRH >C ₁₀ –C ₁₆ less naphthalene (F2)	NL	330	-	-	NL	20,000
TRH C ₁₆ –C ₃₄ (F3)	-	-	-	-	-	27,000
TRH C ₃₄ –C ₄₀ (F4)	-	-	-	-	-	38,000
Benzene	4	0.8	-	-	77	430
Toluene	NL	560	-	-	NL	99,000
Ethylbenzene	NL	NL	-	-	NL	27,000
Total xylenes	NL	130	-	-	NL	81,000
Naphthalene	NL	6	-	-	NL	11,000
Lead	-	-	1,500	300	-	-

(1) NEPM (2013) Schedule B1, Table 1A(3) *Soil HSLs for vapour intrusion*, commercial/industrial setting in Clay

(2) NEPM (2013) Schedule B1, Table 1A(3) *Soil HSLs for vapour intrusion*, residential setting in Clay

(3) CRC CARE (2011) Technical report No. 10 Tables A3 and A4

NL: Not limiting. A vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario.

Analytical results of soil samples collected from the borehole cuttings were also compared to the waste classification criteria provided in the NSW EPA *Waste Classification Guidelines* (2014). This was done to provide an indicative waste classification for appropriate waste disposal of excess soil cuttings.

The waste criteria include contaminant thresholds (CTs) for total concentrations of compounds in soil, as well as higher specific contaminant concentrations (SCCs) for total concentrations when leachability testing is also performed. The SCCs can only be used in combination with the results of toxicity characteristic leaching procedure (TCLP) results. To classify material as general solid waste, the total concentration for each compound must be less than the CT1 value or the SCC1 where the leachate result is also below the TCLP1 value. For restricted solid waste, the CT2 or SCC2 and TCLP2 criteria must be met. For the purposes of this investigation, TCLP was not conducted on soil cuttings samples submitted for waste classification analysis.

4.3 GROUNDWATER ASSESSMENT CRITERIA

Schedule B1 of the NEPM (2013) defines groundwater investigation levels (GILs) that have been developed for a broad range of metals and organic contaminants in groundwater. GILs are applicable for assessing human health and ecological risk from direct contact (including consumption) with groundwater. GILs are based on the following guidelines:

- Australian and New Zealand Conservation Council/Agriculture, and Resource Management Council of Australia and New Zealand 2000, *National water quality management strategy. Australian and New Zealand guidelines for fresh and marine water quality*. This guideline has been superseded by an online resource prepared by the Australian and New Zealand Governments (ANZG) in 2018.
- National Health and Medical Research Council (NHMRC)/National Resource Management Ministerial Council (NRMMC) 2011, *Australian Drinking Water Guidelines 6 (ADWG)* (Version 3.5, updated August 2018).
- NHMRC 2008, *Guidelines for Managing Risk in Recreational Waters*.

The GILs do not provide data for all BTEX compounds however, as the GILs are based on the ANZECC/ARMCANZ (2000) water quality guidelines, low reliability trigger values for fresh and marine waters from for BTEXN compounds can be considered.

Schedule B1 also provides a framework for assessing the human health risk from petroleum compounds and fractions via the inhalation and direct contact pathways through the development and implementation of HSLs. The adopted carbon fraction ranges for the HSLs are based on TRH analysis after subtraction of BTEX compounds and naphthalene. The HSLs are divided into three generic land use settings which range from low to high density residential (HSL A & B) to commercial/industrial sites (HSL D). The HSL methodology further specifies subsurface profile, with criteria presented for sand, silt and clay soils at several depth intervals. The NEPM (2013) HSLs provide an indicative risk to receptors from vapours that could emanate from contaminated groundwater. Considering the potential on- and off-site receptors identified in section 4.1, the sub-surface profile consisting primarily of clay and the measured depth to groundwater, HSL D (commercial/industrial) and HSL A/B (residential) criteria in clay greater than 8 metres have been adopted.

A review of previous investigations identified two registered groundwater abstraction bore within a 500 m radius of the site. However, it is noted that based on the depth of these wells it unlikely that potential contamination will impact these wells. Therefore, the NEPM (2013) GILs for drinking water have been excluded.

The threshold concentrations presented in ANZG (2018) 95% protection of species for freshwater guidelines have been utilised for the purposes of this investigation, as they are applicable for the protection of aquatic ecosystems of receiving water bodies and therefore can be applied to groundwater discharging to receiving waters.

A summary of the adopted groundwater assessment criteria is provided in Table 4.2.

Table 4.2 Adopted groundwater assessment criteria

ANALYTE	HSL D, CLAY (µg/L)	HSL A/B, CLAY (µg/L)	95% PROTECTION FRESHWATER ⁴ (µg/L)
	>8 m	>8 m	
TRH C ₆ –C ₁₀ less BTEX (F1)	NL	NL	-
TRH >C ₁₀ –C ₁₆ less naphthalene (F2)	NL	NL	-
TRH C ₁₀ –C ₄₀ (Sum)	-	-	-
Benzene	35,000	5,000	950
Toluene	NL	NL	180 ⁵

ANALYTE	HSL D, CLAY (µg/L)	HSL A/B, CLAY (µg/L)	95% PROTECTION FRESHWATER ⁴ (µg/L)
	>8 m	>8 m	
Ethylbenzene	NL	NL	80 ⁵
o-Xylene	-	-	350
m-, p-Xylene	-	-	200
Total xylene	NL	NL	-
Naphthalene	NL	NL	16
Lead	-	-	3.4

(1) NEPM (2013) Schedule B1, Table 1A(4) *Groundwater HSLs for vapour intrusion*, commercial/industrial setting in clay

(2) NEPM (2013) Schedule B1, Table 1A(4) *Groundwater HSLs for vapour intrusion*, residential setting in clay

(3) NEPM (2013) Schedule B1, Table 1C *Groundwater GILs for drinking water*

(4) ANZG (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Guidelines* - Freshwater Ecosystem (95% species protection)

NL: Non-limiting, maximum potential vapour concentration in soil vapour do not exceed maximum allowable vapour risk

Note: Where LNAPL is identified, HSL criteria is exceeded regardless of land use or lithology

5 RESULTS AND DISCUSSION

5.1 FIELD OBSERVATIONS AND SOIL CONDITION

A concrete hardstand forecourt was present at the site covering the area beneath the canopy and in front of the retail building. The remainder of the on-site and off-site area comprising the extent of this investigation was observed to be a hard-packed gravel surface. The sub-surface profile encountered during intrusive investigations at the site generally consisted of fill materials of gravelly sands to approximately 0.3 mBGL overlying natural soils generally comprising silty clays.

There were no olfactory evidence of hydrocarbon contamination observed during intrusive works. Volatile vapours were screened using a PID and showed readings ranging below 10 ppm. Borehole logs are provided in Appendix E.

5.2 SOIL ANALYTICAL RESULTS

A total of 51 primary soil samples were collected during drilling works. 26 of the primary samples (and two duplicate sample pair), comprising two soil samples per borehole were selected for analysis. The 26 selected soil samples were analysed for TRH, BTEXN, PAH and lead. Additionally, 13 samples of fill material were submitted for asbestos analysis.

Concentrations of all analytes were below the adopted site criteria. Additionally, the thirteen samples were submitted for asbestos analysis, with no asbestos detected in these samples. Concentrations of all analytes were below the adopted waste classification criteria for general solid waste (GSW).

Soil analytical results are presented in Table B1 and B2, Appendix CB and laboratory reports presented in Appendix G.

5.3 GROUNDWATER CONDITION

Groundwater conditions encountered at the site are presented in Tables B3, B4 and B5, Appendix B. The groundwater conditions at the site are summarised in Table 5.1.

Table 5.1 Summary of groundwater conditions

PARAMETER	RESULTS
Depth to groundwater	Limited groundwater was encountered in the existing monitoring wells with MW01 and MW04A being dry and the remaining existing groundwater wells containing minimal groundwater (less than 100mm). It is noted that MW03 and MW04 were not found. Standing water levels in the newly installed wells ranged between 19.045 mBTOC (MW05) and 19.325 mBTOC (MW03B).
LNAPL occurrence	LNAPL was not detected in any groundwater wells.
Groundwater elevation and flow direction	Groundwater elevation ranged between 198.268 Australian height datum (mAHD) (MW03B) and 198.288 mAHD (MW06) in the newly installed deeper wells. Previously groundwater flow was assumed to flow to the north, however groundwater was inferred to flow to the west based on groundwater elevations. It is noted that there was minimal variation in groundwater height between the wells during this GME and over the groundwater is relatively flat. The groundwater elevation plan is presented in Figure 4, Appendix A.

PARAMETER	RESULTS
Groundwater quality	The field parameters measured during the GME were as follows: — Electrical conductivity measurements ranged from 1,420 $\mu\text{S}/\text{cm}$ to 1,620 $\mu\text{S}/\text{cm}$. — Redox measurements ranged from 236.8 mV to 281.5 mV, indicating moderately reducing conditions. Redox potential values collected in the field using a silver chloride electrode have been corrected to standard hydrogen electrode values by adding 199 mV to each reading. — pH readings ranged from 6.04 to 6.61 indicating slightly acidic conditions. — Dissolved oxygen measurements ranged from 4.48 ppm to 7.76 mg/L indicating moderately oxygenated conditions. — Temperature measurements ranged from 18.5 $^{\circ}\text{C}$ to 18.78 $^{\circ}\text{C}$.

5.4 GROUNDWATER ANALYTICAL RESULTS

Limited detectable concentrations of hydrocarbon impacts were recorded in samples collected for all wells. However only concentrations of toluene detected in the groundwater sample collected from monitoring well MW03B exceeded the adopted site criteria for the relevant freshwater guideline. There were no detections for lead in the groundwater samples.

6 CONCEPTUAL SITE MODEL

For contamination in soil and groundwater at the site to pose a risk to identified receptors, a complete source-pathway-receptor exposure linkage is required. An analysis of potential sources, exposure pathways and receptors that could be exposed to the contamination at the site is presented in Table 6.1. Although risks to on-site workers and on-site maintenance workers in shallow trenches have been evaluated, these potential pathways are expected to be managed through occupational exposure controls in accordance with health and safety legislation.

6.1 SOURCE ZONES

No PID readings (less than 1 ppm) were reported during drilling and soil sample analysis did not report hydrocarbon impacts in soil in the newly installed on-site wells or additional boreholes above the adopted site criteria. The aquifer that was capable of producing water was encountered at a depth greater than 19 mBGL and water sample analysis identified an exceedance of the adopted criteria for 95% protection of species for freshwater guidelines.

6.2 EXPOSURE PATHWAYS

Exposure of human receptors to contamination can occur through dermal contact, ingestion or inhalation of volatile vapours. Exposure to surface water bodies can occur through discharge of impacted groundwater.

Based on the nature and distribution of hydrocarbon impacts identified during this investigation and site geology/hydrogeology, anticipated primary transport mechanisms for the migration of identified contaminants are:

- Historic seepage of hydrocarbon fuels because of product loss from the on-site petroleum storage and distribution infrastructure into the underlying soils – no impacted soil material was encountered during the drilling program.
 - Lateral and vertical migration of hydrocarbons through underlying soils into the groundwater – groundwater impacts were not identified in the aquifer sampled beyond 19 mBGL. No evidence of migration has been observed.
-

6.3 POTENTIAL RECEPTORS

Identified receptors include:

- commercial site workers on- and off-site
- maintenance and construction workers at the site and off-site
- users of groundwater abstracted for beneficial use
- aquatic ecosystems and recreational users of surface water bodies that receive discharge from groundwater.

6.4 POTENTIALLY COMPLETE EXPOSURE PATHWAYS

The potentially complete exposure pathways and associated risks are summarised in Table 6.1 below.

Table 6.1 Source-pathway-receptor linkages

Source	pathway	Receptor	Pathway complete? – risk evaluation
Soil – shallow soil impacted by surface spills and leaks of petroleum products from UPSS.	Intrusion of vapour into on-site retail building.	Workers at the site.	Low risk: soil impacts have not been detected in soil samples collected for lab analysis, while installing the new three wells or completed the additional soil bores.
	Intrusion of vapours through soil profile into services and excavations.	Intrusive maintenance workers (shallow trench).	Low risk: soil impacts have not been detected at the site.
Groundwater – groundwater encountered at site.	Intrusion of vapours into on-site retail building.	Workers and visitors at the site.	Low risk: groundwater was encountered at a depth exceeding 19 mBGL and concentrations below the adopted soil vapour criteria.
	Vapour migration from groundwater through soil profile into service trenches and excavations.	Intrusive maintenance workers (shallow trench).	Low risk: groundwater was encountered at a significant depth, i.e. greater than 19 mBGL.
	Intrusion of vapour into down-gradient off-site buildings through migration of contaminants in groundwater.	Residents to the north west of the site.	Low risk: groundwater was encountered at a depth exceeding 19 mBGL and concentrations below the adopted soil vapour criteria.
	Abstraction of impacted groundwater for beneficial use.	Users of groundwater abstraction bores.	Low risk: two groundwater abstraction bores are located within 500 m of the site. Both wells intersect aquifers at a depth greater than 90 mBGL. The depth of the extraction wells is too great to be affected by any possible hydrocarbon impacts.
	Migration of impacted groundwater to surface water receptor.	Nearby surface water receptors	Low risk: groundwater was encountered at a depth exceeding 19 mBGL and nearby surface water bodies (e.g. Goan Waterhole located 250 m to the north-east) are above the SWL, and thus are not considered to be surface water receptors. The nearest surface water receptor will be several kilometres away, and thus is unlikely to be affected by impacts associated with the site.

7 QUALITY ASSURANCE/QUALITY CONTROL

7.1 FIELD QA/QC

Field sampling procedures conformed to WSP's QA/QC protocols to prevent cross-contamination, preserve sample integrity and allow for collection of a suitable dataset from which to make technically sound decisions.

RPDs were calculated for the primary and duplicate samples for assessment of data quality, reproducibility/accuracy and precision of the analytical data measurements given the adopted field and laboratory methods. The RPDs were calculated using the formula below.

$$RPD\% = \frac{|R_o - R_d|}{|(R_o + R_d) / 2|} \times 100\%$$

where R_o is the primary sample and R_d is the duplicate.

7.1.1 SOIL QA/QC RESULTS

Two duplicate/triplicate soil sample pair (intra- and inter-laboratory) were collected as follows:

- QC1 (intra-laboratory) and QC1A (inter-laboratory) for primary sample DBH05_0.5; and
- QC2 (intra-laboratory) and QC2A (inter-laboratory) for primary sample MW03B_1.0.

Intra- and inter-laboratory duplicate pairs were analysed for the same analytes as their corresponding primary sample (TRH, BTEXN, PAHs and lead). The rate of duplicate sample collection is considered adequate to assess the variation in analyte concentration between samples collected from the same sampling point and the variability of results between laboratories.

The soil RPD values were compared to the 30% RPD acceptance criterion for soil outlined in NEPM (2013). RPDs were within the acceptable range for all detected analytes with the following exceptions:

- Lead for duplicate pair DBH05_0.5/QC2A of 40%;

Although soil RPD exceedances exist, the variability in detected concentrations of the identified analytes is expected and does not alter the outcome of the investigation. The integrity of the dataset is therefore considered appropriate for the purposes of this investigation. Soil RPD results are presented in Table C1, Appendix C.

One laboratory supplied trip blank (Soil_TB) accompanied the soil samples throughout sampling and was returned to the laboratory unopened. The trip blank showed no detection of volatile TRH and BTEXN compounds indicating that cross-contamination between samples during collection and transportation to the laboratory was unlikely to have occurred. Soil trip blank results are presented in Table D3, Appendix D.

7.1.2 GROUNDWATER QA/QC RESULTS

One duplicate/triplicate groundwater sample pair (intra- and inter-laboratory) was collected and analysed for TRH, BTEXN, PAH and lead; QCW1 (intra-laboratory) and QCW1A (inter-laboratory) for primary sample MW05.

No groundwater RPD limits are specified by the NEPM (2013) however, RPDs of less than 100% for volatile compounds and less than 30% for semi-volatile organic compounds are considered acceptable. RPDs were within acceptable limits for all analytes.

Groundwater RPD results are presented in Table C2, Appendix C.

A rinsate blank (QCRB) was collected and analysed for TRH, PAH, BTEXN and lead. All analytes were below detection limits indicating that the decontamination protocol was acceptable and did not impact the integrity of the assessment. Results for the rinsate blank sample are presented in Table C3, Appendix C.

7.1.3 FIELD QA/QC SUMMARY

The details of conformance to specific field QA/QC requirements is summarised in Table 7.1.

Table 7.1 Field data quality indicators

QA/QC REQUIREMENT	CONFORMED	COMMENTS
Fieldwork was undertaken by experienced field engineers and/or scientists	Yes	Qualified and experienced environmental scientists completed the fieldwork.
Standard field sampling sheets used	Yes	Details recorded included WSP staff present, time on- and off-site, weather conditions, reason for the field visit, and comments.
Samples delivered to laboratory within sample holding times and with correct preservative	Yes	None
All analyses NATA accredited	Yes	None
Required number of sample duplicates	Yes	Field intra-laboratory duplicates and inter-laboratory duplicates were analysed for all contaminants of concern at the rate of approximately 1 in 15 primary investigation samples.
Required blanks and trip spikes taken	Yes	Trip spikes are analysed to assess the potential for volatiles losses in transit. One trip spike accompanied the soil and groundwater sample batch during the investigation. Trip blanks are taken to confirm no cross-contamination occurs during sample transport. One trip blank accompanied each sample batch during this investigation.
Duplicates reported RPDs within limits set by AS4482.1	Partial	All soil and groundwater RPDs were within acceptable limits for the purposes of this investigation with few exceptions detailed in Section 7.1.

7.2 LABORATORY QA/QC

Each laboratory undertook internal QA/QC, including the analysis of laboratory control spikes, surrogate recoveries, laboratory duplicates and method blanks. The quality control compliance provided by both laboratories indicated that no method blank, duplicate, laboratory control, surrogate recovery outliers exist. Some holding time outliers were indicated however was expected due to the remote location of the site and is not considered to compromise the integrity of the dataset or alter the outcome of the investigation.

Laboratory certificates including internal quality control reports are provided in Appendix G.

7.2.1 LABORATORY QA/QC SUMMARY

The details of conformance to specific laboratory QA/QC requirements are summarised in Table 7.2.

Table 7.2 Laboratory data quality indicators

QUALITY ASSURANCE	CONFORMED	COMMENT
Laboratory holding times	Yes	None
Laboratory duplicates	Yes	All internal laboratory duplicates returned acceptable RPDs.
Laboratory control samples	Yes	Control sample analysis results conformed to the laboratory criteria.
Surrogates	Yes	Surrogate samples analysis results conformed to the laboratory limits.
Matrix spikes	Yes	All matrix spike data conformed to recovery limits.

7.3 DATA QUALITY STATEMENT

WSP considers that the sample collection, documentation, handling, storage and transportation procedures utilised are of an acceptable standard and that the analytical results provided by the laboratories (ALS and Eurofins) are deemed reliable and complete based on:

- NATA certification;
- the results of field and laboratory QA/QC samples demonstrated levels of precision and accuracy with sufficient repeatability and completeness in accordance with specified RPDs; and
- primary samples were analysed for a range of contaminants with all testing undertaken within recommended holding times.

It is therefore considered that the data is sufficiently precise and accurate for the purposes of this ESA.

8 CONCLUSION

Ampol commissioned WSP to undertake an ESA at Ampol Trangie service station (site ID: 20820) located at 76 Narromine Street, Trangie, NSW. The primary objective for the ESA was to attempt to intersect groundwater and, if encountered, to assess the nature and extent of potential hydrocarbon impact in groundwater. A secondary objective is to assess the soil contamination status of the site.

The scope of works included:

- installation of three new groundwater monitoring wells (MW03B, MW05 and MW06) to a depth of 21 mBGL;
- drilling of ten boreholes across the site to a depth of either 1.5 metres below ground level (mBGL) (five bores) or 3.0 mBGL (five bores) around the underground petroleum storage system (UPSS);
- soil sampling and analysis of two samples per borehole and groundwater well location for polycyclic aromatic hydrocarbons (PAH), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN) and lead;
- soil sampling and analysis of one sample per borehole and groundwater well for asbestos;
- gauging of all on-site groundwater wells;
- sampling of newly installed wells using a no-purge technique for TRH, BTEXN, PAH and lead; and
- interpretation of results and preparation of this ESA report.

During the intrusive works no evidence of impacted soil was observed, with laboratory analysis confirming no exceedances of the adopted site criteria for soil.

Groundwater was encountered at depths between 19.045 mBTOC (MW05) and 19.325 mBTOC (MW03B) during the GME on 20 September 2021. Groundwater flow was inferred to flow to the west based on groundwater elevations. Analytical results of the groundwater were below the adopted site criteria with the exception of an exceedance of toluene for the adopted freshwater ecosystem criteria. However, we note that groundwater was encountered at a depth exceeding 19 mBGL and the nearby surface water bodies (e.g. Goan Waterhole located 250 m to the north-east) are situated above the SWL, and thus are not considered to be surface water receptors. The nearest receiving water body will be several kilometres away, and thus it is considered that no complete exposure pathway to a freshwater ecosystem exists.

No active exposure pathways have been identified, and therefore risks to human health and the environment under the current scenario are not considered significant. Based on the available information the contamination status in soil and groundwater at the site does not preclude its continued use as a service station.

9 LIMITATIONS

- 1 This Report has been prepared by WSP Australia Pty Limited (“WSP”) for the benefit of Ampol Limited (“Ampol”), the registered proprietor or tenant of the site requested to be investigated by WSP (“Site”) under its agreement with Ampol dated 31 March 2018 (“Agreement”).
- 2 The nature and extent of the environmental consulting and remediation works at the Site detailed in the Report reflects the scope of the Services set out in the Request for Proposal under the Agreement and the Scope of Works set out in Schedule 4 Templates, Item 1 – Scope of the Agreement.
- 3 A potential purchaser (but not including a purchaser’s successor in title) of the Site may rely on the findings contained in the Report for the purpose of considering the possible (but not actual) level of contamination of or at that Site at the time of the contamination assessment of the Site was undertaken (“Permitted Purpose”).
- 4 The registered proprietor of the land to which the report relates at the time of writing the report (but not including any proprietor’s successor in title) may rely on the findings contained in the Report for the purpose of assessing the possible level of contamination of that Site (“Permitted Purpose”) and subject to the limitations set out in Schedule 4 Templates, Item 1 – Scope of the Agreement.
- 5 The findings contained in the Report are subject to the qualifications, assumptions and limitations set out in the Report or otherwise communicated to, or by, Ampol. To the extent of any inconsistency between this Limitation Statement and the qualifications, assumptions and limitations in the Report, this Limitation Statement shall prevail.
- 6 The Report may contain information provided by others. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of this information. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the Report (“Conclusions”) are based in whole or in part on this information, those Conclusions are contingent upon the accuracy and completeness of that information. WSP accepts no responsibility for the reliability, accuracy, completeness or adequacy of information provided by others.
- 7 WSP has prepared the Report without regard to any special or particular interest of any person (including that of a potential purchaser), other than Ampol when undertaking the Services or setting out its findings in the Report.
- 8 The Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose and does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise in relation to the Site (“Investment Decision”).
- 9 Matters material to a potential purchaser, may have been omitted from the Report, or may not have been investigated because of the scope of the Services. It follows that a potential purchaser should be cognisant of the restrictions inherent in or otherwise set out in the Report and should commission the preparation of a contamination assessment of the Site that caters for its own interests and scope of services, and which will provide findings in relation to the level of contamination of or at the Site at the time the potential purchaser is making an Investment Decision.
- 10 The Report has not and will not be updated for events occurring after the date of the Report or any other matter which may have a material effect on its contents which come to light after the date of the Report. WSP will not be obliged to inform a potential purchaser of any matter arising or coming to its attention after the date of the Report, which may affect or qualify the Report.
- 11 WSP is not liable to a potential purchaser in respect of errors or omissions in the Report which a potential purchaser knows of, or ought to be aware of, from:
 - a its own actual knowledge and inquiries
 - b inquiries made by its advisers; or
 - c matters which a potential purchaser should have been aware of by making reasonable inquiry (including the inquiries recommended at Item 9 above).

- 12 To the fullest extent permitted at law, WSP, its related bodies corporate, its officers, employees and agents assume no liability and will not be liable to any potential purchaser for, or in relation to, any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of income or profit, revenue or loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, business interruption and pure economic loss) of any kind (and whether arising in contract, tort (including negligence), under statute, in equity or otherwise, suffered or incurred by a potential purchaser (or any other third party) arising out of or in connection with any matter outside the ambit of the Permitted Purpose in relation to the Report or findings expressed in the Report.

REFERENCES

- AECOM (AECOM 2011, Groundwater Monitoring Well Report – Caltex Trangie (20820)
- Australian Government Bureau of Meteorology (BOM), *Australian Groundwater Explorer* (<http://www.bom.gov.au/water/groundwater/explorer/map.shtml>) conducted on 30 November 2020.
- Australian Government Commonwealth Scientific and Industrial Research Organisation, *Australian Soil Resource Information System* (<http://www.asris.csiro.au/mapping/viewer.htm>), accessed 30 November 2020.
- Australian and New Zealand Conservation Council/Agriculture, and Resource Management Council of Australia and New Zealand 2000, *National water quality management strategy. Australian and New Zealand guidelines for fresh and marine water quality.*
- National Health and Medical Research Council (NHMRC)/National Resource Management Ministerial Council (NRMCC) 2011, *Australian Drinking Water Guidelines 6 (ADWG)* (Version 3.5, updated August 2018).
- NHMRC 2008, *Guidelines for Managing Risk in Recreational Waters.*
- National Environment Protection Council (NEPC), 2013, *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013* (No. 1).
- New South Wales (NSW) Department of Environment, Climate Change and Water 2008, *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation.*
- NSW Environment Protection Authority (EPA) 1994, *Guidelines for Assessing Service Station Sites.*
- NSW EPA 2020, *Guidelines for Consultants Reporting on Contaminated Sites.*
- NSW EPA 2019, *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation* under the Protection of the Environment Operations Act 1997.
- WSP (2018), Trangie Service Station (Site ID: 20820) Environmental Site Assessment, August 2017 (WSP Ref: PS102587-CLM-REP-001 RevB)

APPENDIX A

FIGURES



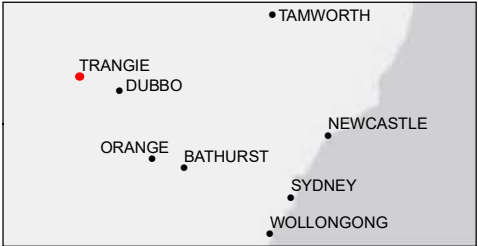


Trarie (20820)
76 Narromine Street, Trarie, NSW

Figure 1
Regional site location plan

Legend

 Site boundary



0 0.1 0.2
km



Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

1:4,000

Date: 21/10/2021

Data sources: NSWSS

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No.	Product	Capacity
DEPOT 1	E10	4.5 kL
DEPOT 2	E10	4.5 kL
DEPOT 3	PULP	10.5 kL
DEPOT 4	DIESEL	4.5 kL
DEPOT 5	DIESEL AST	59.5 kL

Trangie (20820)
76 Narromine Street, Trangie, NSW

Figure 2
Site layout plan and monitoring locations

Legend

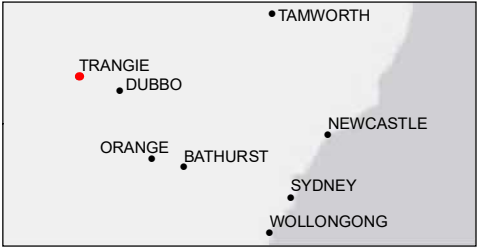
Site boundary

Existing monitoring well

Newly installed monitoring well

Bowser

Tank



00.010.02km

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

1:500Date: 22/10/2021

Data sources: NSWSS

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No.	Product	Capacity
DEPOT 1	E10	4.5 kL
DEPOT 2	E10	4.5 kL
DEPOT 3	PULP	10.5 kL
DEPOT 4	DIESEL	4.5 kL
DEPOT 5	DIESEL AST	59.5 kL

Trangie (20820)
76 Narromine Street, Trangie, NSW

Figure 3
Sample locations

Legend

Site boundary

Existing monitoring well

Newly installed monitoring well

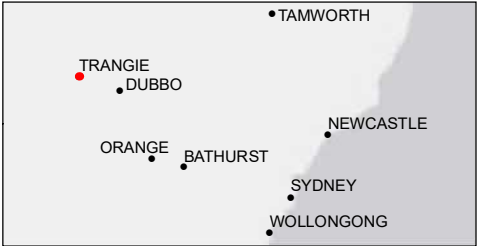
Sample location

Shallow borehole

Deep borehole

Bowser

Tank



Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

1:500

Date: 22/10/2021

Data sources: NSWSS

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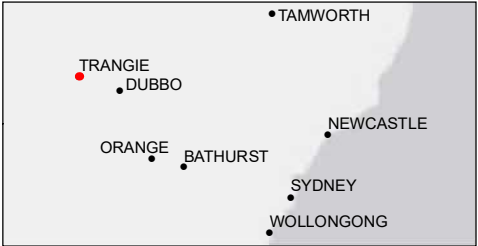


No.	Product	Capacity
DEPOT 1	E10	4.5 kL
DEPOT 2	E10	4.5 kL
DEPOT 3	PULP	10.5 kL
DEPOT 4	DIESEL	4.5 kL
DEPOT 5	DIESEL AST	59.5 kL

Trangie (20820)
76 Narromine Street, Trangie, NSW

Figure 4
Groundwater elevation

- Legend
- Site boundary
 - Existing monitoring well
 - Newly installed monitoring well
 - Inferred groundwater flow direction
 - Groundwater contours (mAHd)
 - Bowser
 - Tank



0 0.01 0.02 km

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

1:500 Date: 22/10/2021

Data sources: NSWSS

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APPENDIX B

ANALYTICAL RESULTS



Table B1 - Soil Analytical results
Ampol Trangle

Ampol Trangle
PS126485

				TRH							BTEXN				PAH		Metals	Asbestos
				TPH C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	Benzene	Toluene	Ethylbenzene	Xylene Total	Benzo(a) Pyrene	PAHs (Sum of total)	Lead	
				mg/kg	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
EQL				10	10	50	50	100	50	100	0.1	0.1	0.1	0.3	0.5	0.5	5	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay >=0m, <1m					260 ^{#1}		NL ^{#2}				3	NL ^{#1}	NL ^{#1}	230				
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay >=0m, <1m					45 ^{#1}		110 ^{#3}				0.5	160	55	40				
HIL Res A/ B Soil																		
HIL Comm/Ind D Soil																		
CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)					26,000	20,000		27,000		38,000	430	99,000	27,000	81,000				
CRC Care 2011 Table B3 Intrusive Workers (Shallow Trench) 0 to <2m - SAND											77							
Borehole	Sample ID	Date	Depth															
SBH01	SBH01_0.0	20/09/2021	0	<20	<20	<50	<50	170	170	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<5	No
	SBH01_0.5	20/09/2021	0.5	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	96	-
	SBH02_0.0	20/09/2021	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No
SBH02	SBH02_0.5	20/09/2021	0.5	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	14	-
	SBH02_1.0	22/09/2021	1	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	14	-
	SBH03_0.0	20/09/2021	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No
SBH03	SBH03_0.5	20/09/2021	0.5	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	8.7	-
	SBH03_1.5	22/09/2021	1.5	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	9.1	-
	SBH04_0.15	20/09/2021	0.15	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	30	No
SBH04	SBH04_1.5	22/09/2021	1.5	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
	SBH05_0.1	20/09/2021	0.1	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	No
	SBH05_1.0	21/09/2021	1	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-
DBH01	DBH01_0.0	22/09/2021	0	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<5	No
	DBH01_2.0	22/09/2021	2	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
	DBH02_0.0	22/09/2021	0	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	5.0	No
DBH02	DBH02_0.5	22/09/2021	0.5	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	20	-
	DBH03_0.0	22/09/2021	0	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	33	No
	DBH03_2.0	22/09/2021	2	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	18	-
DBH04	DBH04_0.0	22/09/2021	0	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	7.2	No
	DBH04_1.0	22/09/2021	1	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
	DBH05_0.0	22/09/2021	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No
DBH05	DBH05_0.5	20/09/2021	0.5	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-
	DBH05_2.0	20/09/2021	2	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-
	MW03B_0.1	21/09/2021	0.1	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	7.2	No
MW03B	MW03B_1.0	21/09/2021	1	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-
	MW05_0.05	20/09/2021	0.05	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	16	No
	MW05_3.0	20/09/2021	3	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
MW05	MW06_0.0	20/09/2021	0	<20	<20	<50	<50	100	100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<5	No
	MW06_9.0	20/09/2021	9	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	8.3	-

Comments

#1 Derived soil HSL exceeds soil saturation concentration

Environmental Standards

CRC Care, CRC Care 2011 Table 4 HSL-D Commercial / Industrial (Direct Contact)

	TRH							TPH		BTEXN				PAH		Lead	Asbestos
	TPH C6 - C10 Fraction mg/kg	C6 - C10 Fraction minus BTEX (F1) mg/kg	C10 - C16 Fraction µg/L	TRH >C10-C16 less Naphthalene (F2) mg/kg	C16 - C34 Fraction µg/L	C10 - C40 Fraction (Sum) mg/kg	C34 - C40 Fraction µg/L	C6 - C9 Fraction mg/kg	+C10 - C36 (Sum of total) mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Xylene Total mg/kg	Benzo(a) pyrene mg/kg	PAHs (Sum of total) mg/kg		
EQL	10	10	50	50	100	50	100	10	50	0.1	0.1	0.1	0.3	0.5	0.5	5	
NSW 2014 General Solid Waste CT1 (No Leaching)								650	10,000	10	288	600	1,000	0.8	200	100	
NSW 2014 Restricted Solid Waste CT2 (No Leaching)								2,600	40,000	40	1,152	2,400	4,000	3.2	800	400	

Field ID	Date																	
DBH01_0.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<5	0.0000
DBH01_2.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
DBH01_3.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DBH02_0.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	5.0	0.0000
DBH02_0.5		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	20	-
DBH02_2.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DBH03_0.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	33	0.0000
DBH03_2.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	18	-
DBH03_3.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DBH04_0.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	7.2	0.0000
DBH04_1.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
DBH05_0.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000
DBH05_0.5		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-
DBH05_2.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-
MW03B_0.1		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	7.2	0.0000
MW03B_1.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-
MW05_0.05		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	16	0.0000
MW05_3.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
MW06_0.0		<20	<20	<50	<50	100	100	<100	<20	110	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<5	0.0000
MW06_9.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	8.3	-
SBH01_0.0		<20	<20	<50	<50	170	170	<100	<20	170	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<5	0.0000
SBH01_0.5		<20	<20	<50	<50	<100	<100	<100	<20	85	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	96	-
SBH02_0.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000
SBH02_0.5		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	14	-
SBH02_1.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	14	-
SBH03_0.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000
SBH03_0.5		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	8.7	-
SBH03_1.5		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	9.1	-
SBH04_0.15		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	30	0.0000
SBH04_1.5		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	-
SBH05_0.1		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	13	0.0000
SBH05_1.0		<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	-

Well ID	Date gauged	T.O.C. Elevation (mAHD)	Well depth (mBTC)	Screened section (m)	Depth to water (mBTC)	Depth to LNAPL (mBTC)	LNAPL Thickness m	Corrected groundwater elevation (mAHD)	Comments/ observations
MW01	20-Sep-21	217.532	12.92	10.2 - 13.2	DRY				Dry
MW01A	20-Sep-21	217.517	17.84	11.75 - 18.0	17.655	-	-	199.862	Insufficient water to sample
MW02	20-Sep-21	217.580	11.91	9.0 - 12.0	11.850	-	-	205.730	Insufficient water to sample
MW02A	20-Sep-21	217.609	18.18	12.0 - 18.0	18.110	-	-	199.499	Insufficient water to sample
MW03	20-Sep-21	217.592	-	9.1 - 12.1	Couldn't locate well				
MW03A	20-Sep-21	217.581	17.95	15.0 - 18.0	18.085	-	-	199.496	Insufficient water to sample
MW03B	27-Sep-21	217.593	20.51	15.0 - 21.0	19.325	-	-	198.268	No odour, clear
MW04	20-Sep-21	217.701	-	9.0 - 12.0	Couldn't locate well				
MW04A	20-Sep-21	217.750	18.06	12.0 - 18.0	DRY				Dry
MW05	27-Sep-21	217.323	21.00	15.0 - 21.0	19.045	-	-	198.278	No odour, clear
MW06	27-Sep-21	217.558	20.98	15.0 - 21.0	19.270	-	-	198.288	No odour, clear

Notes

Abbreviations: T.O.C. - top of casing; mAHD - metres Australian Height Datum; mBTC - metres below top of casing; LNAPL - light non-aqueous phase liquid; ND - not detected



Table B4 - Water quality parameters
Ampol Trangie

PS126485

Well ID	Date purged	pH	Electrical conductivity ($\mu\text{S}/\text{cm}$)	Redox potential (mV)	Corrected Redox potential ¹ (mV)	Dissolved oxygen (mg/L)	Temperature (°C)
MW03B	27-Sep-21	6.95	1,420	37.8	236.8	4.48	18.5
MW05	27-Sep-21	6.80	1,620	82.5	281.5	7.76	18.7
MW06	27-Sep-21	6.97	1,475	64.0	263.0	4.91	18.8

Notes:

1. In the field, the Redox potential are measured with reference to Ag/AgCl electrode. The results are corrected to standard hydrocarbon electrode (SHE) by adding 199 mV.

Table B5 - Groundwater Analytical results
Ampol Trangie

		TRH							BTEXN				PAH		Metals
		TPH C6- C10 Fraction	C6- C10 Fraction minus BTEX (F1)	C10- C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16- C34 Fraction	C10- C40 Fraction (Sum)	C34- C40 Fraction	Benzene	Toluene	Ethylbenzene	Xylene Total	Benzo(a) pyrene	PAHs (Sum of total)	Lead (filtered)
EQL		20	20	50	50	100	100	100	1	1	1	2	0.5	0.5	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs									950 ^{F1}	180 ^{F2}	80 ^{F2}		0.2 ^{F3}		3.4 ^{F1}
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion Clay >=8m			NL		NL				35,000	NL	NL	NL			
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion Clay >=8m			NL		NL				5,000	NL	NL	NL			
Field ID	Date														
MW03B		2,600	1,500	210	210	<100	210	<100	260	190	46	600	<1	3	<1
MW05		30	30	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1
MW06		100	90	<50	<50	<100	<100	<100	6	<1	<1	<1	<1	<1	<1

Comments

#1 Moderate reliability

#2 Unknown reliability. Recommended for application for slightly to moderately disturbed ecosystems.

#3 Unknown reliability

#4 To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#5 To obtain F2 subtract naphthalene from the >C10 - C16 fraction.

#6 Values calculated using hardness of 30 mg/L CaCO3. Refer ANZECC & ARMCANZ (2000) for site specific hardness guidance

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs

Table B6 - Historical Groundwater Gauging Data
Ampol Trangie

PS126485

Well ID	Date	Depth to water (mBTC)	Depth to LNAPL	LNAPL thickness (m)
MW01	10-Jun-09	Dry	-	-
	14-May-13	12.991	-	-
	01-Nov-13	12.983	-	-
	18-May-14	12.983	-	-
	20-Mar-15	Dry	-	-
	05-Apr-16	Dry	-	-
	05-Sep-16	Dry	-	-
	11-Sep-17	Dry	-	-
	20-Sep-21	Dry	-	-
MW01A	11-Sep-17	17.698	-	-
	20-Sep-21	17.655	-	-
MW02	10-Jun-09	11.836	-	-
	18-Aug-11	11.85	-	-
	10-Nov-12	11.056	-	-
	20-Mar-15	11.835	-	-
	01-Oct-15	11.852	-	-
	05-Apr-16	Dry	-	-
	05-Sep-16	10.137	-	-
	11-Sep-17	11.858	-	-
	20-Sep-21	11.85	-	-
MW02A	11-Sep-17	17.990	-	-
	20-Sep-21	18.110	-	-
MW03	10-Jun-09	Dry	-	-
	20-Mar-15	Dry	-	-
	01-Oct-15	Dry	-	-
	05-Apr-16	Dry	-	-
	05-Sep-16	11.974	-	-
	11-Sep-17	11.983	-	-
MW03A	11-Sep-17	Dry	-	-
	20-Sep-21	17.950	-	-
MW03B	27-Sep-21	19.325	-	-
MW04	10-Jun-09	11.835	-	-
	20-Mar-15	Dry	-	-
	01-Oct-15	Dry	-	-
	05-Apr-16	Dry	-	-
	05-Sep-16	11.786	-	-
	11-Sep-17	11.809	-	-
MW04A	11-Sep-17	Dry	-	-
	20-Sep-21	Dry	-	-
MW05	27-Sep-21	19.045	-	-
MW06	27-Sep-21	19.270	-	-

Notes:

Concentrations expressed in µg/L

APPENDIX C

QA/QA



				TRH							TPH		BTEXN				PAH		Metals	Monocyclic Aromatic Hydrocarbo
				TPH C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F)	C10 - C16 Fraction	TPH <C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	C6 - C9 Fraction	C10 - C38 (Sum of total)	Benzene	Toluene	Ethylbenzene	Xylene Total	benzo(a) pyrene	PAHs (Sum of total)	Lead	Naphthalene (MAH)
EQL				mg/kg	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				10	10	50	50	100	50	100	10	50	0.1	0.1	0.1	0.3	0.5	0.5	5	0.5
Lab Report Number	Field ID	Date	Matrix Type																	
827790	DBH05_0.5		Soil	<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	<0.5
	QC2		Soil	<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	9.3	<0.5
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0
827790	DBH05_0.5		Soil	<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	<0.5
ES2135762	QC2A	28/09/2021	Soil	<10	<10	<50	<50	<100	<50	<100	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	8	-
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	-
827790	MW03B_1.0		Soil	<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	<0.5
	QC1		Soil	<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	14	<0.5
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0
827790	MW03B_1.0		Soil	<20	<20	<50	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	12	<0.5
ES2135762	QC1A	28/09/2021	Soil	<10	<10	<50	<50	<100	<50	<100	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	11	-
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	-

*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); 50 (10 - 20 x EQL); 30 (> 20 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

Table C2 - Groundwater Relative Percent Difference

EQL	TRH							TPH		BTEXN				PAH		Metals	Monocyclic Aromatic Hydrocarbo
	TPH C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH x C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	C6 - C9 Fraction	C10 - C36 (Sum of total)	Benzene	Toluene	Ethylbenzene	Xylene Total	Benzo(a) pyrene	PAHs (Sum of total)	Lead (filtered)	Naphthalene (MAH)
	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	20	20	50	50	100	100	100	20	50	1	1	1	2	0.5	0.5	1	10
Lab Report Number	Field ID	Date	Matrix Type														
827790	MW05		Water	30	30	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<10
	QC1W		Water	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<10
RPD				40	40	0	0	0	0	0	0	0	0	0	0	0	0
827790	MW05		Water	30	30	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<10
ES2135762	QC1WA	28/09/2021	Water	<20	<20	<100	<100	<100	<100	<20	<50	<1	<2	<2	<0.5	<0.5	-
RPD				40	40	0	0	0	0	40	0	0	0	0	0	0	-

*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); 50 (10 - 20 x EQL); 30 (> 20 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

	TPH C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	TRH			TPH C6 - C9 Fraction	BTEXN				PAHs (Sum of total)	Metals Lead
			TPH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction		Benzene	Toluene	Ethylbenzene	Xylene Total		
	mg/kg	mg/kg	mg/kg	µg/L	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQ	10	10	50	100	100	10	0.1	0.1	0.1	0.3	0.5	5

Field ID	Date											
QCRB	20/09/2021	-	<20	<20	<50	<50	<100	<100	<100	-	<20	<100
TRIP BLANK	20/09/2021	<20	<20	-	-	-	<20	<0.1	<0.1	<0.1	<0.3	-

	TPH C6 - C10 Fraction	C6 - C9 Fraction	Benzene	Toluene	Ethylbenzene	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQ	10	10	0.1	0.1	0.1	0.3

Field ID	Date						
TRIP SPIKE	20/09/2021	880,000	870,000	770,000	860,000	920,000	910,000

APPENDIX D

SURVEY DATA





APPENDIX E

BORELOGS





BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

DBH01

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

DBH02

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
											VS FB VL _L MD ST D VST H		
					0.10	0	ES		FILL Sandy GRAVEL; grey, fine to medium grained gravel and sand, dry. Silty Gravelly SAND; fine to medium grained sand, pale brown, moist.				DBH02_0.0
				0.5	0.40	0	ES		Silty CLAY; medium plasticity, red and brown, moist, trace of fine grained sand.				DBH02_0.5
				1.0	-1	0	ES						DBH02_1.0
				1.5									
				2.0	-2	0	ES						DBH02_2.0
				2.5									
				3.0	3.00	-3	0	ES	END OF BOREHOLE AT 3.00 m				DBH02_3.0
				3.5									
				4.0	-4								
				4.5									

This borehole log should be read in conjunction with WSP's accompanying standard notes.

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

DBH03

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

DBH04

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description																									
	2	3	4		5	6	7	8	10			11	12		13																	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION		RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY		STRUCTURE AND ADDITIONAL OBSERVATIONS																	
												VS	FB	VL	LD	VS	FB	VL	LD	VS	FB	VL	LD	VS	FB	VL	LD	VS	FB	VL	LD	
						0	0	ES		Gravelly SAND; fine to medium grained sand and gravels, pale brown, moist.																						DBH04_0.0
					0.15					Silty CLAY; medium plasticity, red and brown, moist.																						
					0.5		0	ES																								DBH04_0.5
					1.0	-1	0	ES																								DBH04_1.0
					1.5																											
					2.0	-2	0	ES																								DBH04_2.0
					2.5																											
					3.0	-3	0	ES		END OF BOREHOLE AT 3.00 m																						DBH04_3.0
					3.5																											
					4.0	-4																										
					4.5																											
This borehole log should be read in conjunction with WSP's accompanying standard notes.																																

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

DBH05

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
					0		ES		FILL Sandy GRAVEL; grey, fine to medium grained gravel and sand, dry. Silty CLAY; medium plasticity, red and brown, moist, trace of fine grained sand.				DBH05_0.0
				0.20									
				0.5	0		ES						DBH05_0.5, QC02, QC02A
				1.0	-1	0	ES						DBH05_1.0
				1.5									
				2.0	-2	0	ES						DBH05_2.0
				2.5									
				3.0	-3	0	ES		END OF BOREHOLE AT 3.00 m				DBH05_3.0
				3.5									
				4.0	-4								
				4.5									

This borehole log should be read in conjunction with WSP's accompanying standard notes.

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

MW03B

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/21/21**
Date Completed: **9/21/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller: **Stratacore**
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
											VS FB VL ND VS SL ST SH		
HA									Asphalt				MW03B_0.1
	SFA			0.5	0.20	0	ES		FILL: Silty Gravelly SAND; fine to meidum sand, pale brown, moist.				MW03B_0.5
				1.0	0.80	0	ES		Sandy CLAY; brown, low to medium plasticity, fine to medium grained sand, moist.				MW03B_1.0
				1.5									QC1, QC1A
				2.0	1.80	0	ES		Silty CLAY; medium plasticity, red and brown, trace fine grained sand, moist.		W		MW03B_2.0
				2.5					CLAY; medium plasticity, brown, moist, trace fine grained gravel, rounded.				
				3.0	-3								
				3.5	-4								
				4.0	-4								
				4.5	-5								
				5.0	-5								
				5.5	-6								
				6.0	-6								
				6.5	-7								
				7.0	-7								
				7.5	-8								
				8.0	-8								
				8.5	-9								
				9.0	-9								
				9.5	-10								
				10.0	-10								
				10.5	-11								
				11.0	-11								
				11.5	-12	0	ES		Gravelly CLAY; medium plasticity, brown, moist, fine grained gravels.				MW03B_12.0
				12.0	12.00								
				12.5									
				13.0	-13								
				13.5	13.50				CLAY; medium plasticity, brown and pale brown, moist.				
				14.0	-14								
				14.5	-15								
				15.0	-15								
				15.5	-16								
				16.0	-16								
				16.5	-17								
				17.0	-17								
				17.5	-18								
				18.0	-18								
				18.5	-19				With medium to coarse grained gravels, rounded.				
				19.0	-19								
				19.5	19.50				Clayey SAND; fine to coarse grained, with medium plasticity clay, brown, wet				
				20.0	-20								
				20.5									
				21.0	-21								
				21.5	21.50				END OF BOREHOLE AT 21.50 m				
				22.0	-22								
				22.5									
				23.0	-23								
				23.5									
				24.0	-24								
				24.5									

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

MW05

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/20/21**
Date Completed: **9/20/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller: **Stratacore** Surface RL:
Driller Lic No: Co-ords:

Borehole Information							Field Material Description						
	2	3	4	5	6	7	8	9	10		11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA			Gratic and top cap Grout Bentonite	0.30	0	0	ES		FILL				MW05_0.0
				0.5	0	0	ES		Gravelly CLAY; friable, brown and pale, fine to medium angular gravels, trace sand.				MW05_0.5
				1.0	0	0							
				1.5	0	0	ES		Sandy CLAY; low plasticity, brown, trace fine grained sand, moist.				MW05_1.5
SFA				2.0	-2								
				2.5	-2								
				3.0	-3	0	ES		Silty CLAY; low to medium plasticity, red and brown, moist, trace sand. Becoming brown.				MW05_3.0
				3.5	-3								
				4.0	-4								
				4.5	-4				Becoming pale brown, trace fine to medium gravels.				
				5.0	-5								
				5.5	-5								
				6.0	-6								
				6.5	-6								
				7.0	-7								
				7.5	-7								
				8.0	-8								
				8.5	-8								
				9.0	-9								
				9.5	-9								
				10.0	-10	0	ES		Gravelly CLAY; medium plasticity, brown and pale brown, trace fine to medium grained gravels, dry.				MW05_10.0
				10.5	-10								
				1.0	-11				CLAY; medium plasticity, brown, moist, trace fine grained sand.				
				1.5	-11								
				2.0	-12								
				2.5	-12								
				3.0	-13								
				3.5	-13								
				4.0	-14								
				4.5	-14								
				5.0	-15								
				5.5	-15								
				6.0	-16								
				6.5	-16								
				7.0	-17								
				7.5	-17								
				8.0	-18								
				8.5	-18								
				9.0	-19	19.00	19		Gravelly CLAY; medium plasticity, brown, trace fine to coarse grained gravels (rounded riverstone), moist.				
				9.5	-19								
				20.0	-20	20.00	20		Clayey SAND; medium to coarse grained sand, brown, with medium plasticity clay, moist.				
				20.5	-20								
				21.0	-21	21.00	21		END OF BOREHOLE AT 21.00 m				
				21.5	-21								
				22.0	-22								
				22.5	-22								
				23.0	-23								
				23.5	-23								
				24.0	-24								
				24.5	-24								

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

MW06

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/20/21**
Date Completed: **9/20/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller: **Stratacore**
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description						
	2	3	4	5	6	7	8	9	10		11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA			Gallic and top cap Grout Bentonite	0.10	0	0	ES		FILL				MW06_0.01
				0.5	0	0	ES		Sandy GRAVEL; fine to medium gravels, grey, fine to medium sand, dry.				MW06_0.5
				1.0	-1	0	ES		Sandy CLAY; low plasticity, brown, with fine grained sand.				MW06_1.0
				1.5	0	0	ES		Silty CLAY; low to medium plasticity, red and brown, moist, trace sand. Becoming brown.				MW06_1.5
SFA				2.0	-2								
				2.5	-2								
				3.0	-3	0	ES						MW06_3.0
				3.5	-4								
				4.0	-4								
				4.5	-5								
				5.0	-5								
				5.5	-6								
				6.0	-6								
				6.5	-7								
				7.0	-7								
				7.5	-8								
				8.0	-8				Trace fine grained gravels.				
				8.5	-9	0	ES						MW06_9.0
				9.0	-9								
				9.5	-10								
				10.0	-10								
				10.5	-11								
				11.0	-11								
				11.5	-12								
				12.0	-12								
				12.5	-13								
				13.0	-13								
				13.5	-14								
				14.0	-14								
				14.5	-15				Becoming pale brown.				
				15.0	-15								
				15.5	-16								
				16.0	-16								
				16.5	-17								
				17.0	-17								
				17.5	-18								
				18.0	-18								
				18.5	-19								
				19.0	-19				GRAVEL; fine to coarse grained, brown, rounded, moist and wet, with clay.				
				19.5	-20								
				20.0	-20								
				20.5	-21				Clayey SAND; fine to coarse grained, brown, wet.				
				21.0	-21								
				21.5	-22								
				22.0	-22								
				22.5	-23								
				23.0	-23				END OF BOREHOLE AT 23.00 m				
				23.5	-24								
				24.0	-24								
				24.5	-24								

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SBH01

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller: **Stratacore**
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
											VS FB VL JL SL ST SH	LD ND SD TD HT	
HA					0	0	ES		FILL Sandy GRAVEL; fine to medium grained gravels, brown, with fine to coarse grained sand, dry.				SBH01_0.0
				0.5	0.50	0	ES		Sandy CLAY; low to medium plasticity, brown, fine to medium grained sand.				SBH01_0.5
				0.80					Silty CLAY; medium plasticity, red and brown, moist, trace sand.				SBH01_1.0
				1.0	-1	0	ES						
				1.5	1.50	0	ES		END OF BOREHOLE AT 1.50 m				SBH01_1.5

This borehole log should be read in conjunction with WSP's accompanying standard notes.

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SBH02

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller: **Stratacore**
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	2	3	4		5	6	7	8	10			11	12		13																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
METHOD	SUPPORT	WATER	WELL CONSTRUCTION		RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY		STRUCTURE AND ADDITIONAL OBSERVATIONS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
													VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD	VS	FB	VL	MD



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SBH03

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description									
	2	3	4		5	6	7	8	10			11	12		13	
METHOD	SUPPORT	WATER	WELL CONSTRUCTION		RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY		STRUCTURE AND ADDITIONAL OBSERVATIONS	
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS
												VS	FB	VL	LD	VS

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SBH04

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description																						
	2	3	4		5	6	7	8	10			11	12		13														
METHOD	SUPPORT	WATER	WELL CONSTRUCTION		RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY		STRUCTURE AND ADDITIONAL OBSERVATIONS														
												VS	FB	VL	JD	ST	MD	VS	TD	VS	TD	VS	TD	VS	TD	VS	TD	VS	TD
								ES		Concrete surface																			
						0.15	0			FILL Sandy CLAY; brown, medium plasticity, fine grained sand, moist.																			
						0.40				Silty CLAY; medium plasticity, red and brown, moist.																			
						0.5	0	ES																					
						1.0	-1	0	ES																				
						1.5	1.50	0	ES																				
										END OF BOREHOLE AT 1.50 m																			
This borehole log should be read in conjunction with WSP's accompanying standard notes.																													

This borehole log should be read in conjunction with WSP's accompanying standard notes.



BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SBH05

SHEET 1 OF 1

Client: **Ampol Australia**
Project: **Environmental Site Assessment**
Borehole Location: **76 Narromine St, Trangie NSW 2823**
Project Number: **PS126485**

Date Commenced: **9/22/21**
Date Completed: **9/22/21**
Recorded By: **JK**
Log Checked By: **JK**

Drill Model/Mounting:
Borehole Diameter:

Driller:
Driller Lic No:

Surface RL:
Co-ords:

Borehole Information							Field Material Description																			
	2	3	4		5	6	7	8	10			11	12		13											
METHOD	SUPPORT	WATER	WELL CONSTRUCTION		RL(m)	DEPTH(m)	Field PID (ppm)	SAMPLE	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	MOISTURE	RELATIVE DENSITY /CONSISTENCY		STRUCTURE AND ADDITIONAL OBSERVATIONS											
													VS	FB	VL	MD	ST	VD	VS	FB	VL	MD	ST	VD		
						0.05		ES		Asphalt																
							0			FILL Sandy CLAY; brown, medium plasticity, fine grained sand, moist.																
						0.5	0.50	0	ES	Silty CLAY; medium plasticity, red and brown, moist.																
						1.0	-1	0	ES																	
						1.5	1.50	0	ES	END OF BOREHOLE AT 1.50 m																
This borehole log should be read in conjunction with WSP's accompanying standard notes.																										

APPENDIX F

CALIBRATION DOCUMENTS



PID Calibration Certificate

Instrument **PhoCheck Tiger**
 Serial No. **T-105759**



Air-Met Scientific Pty Ltd
 1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6eV			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm	N/A	N/A
Software	Version	✓				
Data logger	Operation					
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		93ppm Isobutylene	NATA	SY361		92.9 ppm

Calibrated by: Gary Needs

Calibration date: **15/09/2021**

Next calibration due: **14/03/2022**

Multi Parameter Water Meter



Air-Met Scientific Pty Ltd
1300 137 067

Instrument **YSI Quatro Pro Plus**
Serial No. **18J104328**

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor		Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		370064	pH 9.73
2. pH 7.00		pH 7.00		364212	pH 7.11
3. pH 4.00		pH 4.00		367234	pH 4.13
4. ORP		234.1mV		370499/364219	234mV
5. EC		2.76mS		350510	2.75mS
6. D.O		0.00ppm		10959	0.01ppm
7. Temp		20.4°C		MultiTherm	19.9°C

Calibrated by:

Gary Needs

Calibration date:

15/09/2021

Next calibration due:

15/10/2021

APPENDIX G

LABORATORY CERTIFICATES



WSP Australia P/L Newcastle
PO Box 1162
Newcastle
NSW 2300



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: James Johnson

Report 827790-S
Project name TRANGIE AMPOL
Project ID PS126485
Received Date Sep 28, 2021

Client Sample ID			MW03B_0.1	MW03B_1.0	MW05_0.05	MW05_3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55132	N21-Se55133	N21-Se55134	N21-Se55135
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	149	106	87	126
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			MW03B_0.1	MW03B_1.0	MW05_0.05	MW05_3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55132	N21-Se55133	N21-Se55134	N21-Se55135
Date Sampled			Not Provided¹²	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	67	96	91	84
p-Terphenyl-d14 (surr.)	1	%	53	104	68	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Lead	5	mg/kg	7.2	12	16	13
% Moisture	1	%	12	18	18	12

Client Sample ID			MW06_0.0	MW06_9.0	SBH01_0.0	SBH01_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55136	N21-Se55137	N21-Se55138	N21-Se55139
Date Sampled			Not Provided¹²	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	110	< 50	170	85
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	110	< 50	170	85
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	96	118	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			MW06_0.0	MW06_9.0	SBH01_0.0	SBH01_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55136	N21-Se55137	N21-Se55138	N21-Se55139
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	77	57	69	53
p-Terphenyl-d14 (surr.)	1	%	64	66	91	56
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	100	< 100	170	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	100	< 100	170	< 100
Heavy Metals						
Lead	5	mg/kg	< 5	8.3	< 5	96
% Moisture	1	%	7.3	18	4.5	11

Client Sample ID			SBH02_0.5	SBH02_1.0	SBH03_0.5	SBH03_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55141	N21-Se55142	N21-Se55144	N21-Se55145
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	99	62	98	85

Client Sample ID			SBH02_0.5	SBH02_1.0	SBH03_0.5	SBH03_1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55141	N21-Se55142	N21-Se55144	N21-Se55145
Date Sampled			Not Provided¹²	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	101	69	52	55
p-Terphenyl-d14 (surr.)	1	%	101	92	75	54
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Lead	5	mg/kg	14	14	8.7	9.1
% Moisture	1	%	14	17	7.3	7.1

Client Sample ID			SBH04_0.15	SBH04_1.5	SBH05_0.1	SBH05_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55146	N21-Se55147	N21-Se55148	N21-Se55149
Date Sampled			Not Provided¹²	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50

Client Sample ID			SBH04_0.15	SBH04_1.5	SBH05_0.1	SBH05_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55146	N21-Se55147	N21-Se55148	N21-Se55149
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	105	102	102	98
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	64	59	110	76
p-Terphenyl-d14 (surr.)	1	%	107	78	148	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Lead	5	mg/kg	30	13	13	12
% Moisture	1	%	12	22	18	8.7

Client Sample ID			DBH01_0.0	DBH01_2.0	DBH01_3.0	DBH02_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55150	N21-Se55151	N21-Se55152	N21-Se55153
Date Sampled			Not Provided ¹¹²	Not Provided ¹¹²	Not Provided ¹¹²	Not Provided ¹¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	-	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	-	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	103	98	-	114
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	61	65	-	58
p-Terphenyl-d14 (surr.)	1	%	123	99	-	129
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	-	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	< 100
Heavy Metals						
Iron	20	mg/kg	-	-	23000	-
Lead	5	mg/kg	< 5	13	-	5.0

Client Sample ID			DBH01_0.0	DBH01_2.0	DBH01_3.0	DBH02_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55150	N21-Se55151	N21-Se55152	N21-Se55153
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
% Moisture	1	%	4.2	32	28	7.9
% Clay	1	%	-	-	24	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	75	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	-	-	7.7	-
Total Organic Carbon	0.1	%	-	-	0.5	-
Heavy Metals						
Iron (%)	0.01	%	-	-	2.3	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	-	17	-

Client Sample ID			DBH02_0.5	DBH02_2.0	DBH03_0.0	DBH03_2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55154	N21-Se55155	N21-Se55156	N21-Se55157
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	-	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	53	-	88	103
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			DBH02_0.5	DBH02_2.0	DBH03_0.0	DBH03_2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55154	N21-Se55155	N21-Se55156	N21-Se55157
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	86	-	54	68
p-Terphenyl-d14 (surr.)	1	%	101	-	70	75
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	-	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	< 100
Heavy Metals						
Iron	20	mg/kg	-	18000	-	-
Lead	5	mg/kg	20	-	33	18
% Moisture	1	%	16	16	12	21
% Clay	1	%	-	23	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	46	-	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	-	6.8	-	-
Total Organic Carbon	0.1	%	-	0.3	-	-
Heavy Metals						
Iron (%)	0.01	%	-	1.8	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	14	-	-

Client Sample ID			DBH03_3.0	DBH04_0.0	DBH04_1.0	DBH05_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55158	N21-Se55159	N21-Se55160	N21-Se55162
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	-	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	103	92	93

Client Sample ID			DBH03_3.0	DBH04_0.0	DBH04_1.0	DBH05_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55158	N21-Se55159	N21-Se55160	N21-Se55162
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	-	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	61	77	62
p-Terphenyl-d14 (surr.)	1	%	-	58	81	81
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	< 100
Heavy Metals						
Iron	20	mg/kg	26000	-	-	-
Lead	5	mg/kg	-	7.2	13	12
% Moisture	1	%	21	5.0	18	13
% Clay	1	%	13	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	150	-	-	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	7.4	-	-	-
Total Organic Carbon	0.1	%	0.3	-	-	-
Heavy Metals						
Iron (%)	0.01	%	2.6	-	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	17	-	-	-

Client Sample ID			DBH05_2.0 Soil N21-Se55163 Not Provided ¹²	QC2 Soil N21-Se55164 Not Provided ¹²	QC1 Soil N21-Se55165 Not Provided ¹²	TRIP BLANK Soil N21-Se55166 Not Provided ¹²
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	100	54	97	81
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	137	80	70	-
p-Terphenyl-d14 (surr.)	1	%	113	84	75	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	-
Heavy Metals						
Lead	5	mg/kg	12	9.3	14	-

Client Sample ID			DBH05_2.0	QC2	QC1	TRIP BLANK
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N21-Se55163	N21-Se55164	N21-Se55165	N21-Se55166
Date Sampled			Not Provided¹²	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
% Moisture	1	%	12	14	15	-
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
Total Recoverable Hydrocarbons						
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20

Client Sample ID			TRIP SPIKE
Sample Matrix			Soil
Eurofins Sample No.			N21-Se55167
Date Sampled			Not Provided¹²
Test/Reference	LOR	Unit	
TRH C6-C10	1	%	88
Total Recoverable Hydrocarbons			
Naphthalene	1	%	97
TRH C6-C9	1	%	87
BTEX			
Benzene	1	%	77
Ethylbenzene	1	%	92
m&p-Xylenes	1	%	92
o-Xylene	1	%	91
Toluene	1	%	86
Xylenes - Total	1	%	91
4-Bromofluorobenzene (surr.)	1	%	129

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 07, 2021	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 07, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 07, 2021	14 Days
Total Recoverable Hydrocarbons - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 01, 2021	14 Days
Eurofins Suite B4			
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Oct 07, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 07, 2021	14 Days
NEPM Screen for Soil Classification			
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Oct 07, 2021	28 Days
% Clay - Method: LTM-GEN-7040	Brisbane	Oct 11, 2021	14 Days
Conductivity (1:5 aqueous extract at 25°C as rec.) - Method: LTM-INO-4030 Conductivity	Sydney	Oct 06, 2021	7 Days
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.) - Method: LTM-GEN-7090 pH in soil by ISE	Sydney	Oct 06, 2021	7 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Oct 11, 2021	28 Days
Cation Exchange Capacity - Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage	Melbourne	Oct 11, 2021	180 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Sep 28, 2021	14 Days

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Iron	mg/kg	< 20			20	Pass	
Lead	mg/kg	< 5			5	Pass	
Method Blank							
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons							
TRH C6-C10	mg/kg	< 20			20	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	95			70-130	Pass	
TRH C10-C14	%	93			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	109			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
o-Xylene	%	98			70-130	Pass	
Xylenes - Total*	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	112			70-130	Pass	
TRH C6-C10	%	91			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	83			70-130	Pass	
Acenaphthylene	%	89			70-130	Pass	
Anthracene	%	85			70-130	Pass	
Benz(a)anthracene	%	81			70-130	Pass	
Benzo(a)pyrene	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	%	79			70-130	Pass	
Benzo(g,h,i)perylene	%	76			70-130	Pass	
Benzo(k)fluoranthene	%	110			70-130	Pass	
Chrysene	%	91			70-130	Pass	
Dibenz(a,h)anthracene	%	88			70-130	Pass	
Fluoranthene	%	96			70-130	Pass	
Fluorene	%	85			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	73			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	83			70-130	Pass	
Pyrene	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	89			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Iron	%	101			80-120	Pass	
Lead	%	99			80-120	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25°C as rec.)	%	101			70-130	Pass	
Total Organic Carbon	%	99			70-130	Pass	
Naphthalene	%	110			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C10	%	107			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S21-Oc02586	NCP	%	100			70-130	Pass	
TRH C10-C14	S21-Oc00971	NCP	%	76			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-Oc02586	NCP	%	114			70-130	Pass	
Toluene	S21-Oc02586	NCP	%	102			70-130	Pass	
Ethylbenzene	S21-Oc02586	NCP	%	101			70-130	Pass	
m&p-Xylenes	S21-Oc02586	NCP	%	103			70-130	Pass	
o-Xylene	S21-Oc02586	NCP	%	102			70-130	Pass	
Xylenes - Total*	S21-Oc02586	NCP	%	103			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S21-Oc02586	NCP	%	107			70-130	Pass	
TRH C6-C10	S21-Oc02586	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S21-Se51870	NCP	%	99			70-130	Pass	
Acenaphthylene	S21-Se51870	NCP	%	105			70-130	Pass	
Anthracene	S21-Se51870	NCP	%	107			70-130	Pass	
Benz(a)anthracene	S21-Se51870	NCP	%	94			70-130	Pass	
Benzo(a)pyrene	S21-Se51870	NCP	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	S21-Se51870	NCP	%	79			70-130	Pass	
Benzo(g,h,i)perylene	S21-Se51870	NCP	%	98			70-130	Pass	
Benzo(k)fluoranthene	S21-Se51870	NCP	%	95			70-130	Pass	
Chrysene	S21-Se51870	NCP	%	105			70-130	Pass	
Dibenz(a,h)anthracene	S21-Se51870	NCP	%	96			70-130	Pass	
Fluoranthene	S21-Se51870	NCP	%	93			70-130	Pass	
Fluorene	S21-Se51870	NCP	%	104			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S21-Se51870	NCP	%	96			70-130	Pass	
Naphthalene	S21-Se51870	NCP	%	103			70-130	Pass	
Phenanthrene	S21-Se51870	NCP	%	109			70-130	Pass	
Pyrene	S21-Se51870	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S21-Oc00971	NCP	%	75			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	N21-Se55147	CP	%	99			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	N21-Se55132	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	N21-Se55132	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	N21-Se55132	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Benzo(g,h,i)perylene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	N21-Se55132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	N21-Se55132	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	N21-Se55132	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	N21-Se55132	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Lead	N21-Se55132	CP	mg/kg	7.2	12	47	30%	Fail Q15
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N21-Se55132	CP	%	12	11	13	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	N21-Se55146	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	N21-Se55146	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	N21-Se55146	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	N21-Se55146	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	N21-Se55146	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	N21-Se55146	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	N21-Se55146	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	N21-Se55146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	N21-Se55146	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N21-Se55146	CP	%	12	11	11	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Iron	N21-Se55152	CP	mg/kg	23000	19000	19	30%	Pass
Lead	N21-Se55152	CP	mg/kg	14	14	1.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Conductivity (1:5 aqueous extract at 25°C as rec.)	S21-Oc03234	NCP	uS/cm	20	22	11	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Iron (%)	N21-Se55152	CP	%	2.3	1.9	19	30%	Pass
Duplicate								
Cation Exchange Capacity				Result 1	Result 2	RPD		
Cation Exchange Capacity	B21-Oc10211	NCP	meq/100g	14	13	7.0	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
Total Organic Carbon	N21-Se55155	CP	%	0.3	0.2	14	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N21-Se55156	CP	%	12	13	5.0	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	N21-Se55159	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	N21-Se55159	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	N21-Se55159	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	N21-Se55159	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	N21-Se55159	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	N21-Se55159	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	N21-Se55159	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	N21-Se55159	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	N21-Se55159	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Lead	N21-Se55159	CP	mg/kg	7.2	8.3	14	30%	Pass

WSP Australia P/L Newcastle
PO Box 1162
Newcastle
NSW 2300



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: James Johnson

Report 827790-W
Project name TRANGIE AMPOL
Project ID PS126485
Received Date Sep 28, 2021

Client Sample ID			MW03B Water N21-Se55127 Not Provided ¹²	MW05 Water N21-Se55128 Not Provided ¹²	MW06 Water N21-Se55129 Not Provided ¹²	QC1W Water N21-Se55130 Not Provided ¹²
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	1.9	0.03	0.09	< 0.02
TRH C10-C14	0.05	mg/L	0.37	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.37	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	0.26	< 0.001	0.006	< 0.001
Toluene	0.001	mg/L	0.19	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	0.046	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.46	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.14	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	0.60	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	103	107	115	98
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.21	< 0.05	< 0.05	< 0.05
TRH C6-C10	0.02	mg/L	2.6	0.03	0.10	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	1.5	0.03	0.09	< 0.02
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW03B	MW05	MW06	QC1W
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			N21-Se55127	N21-Se55128	N21-Se55129	N21-Se55130
Date Sampled			Not Provided¹²	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	0.003	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	84	62	79	54
p-Terphenyl-d14 (surr.)	1	%	91	89	74	57
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.21	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.21	< 0.1	< 0.1	< 0.1
Heavy Metals						
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			QCRB
Sample Matrix			Water
Eurofins Sample No.			N21-Se55131
Date Sampled			Not Provided¹²
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.01	mg/L	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001

Client Sample ID			QCRB
Sample Matrix			Water
Eurofins Sample No.			N21-Se55131
Date Sampled			Not Provided¹²
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	50
p-Terphenyl-d14 (surr.)	1	%	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Heavy Metals			
Lead (filtered)	0.001	mg/L	< 0.001

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 01, 2021	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 30, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 30, 2021	7 Days
Eurofins Suite B4			
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Oct 01, 2021	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 01, 2021	7 Days
Heavy Metals (filtered) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Sep 30, 2021	180 Days

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	107			70-130	Pass	
TRH C10-C14	%	122			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	92			70-130	Pass	
Toluene	%	106			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene				%	109			70-130	Pass	
m&p-Xylenes				%	111			70-130	Pass	
o-Xylene				%	110			70-130	Pass	
Xylenes - Total*				%	111			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene				%	110			70-130	Pass	
TRH C6-C10				%	108			70-130	Pass	
LCS - % Recovery										
Polycyclic Aromatic Hydrocarbons										
Acenaphthene				%	102			70-130	Pass	
Acenaphthylene				%	107			70-130	Pass	
Anthracene				%	120			70-130	Pass	
Benz(a)anthracene				%	93			70-130	Pass	
Benzo(a)pyrene				%	80			70-130	Pass	
Benzo(b&j)fluoranthene				%	80			70-130	Pass	
Benzo(g,h,i)perylene				%	93			70-130	Pass	
Benzo(k)fluoranthene				%	89			70-130	Pass	
Chrysene				%	102			70-130	Pass	
Dibenz(a,h)anthracene				%	93			70-130	Pass	
Fluoranthene				%	97			70-130	Pass	
Fluorene				%	113			70-130	Pass	
Indeno(1,2,3-cd)pyrene				%	91			70-130	Pass	
Naphthalene				%	103			70-130	Pass	
Phenanthrene				%	125			70-130	Pass	
Pyrene				%	99			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16				%	120			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Lead (filtered)				%	98			80-120	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	S21-Oc01307	NCP		%	78			70-130	Pass	
TRH C10-C14	S21-Se53200	NCP		%	106			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	S21-Oc01307	NCP		%	87			70-130	Pass	
Toluene	S21-Oc01307	NCP		%	93			70-130	Pass	
Ethylbenzene	S21-Oc01307	NCP		%	92			70-130	Pass	
m&p-Xylenes	S21-Oc01307	NCP		%	95			70-130	Pass	
o-Xylene	S21-Oc01307	NCP		%	96			70-130	Pass	
Xylenes - Total*	S21-Oc01307	NCP		%	96			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
Naphthalene	S21-Oc01307	NCP		%	97			70-130	Pass	
TRH C6-C10	S21-Oc01307	NCP		%	78			70-130	Pass	
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Acenaphthene	N21-Se52171	NCP		%	90			70-130	Pass	
Acenaphthylene	N21-Se52171	NCP		%	99			70-130	Pass	
Anthracene	N21-Se52171	NCP		%	112			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	N21-Se52171	NCP	%	88			70-130	Pass	
Benzo(a)pyrene	N21-Se52171	NCP	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	N21-Se52171	NCP	%	73			70-130	Pass	
Benzo(g,h,i)perylene	N21-Se52171	NCP	%	93			70-130	Pass	
Benzo(k)fluoranthene	N21-Se52171	NCP	%	91			70-130	Pass	
Chrysene	N21-Se52171	NCP	%	102			70-130	Pass	
Dibenz(a,h)anthracene	N21-Se52171	NCP	%	92			70-130	Pass	
Fluoranthene	N21-Se52171	NCP	%	96			70-130	Pass	
Fluorene	N21-Se52171	NCP	%	107			70-130	Pass	
Indeno(1,2,3-cd)pyrene	N21-Se52171	NCP	%	88			70-130	Pass	
Naphthalene	N21-Se52171	NCP	%	82			70-130	Pass	
Phenanthrene	N21-Se52171	NCP	%	119			70-130	Pass	
Pyrene	N21-Se52171	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S21-Se53200	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Lead (filtered)	N21-Se55131	CP	%	90			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S21-Oc01317	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	N21-Se55127	CP	mg/L	0.37	0.38	2.0	30%	Pass	
TRH C15-C28	N21-Se55127	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	N21-Se55127	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Oc01317	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S21-Oc01317	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S21-Oc01317	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S21-Oc01317	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S21-Oc01317	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S21-Oc01317	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S21-Oc01317	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S21-Oc01317	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g,h,i)perylene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a,h)anthracene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	N21-Se55127	CP	mg/L	0.002	0.002	8.0	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Phenanthrene	N21-Se55127	CP	mg/L	0.001	< 0.001	23	30%	Pass
Pyrene	N21-Se55127	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	N21-Se55127	CP	mg/L	0.21	0.23	7.0	30%	Pass
TRH >C16-C34	N21-Se55127	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	N21-Se55127	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Lead (filtered)	S21-Oc00048	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	N21-Se55130	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	N21-Se55130	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	N21-Se55130	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	N21-Se55130	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	N21-Se55130	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	N21-Se55130	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	N21-Se55130	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
I12	Where sampling date has not been provided, Eurofins Environment Testing is not able to determine whether analysis has been performed within recommended holding times.
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Emma Beesley	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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WSP Australia P/L Newcastle
PO Box 1162
Newcastle
NSW 2300



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: James Johnson
Report 827790-AID
Project Name **TRANGIE AMPOL**
Project ID **PS126485**
Received Date Sep 28, 2021
Date Reported Oct 12, 2021

Methodology:

Asbestos Fibre
 Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.

NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Unknown Mineral
 Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.

Subsampling Soil
 Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.

NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.

Bonded asbestos-
 containing material
 (ACM)

The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).

The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).

NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Project Name TRANGIE AMPOL
Project ID PS126485
Date Sampled
Report 827790-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
MW03B_0.1	21-Se55132	not provided	Approximate Sample 321g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
MW05_0.05	21-Se55134	not provided	Approximate Sample 576g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
MW06_0.0	21-Se55136	not provided	Approximate Sample 258g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SBH01_0.0	21-Se55138	not provided	Approximate Sample 51g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SBH02_0.0	21-Se55140	not provided	Approximate Sample 421g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SBH03_0.0	21-Se55143	not provided	Approximate Sample 358g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SBH04_0.15	21-Se55146	not provided	Approximate Sample 161g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SBH05_0.1	21-Se55148	not provided	Approximate Sample 77g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
DBH01_0.0	21-Se55150	not provided	Approximate Sample 212g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
DBH02_0.0	21-Se55153	not provided	Approximate Sample 167g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
DBH03_0.0	21-Se55156	not provided	Approximate Sample 202g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
DBH04_0.0	21-Se55159	not provided	Approximate Sample 276g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
DBH05_0.0	21-Se55161	not provided	Approximate Sample 292g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Sep 28, 2021	Indefinite

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w)
F/field	Airborne fibre filter loading as Fibres (N) per Fields counted (n)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C)
g, kg	Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (V = r x t)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r)
min	Time (t), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration:
$$C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$$

Asbestos Content (as asbestos):
$$\% w/w = \frac{(m \times P_A)}{M}$$

Weighted Average (of asbestos):
$$\%_{WA} = \frac{\sum (m \times P_A) \times x}{x}$$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 <i>Appendix 2</i> , else assumed to be 15% in accordance with WA DOH <i>Appendix 2 (PA)</i> .
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (% w/w).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, <i>Asbestos: The Analysts Guide</i> , 2nd Edition (2021).
HSG264	UK HSE HSG264, <i>Asbestos: The Survey Guide</i> (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (K) as derived from the effective filter area of the given AFM membrane used for collecting the sample (A) and the projected eyepiece graticule area of the specific microscope used for the analysis (a).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, <i>Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres</i> , 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, <i>Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia</i> (updated 2021), including Appendix Four: <i>Laboratory analysis</i>
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (% _{WA}).

Comments

Se55138: The sample received was not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-sample to be analysed accurately represented the sample received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Chamath JHM Annakkage Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu Senior Analyst-Asbestos (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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1 of 8

CHAIN OF CUSTODY RECORD

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Company	WSP			Project No	PS123954			Project Manager	James Johnson			Sampler(s)	J. Kirk		
Address				Project Name	Trangie Ampol			EDD Format	ESdsk, EQUS etc			Handed over by	J. Kirk		
Contact Name	Josh Kirk			Where metals are requested, please specify "Total" or "Filtered". SUIE code must be used to attach SUIE pricing.	TRA, BITE, PAH, Lead						Email for Invoice	James.Johnson@WSP.com			
Phone No	0402028319										Email for Results	11			
Special Directions															
Purchase Order															
Quote ID No	210825WSPN			Analyses				Change container type & size if necessary				Required Turnaround Time (TAT) Default will be 5 days if not ticked.			
No	Client Sample ID	Sampled Date/Time dd/mm/yyyy hh:mm	Matrix Solid (S) Water (W)						Containers Jar (Glass or HDPE) 500mL PFAS Bottle 40mL VOA vial 200mL Amber Glass 125mL Plastic 500mL Plastic				*Surcharge will apply ☐ Overnight (reporting by 8am) ♦ ☐ Same day ♦ ☐ 1 day ♦ ☐ 2 days ♦ ☐ 3 days ♦ ☒ 5 days (Standard) ☐ Other ()		
1	MW03B		W												
2	MW05														
3	MW06														
4	QL1W														
5	QL1WA														
6	QLRB														
7	MW03B-0.1		S												
8	0.5		I												
9	1.0		I												
10	2.0		I												
Total Counts															
Method of Shipment				☐ Counter (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date		Time		
Laboratory Use Only				Received By	SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature		
				Received By	SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Report No		

Send to ALS

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Eurofins Environment Testing Australia Pty Ltd

3 of 8

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 60 005 085 521

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☐ Melbourne Laboratory
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03 8564 5000 EnviroSampleVIC@eurofins.com

Company	wsp			Project No	PS123957			Project Manager				Sampler(s)										
Address				Project Name				EDD Format				Handed over by										
Contact Name	Josh Kirk			Analyses Where metals are requested, please specify "Total" or "Filtered". SULTE code must be used to attach SULTE pricing.	TRIA, BTEXN, PAH, lead, Asbestos			Jar (Glass or HDPE) 500mL PFAS Bottle 40mL VOA vial 200mL Amber Glass 125mL Plastic 250mL Plastic 500mL Plastic			Containers Change container type & size if necessary			Required Turnaround Time (TAT) Default will be 5 days if not listed. Overnight (reporting by 9am) ♦ Same day ♦ 1 day ♦ 2 days ♦ 3 days ♦ 5 days (Standard) Other ()								
Phone No																						
Special Directions																						
Purchase Order																						
Quote ID No																						
No	Client Sample ID			Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Total Counts																
1	MW06-3.0				S																	
2	1-40																					
3	SB01-0.0																					
4	0.5																					
5	1.0																					
6	1.5																					
7	SB02-0.0																					
8	0.5																					
9	1.0																					
10	1.5																					
Method of Shipment				☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name			Signature			Date									
Laboratory Use Only				Received By	SYD BNE MEL PER ADL NTL DRW			Signature			Date											
				Received By	SYD BNE MEL PER ADL NTL DRW			Signature			Date											
											Report No											

Eurofins Environment Testing Australia Pty Ltd
03300 F10 Modified: Dr R Syme Approved by G. Jozsef Approved on 8 August 2019
Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

827790

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 008 085 521



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Melbourne Laboratory

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Company	WSP			Project No	PS1234567			Project Manager				Sampler(s)			
Address				Project Name				EDD Format	ES&I, EQUIS etc			Handed over by			
Contact Name	Josh Kirk			Analyses Where metals are requested, please specify "Total" or "Filtered". SUITC codes must be used to detect SUITE pricing.	TRH, BITEXN, PAH, lead, Asbestos			Containers Change container type & size if necessary.			Required Turnaround Time (TAT) Default will be 5 days if not ticked. *Subcharge will apply Overnight (reporting by 9am) ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days ☐ 5 days (Standard) ☐ Other () ☐				
Phone No															
Special Directions															
Purchase Order				Matrix	Solid (S)	Water (W)				Jars (Glass or HDPE)			Other (Asbestos AS4564, WA Guidelines)		
Quote ID No				Client Sample ID	Sampled Date/Time	dd/mm/yyyy hh:mm				500mL Plastic			250mL Plastic		
No										200mL Amber Glass			40mL VOA vial		
1	SBH03-0.0									500mL PFAS Bottle					
2	1-0.5														
3	1-1.0														
4	1-1.5														
5	SBH04-0.15														
6	1-0.5														
7	1-1.0														
8	1-1.5														
9	SBH05-0.1														
10	1-0.5														
Total Counts															
Method of Shipment				☐ Courier (#)			☐ Hand Delivered			Signature			Date		
Laboratory Use Only				Received By			Signature			Date			Time		
				Received By			Signature			Date			Time		
										Report No			827790		

Eurofins Environment Testing Australia Pty Ltd

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CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 055 085 521

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03 8564 5000 EnviroSampleVIC@eurofins.com

Company		wsp		Project No	15123955		Project Manager			Sampler(s)		
Address				Project Name			EDD Format			Handed over by		
Contact Name		Josh Kira		Where metals are requested, please specify "Total" or "Filtered". Analyses 7RH, BTEXN, PAH, lead Asbestos NEM soil classification Suite								
Phone No												
Special Directions												
Purchase Order												
Quote ID No												
No	Client Sample ID	Sampled Date/Time	Matrix									
1	SBH05-1.0		Solid (S)									
2	1-1.5		Water (W)									
3	DBH01-0.0											
4	0.5											
5	1.0											
6	2.0											
7	3.0											
8	BBH02-0.0											
9	1-0.5											
10	1.0											
Total Counts												
Method of Shipment				☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name	Signature	Date	Date	Time	Report No
Laboratory Use Only				Received By	Received By	Signature	Signature	Date	Date	Time	Temperature	827790

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Company	wsp	Project No	PS123955	Project Manager	EDD Format ES&at, EQUIS etc	Sampler(s)	Handed over by	Email for Invoice	Email for Results	Required Turnaround Time (TAT) Default will be 5 days if not ticked.	Sample Comments / Dangerous Goods Hazard Warning																																																																				
Address		Project Name		Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to select SUITE pricing.	Analyses	Matrix Solid (S) Water (W)	Sampled Date/Time dd/mm/yy hh:mm	Client Sample ID	No	Containers Change container type & size if necessary.	Other (Asbestos AS4934, WA Guidelines)	Jar (Glass or HDPE)	500mL PFAS Bottle	40mL VOA vial	200mL Amber Glass	125mL Plastic	250mL Plastic	500mL Plastic	Required Turnaround Time (TAT) Default will be 5 days if not ticked.	Sample Comments / Dangerous Goods Hazard Warning																																																											
Contact Name	Josh Kirk																																																																														
Phone No																																																																															
Special Directions																																																																															
Purchase Order																																																																															
Quote ID No																																																																															
No																																																																															
1	DBH04-2.0																																																																														
2	↓ 3.0																																																																														
3	DBH05-0.0																																																																														
4	↓ 0.5																																																																														
5	↓ 1.0																																																																														
6	↓ 2.0																																																																														
7	↓ 3.0																																																																														
8	QC2																																																																														
9	QC2A																																																																														
10	QC1																																																																														
Total Counts										Signature										Date										Time																																																	
Method of Shipment										Courier (#)										Hand Delivered										Postal										Name										Signature										Date										Time									
Laboratory Use Only										Received By										Received By										Signature										Signature										Date										Date																			

8 of 8

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 065 521

☐ Sydney Laboratory
Unit F3 Bld-16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 121 Smallwood Place Murrumbidgee QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2/91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Montery Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVIC@eurofins.com

Company	WSP			Project No	P5123459			Project Manager	James Johnson			Sampler(s)	J. Kirk																				
Address				Project Name	Trangie Ampol			EDD Format	ES&I, EQUIS etc			Handed over by	J. Kirk																				
Contact Name	Josh Kirk			Where metals are requested, please specify "Total" or "Filtered". SUTTE code must be used to attract SUTTE pricing.	TRH, BTEXN, PAH, Lead TRH / BTEXN						Email for Invoice			James.Johnson@wsl.com																			
Phone No	040 202 8319										Email for Results																						
Special Directions																																	
Purchase Order				Analyses	Matrix Solid (S) Water (W)	Sampled Date/Time dd/mm/yyyy hh:mm	Client Sample ID	210825 WSPN			Containers			Required Turnaround Time (TAT) Default will be 5 days if not stated.																			
Quote ID No											Change container type & size if necessary			Jar (Glass or HDPE)			Other (Asbestos AS4564, WA Guidelines)																
No										500mL Plastic			250mL Plastic			125mL Plastic			200mL Amber Glass			40mL VOA vial			500mL PFAS Bottle						Sample Comments / Dangerous Goods Hazard Warning		
1	QC1A																														Send to ALS		
2	Trip blank																																
3	Trip spike																																
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	
Method of Shipment				☐ Courier (#)				☐ Hand Delivered				Signature				Date				Time													
Laboratory Use Only				Received By				Signature				Date				Time				Temperature													
				Received By				Signature				Date				Time				Report No													

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

Phone Conversation with Josh Kirk

0402 028 319

28.09.21

1:33 pm

Discussed Sampling Dates to Job # PS123959

Water Samples sampled on 27/09/2021

Rest were sampled 21/09/2021

Quinn Raw

Sample Receipt Officer

0459 786 036

quinnraw@eurofins.com

eurofins.com.au

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Christchurch

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IANZ # 1290

Sample Receipt Advice

Company name: WSP Australia P/L Newcastle
Contact name: James Johnson
Project name: TRANGIE AMPOL
Project ID: PS126485
Turnaround time: 5 Day
Date/Time received: Sep 28, 2021 9:45 AM
Eurofins reference: 827790

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 3.5 degrees Celsius.
- ✗ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✗ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

MW05_0.05 Jar mislabelled MW05_0.0. Logged as per COC |

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to James Johnson - James.Johnson@wsp.com.

Note: A copy of these results will also be delivered to the general WSP Australia P/L Newcastle email address.



Environment Testing

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email: EnviroSales@eurofins.com

Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: TRANGIE AMPOL
Project ID: PS126485

Order No.:
Report #: 827790
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Sep 28, 2021 9:45 AM
Due: Oct 5, 2021
Priority: 5 Day
Contact Name: James Johnson

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Lead	Lead (filtered)	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B4	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											X			
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											X			
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	MW03B	Not Provided		Water	N21-Se55127				X			X		
2	MW05	Not Provided		Water	N21-Se55128				X			X		
3	MW06	Not Provided		Water	N21-Se55129				X			X		
4	QC1W	Not Provided		Water	N21-Se55130				X			X		
5	QCRB	Not Provided		Water	N21-Se55131				X			X		
6	MW03B_0.1	Not Provided		Soil	N21-Se55132	X		X		X		X		
7	MW03B_1.0	Not Provided		Soil	N21-Se55133			X		X		X		
8	MW05_0.05	Not Provided		Soil	N21-Se55134	X		X		X		X		
9	MW05_3.0	Not Provided		Soil	N21-Se55135			X		X		X		



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NSW 2300

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Project ID: PS126485

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Eurofins Analytical Services Manager : Andrew Black

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Melbourne Laboratory - NATA # 1261 Site # 1254											X			
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											X			
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
10	MW06_0.0	Not Provided		Soil	N21-Se55136	X		X		X		X		
11	MW06_9.0	Not Provided		Soil	N21-Se55137			X		X		X		
12	SBH01_0.0	Not Provided		Soil	N21-Se55138	X		X		X		X		
13	SBH01_0.5	Not Provided		Soil	N21-Se55139			X		X		X		
14	SBH02_0.0	Not Provided		Soil	N21-Se55140	X								
15	SBH02_0.5	Not Provided		Soil	N21-Se55141			X		X		X		
16	SBH02_1.0	Not Provided		Soil	N21-Se55142			X		X		X		
17	SBH03_0.0	Not Provided		Soil	N21-Se55143	X								
18	SBH03_0.5	Not Provided		Soil	N21-Se55144			X		X		X		
19	SBH03_1.5	Not Provided		Soil	N21-Se55145			X		X		X		
20	SBH04_0.15	Not Provided		Soil	N21-Se55146	X		X		X		X		



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email: EnviroSales@eurofins.com

Company Name: WSP Australia P/L Newcastle

Address: PO Box 1162
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NSW 2300

Project Name: TRANGIE AMPOL

Project ID: PS126485

Order No.:

Report #: 827790

Phone: 02 4929 8300

Fax: 02 4929 7299

Received:

Sep 28, 2021 9:45 AM

Due:

Oct 5, 2021

Priority:

5 Day

Contact Name:

James Johnson

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Lead	Lead (filtered)	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B4	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											X			
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											X			
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
21	SBH04_1.5	Not Provided		Soil	N21-Se55147			X		X		X		
22	SBH05_0.1	Not Provided		Soil	N21-Se55148	X		X		X		X		
23	SBH05_1.0	Not Provided		Soil	N21-Se55149			X		X		X		
24	DBH01_0.0	Not Provided		Soil	N21-Se55150	X		X		X		X		
25	DBH01_2.0	Not Provided		Soil	N21-Se55151			X		X		X		
26	DBH01_3.0	Not Provided		Soil	N21-Se55152					X	X			
27	DBH02_0.0	Not Provided		Soil	N21-Se55153	X		X		X		X		
28	DBH02_0.5	Not Provided		Soil	N21-Se55154			X		X		X		
29	DBH02_2.0	Not Provided		Soil	N21-Se55155					X	X			
30	DBH03_0.0	Not Provided		Soil	N21-Se55156	X		X		X		X		
31	DBH03_2.0	Not Provided		Soil	N21-Se55157			X		X		X		



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Melbourne Laboratory - NATA # 1261 Site # 1254											X			
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											X			
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
32	DBH03_3.0	Not Provided		Soil	N21-Se55158					X	X			
33	DBH04_0.0	Not Provided		Soil	N21-Se55159	X		X		X		X		
34	DBH04_1.0	Not Provided		Soil	N21-Se55160			X		X		X		
35	DBH05_0.0	Not Provided		Soil	N21-Se55161	X								
36	DBH05_0.5	Not Provided		Soil	N21-Se55162			X		X		X		
37	DBH05_2.0	Not Provided		Soil	N21-Se55163			X		X		X		
38	QC2	Not Provided		Soil	N21-Se55164			X		X		X		
39	QC1	Not Provided		Soil	N21-Se55165			X		X		X		
40	TRIP BLANK	Not Provided		Soil	N21-Se55166								X	
41	TRIP SPIKE	Not Provided		Soil	N21-Se55167									X
42	MW03B_0.5	Not Provided		Soil	N21-Se55169		X							



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Melbourne Laboratory - NATA # 1261 Site # 1254											X			
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											X			
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
43	MW03B_2.0	Not Provided		Soil	N21-Se55170		X							
44	MW03B_12	Not Provided		Soil	N21-Se55171		X							
45	MW05_0.5	Not Provided		Soil	N21-Se55172		X							
46	MW05_1.5	Not Provided		Soil	N21-Se55173		X							
47	MW05_10.5	Not Provided		Soil	N21-Se55174		X							
48	MW06_0.5	Not Provided		Soil	N21-Se55175		X							
49	MW06_1.0	Not Provided		Soil	N21-Se55176		X							
50	MW06_1.5	Not Provided		Soil	N21-Se55177		X							
51	MW06_3.0	Not Provided		Soil	N21-Se55178		X							
52	SBH01_1.0	Not Provided		Soil	N21-Se55179		X							
53	SBH01_1.5	Not Provided		Soil	N21-Se55180		X							



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Melbourne Laboratory - NATA # 1261 Site # 1254											X			
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											X			
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
54	SBH02_1.5	Not Provided		Soil	N21-Se55181		X							
55	SBH03_1.0	Not Provided		Soil	N21-Se55182		X							
56	SBH04_0.5	Not Provided		Soil	N21-Se55183		X							
57	SBH04_1.0	Not Provided		Soil	N21-Se55184		X							
58	SBH05_0.5	Not Provided		Soil	N21-Se55185		X							
59	SBH05_1.5	Not Provided		Soil	N21-Se55186		X							
60	DBH01_0.5	Not Provided		Soil	N21-Se55187		X							
61	DBH01_1.0	Not Provided		Soil	N21-Se55188		X							
62	DBH02_1.0	Not Provided		Soil	N21-Se55189		X							
63	DBH02_3.0	Not Provided		Soil	N21-Se55190		X							
64	DBH03_0.5	Not Provided		Soil	N21-Se55191		X							



Environment Testing

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

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4/52 Industrial Drive
Mayfield East NSW 2304
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Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

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Eurofins Environment Testing NZ Limited

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Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: TRANGIE AMPOL
Project ID: PS126485

Order No.:
Report #: 827790
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Sep 28, 2021 9:45 AM
Due: Oct 5, 2021
Priority: 5 Day
Contact Name: James Johnson

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Lead	Lead (filtered)	Moisture Set	NEPM Screen for Soil Classification	Eurofins Suite B4	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											X			
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											X			
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
65	DBH03_1.0	Not Provided		Soil	N21-Se55192		X							
66	DBH04_0.5	Not Provided		Soil	N21-Se55193		X							
67	DBH04_2.0	Not Provided		Soil	N21-Se55194		X							
68	DBH04_3.0	Not Provided		Soil	N21-Se55195		X							
69	DBH05_1.0	Not Provided		Soil	N21-Se55196		X							
70	DBH05_3.0	Not Provided		Soil	N21-Se55197		X							
Test Counts						13	29	28	5	31	3	33	1	1

CERTIFICATE OF ANALYSIS

Work Order : **ES2135762**
Client : **WSP Australia Pty Ltd**
Contact : JOSHUA KIRK
Address : LEVEL 27 680 GEORGE STREET
 SYDNEY 2000
Telephone : ----
Project : PS123959 Trangie Ampol
Order number : ----
C-O-C number : ----
Sampler : J Kirk
Site : ----
Quote number : EN/008/20
No. of samples received : 3
No. of samples analysed : 3

Page : 1 of 7
Laboratory : Environmental Division Sydney
Contact : Christopher Redford
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61 2 8784 8555
Date Samples Received : 05-Oct-2021 19:10
Date Analysis Commenced : 07-Oct-2021
Issue Date : 13-Oct-2021 15:36



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC2A	QC1A	----	----	----
Sampling date / time					28-Sep-2021 00:00	28-Sep-2021 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2135762-002	ES2135762-003	-----	-----	-----
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		13.6	15.0	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Lead	7439-92-1	5	mg/kg		8	11	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC2A	QC1A	----	----	----
Sampling date / time					28-Sep-2021 00:00	28-Sep-2021 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2135762-002	ES2135762-003	-----	-----	-----
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		91.2	85.7	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		91.9	86.3	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		82.5	79.3	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		98.0	95.2	----	----	----
Anthracene-d10	1719-06-8	0.5	%		106	98.1	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		85.4	81.3	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		99.2	104	----	----	----
Toluene-D8	2037-26-5	0.2	%		93.7	89.3	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		100	91.6	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC1WA	----	----	----	----
Sampling date / time					28-Sep-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2135762-001	-----	-----	-----	-----
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC1WA	----	----	----	----
Sampling date / time					28-Sep-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2135762-001	-----	-----	-----	-----
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)		----	100	µg/L	<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----	----
^ Total Xylenes		----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX		----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%	17.2	----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	44.5	----	----	----	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%	74.0	----	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	68.2	----	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%	95.5	----	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	95.6	----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	116	----	----	----	----	----
Toluene-D8	2037-26-5	2	%	106	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	104	----	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

CHAIN OF CUSTODY RECORD

Environ. (Environmental Testing) ABN 50 006 006 021

☐ Sydney Laboratory

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☐ Melbourne Laboratory

5 Monash Road Dandenong South VIC 3175
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1 of 8

Copy

Company **WSP**

Address

Contact Name **Josh Kirk**

Phone No **0402028319**

Special Directions

Purchase Order

Quote ID No **210825WSPN**

Client Sample ID

Project Name **PS123954**

Analyses **TRH, BTEXN, PAH, Lead Asbestos**

When results are required please specify "Fast" or "Normal"
Suitable to be used to support legal proceedings

Project Manager **James Johnson**

EDD Format

Handled over by **J. Kirk**

Email for Invoice **James.Johnson@wsp.com**

Email for Results

Containers

Required Turnaround Time (TAT)

Overnight (reporting by Email)

Same day

2 days

5 days (Standard)

Other

Dangerous Goods Hazard Warning

Method of Shipment	Counter (#)	Hand Delivered	Post	Name	Signature	Date	Time
MW03B							
MW05							
MW06							
QCL1W							
QCL1WA (1)							
QCLRB							
MW03B-0.1	5						
05							
1.0							
2.0							

Environmental Division
Sydney
Work Order Reference
ES2135762

Barcode

Telephone : +61-2-8794 8565

Sent to ALS

Environ. (Environmental Testing) Australia Pty Ltd

Environ. (Environmental Testing) Australia Pty Ltd

Submission of samples to the Laboratory will be deemed an acceptance of Binding Environmental Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

Rec'd 05/10/24 1910 126c

CHAIN OF CUSTODY RECORD

Europe's Environmental Testing, AS/NZS 3800:2005

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07 8800 4800 EnviroSampleNSW@enviro.com.au

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07 3202 4900 EnviroSampleQLD@enviro.com.au

☐ Perth Laboratory
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☐ Melbourne Laboratory
5 Manning Road Dandenong South VIC 3175
03 9584 5000 EnviroSampleVIC@enviro.com.au

Company

WSP

Address

Contact Name

Phone No

Special Directions

Purchase Order

Quote ID No

No

Client Sample ID

Sampled Date/Time
Matrix (Solid/Liquid/Sediment/Water)

Project Name

PS1234567

Project Manager
EOD Formal

Analyses

Where metals are requested, please specify "Total" or "Filtered".
SJM's and methods are used to detect SJM's only.

TRH, BTEXN, PAH, Lead
Asbestos

Sampler(s)

Handed over by

Email for Invoice

Email for Results

Containers

Containers (Specify type and quantity)

Required Turnaround Time (TAT)
(Please specify days)

500mL Plastic
250mL Plastic
125mL Plastic
200mL Amber Glass
40mL VOA vial
500mL PFAS Bottle
Jar (Glass or HDPE)
Other (Asbestos AS4814, WA Guidelines)

Overnight (reporting by 9am)
Same day
2 days
5 days (Standard)
Other

Sample Comments
(Dangerous Goods Hazard Warning)

Method of Shipment

Counter (if)

Hand Delivered

Postal

Home

Signature

Date

Time

Europe's Environmental Testing Australia Pty Ltd

2005/01/01 - 2005/01/01

Submission of samples to the laboratory will be deemed as acceptance of Europe's Environmental Testing Standard Terms and Conditions unless signed otherwise. A copy is available on request.

See soft - DS10121 1910 126

CHAIN OF CUSTODY RECORD



Eurofins | Environmental Testing ABN 50 005 085 321

☐ Sydney Laboratory
Unit F3 35/5 F15 Mars Road Lane Cove West NSW 2055
02 9500 8400 EurofinsSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 127 Southwood Place Murrumbidgee QLD 4172
07 2802 4600 EurofinsSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2/31 Union Highway Kewdale WA 6105
08 9325 9600 EurofinsSampleWA@eurofins.com

☐ Melbourne Laboratory
5 Monterey Road Chesham Road VIC 3175
03 8554 5000 EurofinsSampleVIC@eurofins.com

Company WSP	Project PS123957	Project Manager EDD Formist 04 98 15 03 75	Sample(s) Handed over by Email for Invoice Email for Results
Contact Name Tosh Kiri	Project Name TRIA, BT EXN, PAH, lead	Container Charge container type & label necessary Jar (Glass or HDPE) 500mL PPAD Bottle 40mL VOA vial 200mL Amber Glass 125mL Plastic 250mL Plastic 500mL Plastic	Required turnaround time (TAT) *Overnight (reporting by 8am) ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days ☐ 5 days (Standard) ☐ Other ☐
Special Directions	Analyses What matrix or required parameters? (Full or partial) GC/MS multi-residue used to detect 24 PAHs	Matrix Solid ☐ Liquid ☐ Wet ☐	Sample Comments / Dangerous Goods Hazard Warning
Purchase Order	Client Sample ID MW06-30 1-40 SB01-00 1-0.5 1-1.0 1-1.5 SB02-00 1-0.5 1-1.0 1-1.5	Method of Shipment ☐ Courier # ☐ Hand Delivered ☐ Postal	Date Time
Quote ID No	Total Counts		

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environmental Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

Recd: *gafw* 05/10/21 1910 1265

CHAIN OF CUSTODY RECORD

Enricha Environmental Testing (A/N) 30 000 085 921

☐ Sydney Laboratory
Unit 53 Bldg 2-10 Main Road, Low Chute West NSW 2036
02 9520 8400 EnrichaSampleNSW@enricha.com

☐ Brisbane Laboratory
Unit 121 Shalwood Place Morrie QLD 4172
07 3802 4900 EnrichaSampleQLD@enricha.com

☐ Perth Laboratory
Unit 2 91 Leakey Highway, Inverloch WA 6105
08 9261 9500 EnrichaSampleWA@enricha.com

☐ Melbourne Laboratory
8 Monterey Road Chadstone South VIC 3178
03 8564 5000 EnrichaSampleV@enricha.com

Company	WSP	
Address		
Contact Name	Josh Kirk	
Phone No		
Special Directions		
Purchase Order		
Quote ID No		

No	Client Sample ID	Sampled Date/Time	Matrix	Analysis		Project Name	Project No	Project Manager	Email for Invoice	Email for Results	Sampled by	Date	Time
				Ar	Al								
1	SBH03.0.0	1 0.5				TEH, BTEX, PAH, lead	PS123957	EDD Forman					
2	1 0.5												
3	1 1.0												
4	1 1.5												
5	SBH04-0.15												
6	1 0.5												
7	1 1.0												
8	1 1.5												
9	SBH05-0.1												
10	1 0.5												

Method of Shipment		☐ Courier (#)	☐ Hand Delivered
Total Counts			
Signature			
Date			

Enricha Environmental Testing Australia Pty Ltd

Enricha Environmental Testing (A/N) 30 000 085 921

Enricha Environmental Testing (Brisbane) 07 3802 4900

Enricha Environmental Testing (Perth) 08 9261 9500

Enricha Environmental Testing (Melbourne) 03 8564 5000

Enricha Environmental Testing (Sydney) 02 9520 8400

Enricha Environmental Testing (A/N) 30 000 085 921

Enricha Environmental Testing Australia Pty Ltd

Enricha Environmental Testing (A/N) 30 000 085 921

Enricha Environmental Testing (Brisbane) 07 3802 4900

Enricha Environmental Testing (Perth) 08 9261 9500

Enricha Environmental Testing (Melbourne) 03 8564 5000

Rec'd 05/10/21 1910 126c



CHAIN OF CUSTODY RECORD

Environa Environmental Testing Australia Pty Ltd

☐ Sydney Laboratory
Unit 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
02 9554 5000 Environa@sydneylab.com

☐ Brisbane Laboratory
Unit 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
02 9554 5000 Environa@brisbanelab.com

☐ Perth Laboratory
Unit 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
08 9251 9600 Environa@perthlab.com

☐ Melbourne Laboratory
Unit 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
03 8554 5000 Environa@melbournelab.com

5 of 8

Company

WSP

Address

Contact Name

Josh Kitch

Phone No

Special Directions

Purchase Order

Quote ID No

Client Sample ID

Sampled Date/Time

Matrix

Analyses
Where multiple analyses are requested, please specify "Y", "N" or "I" (Yes/No/Indeterminate).
SUITE code must be used to identify SUITE analysis.

TRH, BTEXN, PAH, lead
Asbestos
NEM soil classification
Suite

Project Name

PS123455

Project Manager

EOD Format

Case Studies

Sample(s)

Handled over by

Email for Invoice

Email for Results

Containers

Container type and volume

Required Turnaround Time (TAT)
Sample ID: 5-23-10-10-10

500mL Plastic
250mL Plastic
125mL Plastic
20mL Amber Glass
40mL VOA vial
500mL PFAS Bottle
Jar (Glass or HDPE)
Can (Asbestos AS4494, IFA Guidelines)

Overnight (preparing by Sam)
Same day
2 days
5 days (Standard)
Other

Sample Certificates
/ Dangerous Goods Hazard Warning

Method of Shipment

☐ Courier #

☐ Hand Delivered

☐ Postal

Name

Signature

Date

Time

Total Counts

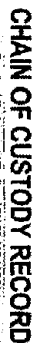
SBH05-10 5
1 1.5
DBH01-0.0
0.5
1 1.0
2.0
3.0
DBH02-0.0
1 0.5
1 1.0

Environa Environmental Testing Australia Pty Ltd

Submission of samples to the laboratory will be deemed to comply with Environa Environmental Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

Environa Environmental Testing Australia Pty Ltd

Recd 5084/ps 05/10/12 19/10/12/12/12



Eurofins | Environment Testing AEN 50 005 085 521

Sydney Laboratory
Unit 53, Bldg. 16, Mains Road, Lorne Cove West, NSW 2086
02 9900 8400 Envirosamples@aurionline.com

Bethune Laboratory
Unit 1 21 Smokewood Place Marjatta QLD 4372
07 3502 4630 Email: sample@qlb.co.au or frs.com

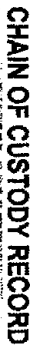
Part: Laboratory
Unit 2 91 Leach Highway, Kenosha WA 6105
C 5251 9600 Email: Service@wz.com

 McAllister Laboratory
6 Montlewy Road, Dandenong South, VIC 3175
03 8584 5000 Envirosamples@mcallister.com.au

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Rec. syst. 05/10/21 1910 126



Extinction/Environmental Testing: AEN 00 005 000 021

Hydrex Laboratory
Unit E3 Balford Street Laro Creek NSW 2066
02 9030 8400 Email: info@hydrex.com.au

Engham Laboratory
Unit 121 Sawdust Place Merritt O.V.D. 4172
07 3533 4666 Envsampled@Dyurofha.com

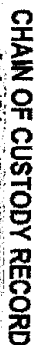
Perth Laboratory
Unit 2 B1 Leach Highway Kardale WA 6105
08 9251 5630 Email: Samples@perthlab.com

☐ **Metformin Laboratory**
6 Marshes Road Dandenong South VIC 3178
03 8584 5030 Email: info@metforminlab.com.au

7 of 8

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Rec-Soft/m 05/10/12 1910 126



Europe | Environment | Testing ABN 50 005 085 52

Hydrex Laboratory
Unit F3 Bldg 16 Marine Corps Mar. 15th 2008
02 5800 8400 Email: samples@NSM@usmcm.mil

Britisha Laboratory
Unit 1 24 Springfield Place Murray G.D. 4172
07 3502 4603 Email: Samples@Britisha.com

☐ **Perth Laboratory**
Unit 2 81 Lansdown Highway, Kewdale W.A. 6105
08 9425 19800 Email: info@wpa.com.au

Mathematics Laboratory
5 Montague Road Dandenong South VIC 3175
03 9554 8900 mathlab@swinburn.edu.au

8 A 2

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Rec. Sol Sfr

05/10/21 1910

1260

Phone Conversation with Josh Kirk

0402 028 319

28.09.21

1:33 pm

Discussed Sampling Dates to Job # PS123959

Water Samples sampled on 27/09/2021

Rest were sampled 21/09/2021

Quinn Raw

Sample Receipt Officer

0459 786 036

quinnraw@eurofins.com

eurofins.com.au



Environmental

QUALITY CONTROL REPORT

Work Order : **ES2135762**

Page : 1 of 9

Client : **WSP Australia Pty Ltd**

Contact : JOSHUA KIRK

Address : LEVEL 27 680 GEORGE STREET
SYDNEY 2000

Telephone : ----

Project : PS123959 Trangie Ampol

Order number : ----

C-O-C number : ----

Sampler : J Kirk

Site : ----

Quote number : EN/008/20

No. of samples received : 3

No. of samples analysed : 3

Laboratory : Environmental Division Sydney

Contact : Christopher Redford

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61 2 8784 8555

Date Samples Received : 05-Oct-2021

Date Analysis Commenced : 07-Oct-2021

Issue Date : 13-Oct-2021



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3947560)									
ES2135495-017	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	42	54	24.2	0% - 50%
ES2135495-066	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	16	20	23.1	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3947567)									
ES2135495-039	Anonymous	EA055: Moisture Content	----	0.1	%	14.6	15.1	3.4	0% - 20%
ES2135762-003	QC1A	EA055: Moisture Content	----	0.1	%	15.0	15.3	1.8	0% - 50%
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3941514)									
ES2135759-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3941514) - continued									
ES2135759-001	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2135757-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3941513)									
ES2135759-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2135757-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3944628)									
ES2135762-002	QC2A	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2135989-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3941513)									
ES2135759-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2135757-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3944628)									
ES2135762-002	QC2A	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2135989-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 3944628)									
ES2135762-002	QC2A	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2135989-002	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3946692)									
ES2135785-001	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
ES2135785-011	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3946389)									
ES2135108-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	140	130	0.0	No Limit
ES2135782-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3946389)									
ES2135108-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	270	260	4.6	0% - 50%
ES2135782-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3946389)									
ES2135108-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	4	4	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	43	42	2.6	0% - 20%
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	21	20	6.6	0% - 50%
ES2135782-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

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Work Order : ES2135762
Client : WSP Australia Pty Ltd
Project : PS123959 Trangie Ampol



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 3946389) - continued									
ES2135782-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3947560)								
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	102	82.0	119
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3941514)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	95.5	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	95.2	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	99.7	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	97.9	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	98.8	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.5	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.7	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	100.0	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	92.4	68.0	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	90.8	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.5	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	85.8	61.0	121
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	85.5	62.0	118
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	74.8	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3941513)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	113	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	91.7	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	89.0	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3944628)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.3	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3941513)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	104	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	88.4	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	87.2	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3944628)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.9	68.4	128
EP080: BTEXN (QCLot: 3944628)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.6	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	83.5	67.0	121



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EP080: BTEXN (QCLot: 3944628) - continued								
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	97.4	65.0	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	96.9	66.0	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.3	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	80.2	63.0	119

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020F: Dissolved Metals by ICP-MS (QCLot: 3946692)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.0	83.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3942821)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	74.8	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	78.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	80.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	81.7	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	74.1	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	81.5	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	94.1	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	92.1	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	73.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	72.4	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	1	µg/L	<1.0	5 µg/L	75.5	61.7	119
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	73.6	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	89.8	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	95.4	59.9	118
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	97.2	61.2	117
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	98.3	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3942819)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	76.3	55.8	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	97.7	71.6	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	91.4	56.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3946389)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	80.6	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3942819)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	74.7	57.9	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	92.1	62.5	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	88.0	61.5	121



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) LowHigh	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3946389)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	83.6	75.0	127
EP080: BTEXN (QCLot: 3946389)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	89.4	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	84.1	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	84.6	70.0	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	81.5	69.0	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	85.4	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.0	70.0	120

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3947560)							
ES2135495-017	Anonymous	EG005T: Lead	7439-92-1	250 mg/kg	103	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3941514)							
ES2135757-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3941513)							
ES2135757-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	117	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	114	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	105	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3944628)							
ES2135762-002	QC2A	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3941513)							
ES2135757-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	108	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	117	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	91.1	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3944628)							
ES2135762-002	QC2A	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	70.0	130
EP080: BTEXN (QCLot: 3944628)							
ES2135762-002	QC2A	EP080: Benzene	71-43-2	2.5 mg/kg	111	70.0	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 3944628) - continued							
ES2135762-002	QC2A	EP080: Toluene	108-88-3	2.5 mg/kg	97.8	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	103	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	104	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	101	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	89.8	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3946692)							
ES2135762-001	QC1WA	EG020A-F: Lead	7439-92-1	1 mg/L	128	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3946389)							
ES2135108-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	107	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3946389)							
ES2135108-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	101	70.0	130
EP080: BTEXN (QCLot: 3946389)							
ES2135108-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	111	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	106	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	109	70.0	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	93.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2135762	Page	: 1 of 7
Client	: WSP Australia Pty Ltd	Laboratory	: Environmental Division Sydney
Contact	: JOSHUA KIRK	Telephone	: +61 2 8784 8555
Project	: PS123959 Trangie Ampol	Date Samples Received	: 05-Oct-2021
Site	: ----	Issue Date	: 13-Oct-2021
Sampler	: J Kirk	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved QC1WA	07-Oct-2021	05-Oct-2021	2	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved QC1WA	07-Oct-2021	05-Oct-2021	2	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved QC1WA	07-Oct-2021	05-Oct-2021	2	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055) QC2A,	QC1A	28-Sep-2021	----	----	----	11-Oct-2021	12-Oct-2021	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) QC2A,	QC1A	28-Sep-2021	11-Oct-2021	27-Mar-2022	✓	12-Oct-2021	27-Mar-2022	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) QC2A,	QC1A	28-Sep-2021	07-Oct-2021	12-Oct-2021	✓	08-Oct-2021	16-Nov-2021	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071) QC2A,	QC1A	28-Sep-2021	07-Oct-2021	12-Oct-2021	✓	08-Oct-2021	16-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP080) QC2A,	QC1A	28-Sep-2021	08-Oct-2021	12-Oct-2021	✓	11-Oct-2021	12-Oct-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071) QC2A,	QC1A	28-Sep-2021	07-Oct-2021	12-Oct-2021	✓	08-Oct-2021	16-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP080) QC2A,	QC1A	28-Sep-2021	08-Oct-2021	12-Oct-2021	✓	11-Oct-2021	12-Oct-2021	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) QC2A,	QC1A	28-Sep-2021	08-Oct-2021	12-Oct-2021	✓	11-Oct-2021	12-Oct-2021	✓

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC1WA	28-Sep-2021	----	----	----	09-Oct-2021	27-Mar-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC1WA	28-Sep-2021	07-Oct-2021	05-Oct-2021	✖	11-Oct-2021	16-Nov-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC1WA	28-Sep-2021	07-Oct-2021	05-Oct-2021	✖	11-Oct-2021	16-Nov-2021	✓
Clear glass VOC vial - HCl (EP080) QC1WA	28-Sep-2021	12-Oct-2021	12-Oct-2021	✓	12-Oct-2021	12-Oct-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC1WA	28-Sep-2021	07-Oct-2021	05-Oct-2021	✖	11-Oct-2021	16-Nov-2021	✓
Clear glass VOC vial - HCl (EP080) QC1WA	28-Sep-2021	12-Oct-2021	12-Oct-2021	✓	12-Oct-2021	12-Oct-2021	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080) QC1WA	28-Sep-2021	12-Oct-2021	12-Oct-2021	✓	12-Oct-2021	12-Oct-2021	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	10.53	10.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard

Page : 5 of 7
 Work Order : ES2135762
 Client : WSP Australia Pty Ltd
 Project : PS123959 Trangie Ampol



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.



Preparation Methods	Method	Matrix	Method Descriptions
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

APPENDIX B

REMEDIATION ACTION PLAN

AMPOL PETROLEUM AUSTRALIA PTY
LTD

NOVEMBER 2021

AMPOL TRANGIE SERVICE STATION (SITE ID: 20820), 76 NARROMINE ST, TRANGIE REMEDICATION ACTION PLAN (RAP)

wsp



Question today *Imagine tomorrow* Create for the future

Ampol Trangie Service Station (Site ID: 20820), 76 Narromine St, Trangie Remediation Action Plan (RAP)

Ampol Petroleum Australia Pty Ltd

WSP

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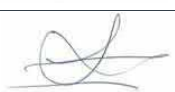
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ABBREVIATIONS

ACM	Asbestos containing material
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
C ₁₀ –C ₁₆	Medium hydrocarbon chain groups (for example, kerosene)
C ₁₆ –C ₃₄	Heavy hydrocarbon chain groups (for example, diesel)
C ₃₄ –C ₄₀	Heavy hydrocarbon chain groups (for example, lube oil)
C ₆ –C ₁₀	Light hydrocarbon chain groups (for example, petrol)
CEMP	Construction environmental management plan
COPC	Contaminants of potential concern
CRC CARE	Cooperative Research Council for Contamination Assessment and Remediation for the Environment
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CT	Contaminant threshold
DA	Development application
DQI	Data quality indicators
DQO	Data quality objectives
ENM	Excavated natural material
ESA	Environmental site assessment
F1	Total recoverable hydrocarbon fraction one (hydrocarbons C ₆ –C ₁₀)
HESP	Health, environment and safety plan
HIL	Health investigation levels
HSL	Health screening levels
LOR	Limiting of reporting
m	Metres
m ²	Square metres
m ³	Cubic metres
mAHD	Metres above Australian Height Datum
mBGL	Metres below ground level
mg/kg	Milligram per kilogram (or part per million)
mg/L	Milligram per litre (or part per million)
NATA	National Association of Testing Authorities

NEPM	The National Environment Protection Measure
NOHSC	National Occupational Health and Safety Commission
NSW DECCW	NSW Department of Environment, Climate Change and Water
NSW DUAP	NSW Department of Urban Affairs and Planning
NSW EPA	NSW Environmental Protection Agency
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PQL	Practical quantitation limits
QA/QC	Quality assessment and quality control
RAP	Remediation action plan
RPD	Relative percentage differences
SCC	Specific contaminant concentration
SEPP55	State Environmental Planning Policy No 55—Remediation of Land
SOP	Standard operating procedure
TCLP	Toxicity characteristic leaching procedure
UPSS	Underground petroleum storage system
UST	Underground storage tank
VENM	Virgin excavated natural material
WHS	Work Health and Safety

EXECUTIVE SUMMARY

Ampol Australia Petroleum Pty Ltd (Ampol), commissioned WSP Australia Pty Ltd (WSP) to prepare a remediation action plan (RAP) for the demolition of the above ground structures, the removal of the aboveground storage tank (AST) and underground petroleum storage system (UPSS), site remediation (as required) and validation of the former Ampol Trangie Service Station (Ampol Site ID 20820) located at 76 Narromine Street, Trangie, NSW ('the site').

The objectives of the RAP are to:

- Document any previously identified contamination risks to human health and/or the environment, in order to inform the methodology for completing and validating the infrastructure decommissioning / removal works.
- Set remediation objectives that will enable the remedial goals to be achieved.
- Document the remediation and validation actions and methodologies required to confirm achievement of objectives.
- Provide a framework for the safe work practices and environmental management techniques to be implemented whilst undertaking fuel infrastructure removal works.

The actions required to carry out the RAP are summarised as follows:

- Obtain relevant approvals to facilitate the works.
- Demolish / decommission and remove above ground infrastructure (canopy, building, AST, etc.).
- Perform an underground services check to locate the position of any services prior to any excavation works.
- Decommission groundwater monitoring wells that will be damaged during the excavation works.
- Drain pumps and pipework.
- Remove the residual product in the USTs and dispose off-site by a licensed waste contractor.
- Remove concrete and excavate to expose the top of USTs and associated infrastructure.
- Degas the USTs to make safe for removal and transport off-site for destruction.
- Excavate and stockpile soil material above and around the UPSS, so as to allow tank removal.
- Remove the UPSS and associated infrastructure.
- Provide tank destruction certificates.
- Collect soil samples from the excavations and stockpiles for analyses and validation.
- Assess soil beneath other infrastructure where potentially contaminating activities have occurred.
- Remove any impacted soils which are to be classified and disposed off-site to an EPA approved landfill.
- Provide waste disposal certificates.
- Backfill the resulting excavations with approved clean imported VENM and/or excavated soil sourced from site found to be suitable for reuse.
- Report on work completed.

Following the fieldwork, a validation report will be prepared. The purpose of the validation report will be to document the procedures and results of the UPSS removal and the validation activities in accordance with relevant guidelines and Acts. The validation report will also provide an evaluation of the suitability of the site for continued use as a service station.

1 INTRODUCTION

Ampol Australia Petroleum Pty Ltd (Ampol), commissioned WSP Australia Pty Ltd (WSP) to prepare a remediation action plan (RAP) for the demolition of the above ground structures, the removal of the aboveground storage tank (AST) and underground petroleum storage system (UPSS), site remediation (as required) and validation of the former Ampol Trangie Service Station (Ampol Site ID 20820) located at 76 Narromine Street, Trangie, NSW ('the site').

A RAP is required to document the proposed remediation works associated with the site demolition and the UPSS removal works and to provide a framework for the remediation and/or management of the hydrocarbon impacted soil near the fuel infrastructure that is to be removed. This RAP will document the methodology to:

- Remove all buildings and supporting infrastructure (fuel canopy etc.);
- Decommission the underground petroleum storage systems (UPSS) and associated infrastructure;
- Decommission the above ground storage tank (AST) and associated bund; and
- Validate the environmental conditions at the extent of excavations associated with the site infrastructure removal.

The site location and existing site layout, including the UPSS, AST and buildings for demolition are depicted on Figures 1 and 2 respectively (refer Appendix A).

1.1 OBJECTIVES OF THIS DOCUMENT

The following objective is being undertaken to allow for future divestment and redevelopment of the site for non-sensitive commercial/industrial land use as per the current zoning. WSP assumes non-sensitive commercial/industrial land use equates to a slab on grade foundations for any future developments with no allowances for basements, swimming pools or below ground infrastructure.

The objectives of the RAP are to:

- Document any previously identified contamination risks to human health and/or the environment, in order to inform the methodology for completing and validating the infrastructure decommissioning / removal works.
- Set remediation objectives that will enable the remedial goals to be achieved.
- Document the remediation and validation actions and methodologies required to confirm achievement of objectives.
- Provide a framework for the safe work practices and environmental management techniques to be implemented whilst undertaking fuel infrastructure removal works.

1.2 SCOPE OF WORKS

To achieve the objectives, the RAP scope includes:

- summarising site setting, history and surrounding environment (refer Section 2).
- generating a conceptual site model (refer Section 3).
- identification of remediation objectives and the preferred remedial option(s) to achieve the objectives (refer Section 4).
- generation of the proposed remediation methodology (refer Section 5).
- generation of the validation strategy to demonstrate the success of the remedial works (refer Section 6).
- generation of contingency measures, in the event they are required (refer Section 7).
- Generation of workplace health and safety (WHS) and environment protection management (refer Section 8 and 9).

1.3 TECHNICAL FRAMEWORK

The RAP was generated in general accordance with:

- *Contaminated Land Management Act 1997* (CLM Act 1997; NSW)
- National Environment Protection Council, 2013 *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM; as amended 2013)
- National Occupational Health and Safety Commission (NOHSC) 1995, *Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment*
- NSW Department of Urban Affairs and Planning (NSW DUAP) 1998, *Managing Land Contamination. Planning Guidelines SEPP 55 – Remediation of Land*
- NSW Department of Environment, Climate Change & Water (DECCW) 2010, *UPSS Technical Note: Site Validation Reporting*
- NSW Environmental Protection Agency (NSW EPA) 2020, *Underground Petroleum Storage Systems – Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*
- NSW Environmental Protection Agency (NSW EPA) 2014, *Technical Note: Investigation of Service Station Sites*
- NSW Environmental Protection Agency (NSW EPA) 2009, *Contaminated Sites: Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*
- NSW Environmental Protection Agency (NSW EPA) 2014, *Waste Classification Guidelines. Part 1: Classifying Waste*
- NSW Environmental Protection Agency (NSW EPA) 2020, *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land – Contaminated Land Guidelines*
- Protection of the Environment Operations Act 1997 (POEO Act 1997; NSW)
- Work Health and Safety Act 2011 (WHS Act 2011; NSW)
- Work Health and Safety Regulation 2017 (WHS Reg 2017; NSW).

2 SITE SETTING AND HISTORY

2.1 LOCATION AND IDENTIFICATION

The site is located within the township of Trangie approximately 300 km north west of Sydney. General site details are summarised in Table 2.1.

Table 2.1 Summary of general information

SITE NAME	AMPOL TRANGIE
Site address	76 Narromine Street, Trangie NSW 2823
Ampol site identification	20820
Legal identification	Lot 101 in DP 832919
Local government area	Narromine Shire Council
Zoning	R1 – General Residential: The local LEP states that the objectives of this zone are to provide for the housing needs of the community. To provide for a variety of housing types and densities. To enable other land uses that provide facilities or services to meet the day to day needs of residents.
Current land use	Service station
Future land use	Commercial / industrial (non-sensitive)

The site is a rectangular shaped lot situated on the northern side Narromine Street and adjacent to a rail line. The central portion of the site is a retail store and canopy over the bowser area. Three USTs were present to the north west side of the retail building, one UST on the south east side of the retail building and one AST at the rear of the site (north east of the retail building). The surface cover of the site is generally hard packed fill with limited concreted arounds around the bowers on site. The site is generally flat. The underground petroleum storage system (UPSS) and above ground infrastructures present on-site are summarised in Table 2.2.

Table 2.2 Tank Infrastructure

TANK ID	PRODUCT TYPE	SIZE (L)
Depot 1 (underground)	E10	4,500
Depot 2 (underground)	E10	4,500
Depot 3 (underground)	PULP	10,500
Depot 4 (underground)	Diesel	4,500
Depot 5 (aboveground)	Diesel	59,500

2.2 GEOLOGY

The Narromine 1:250,000 Geological Map (2nd edition 1997) indicates that the regional geology in the vicinity of the site is characterised by Quaternary aged alluvium comprised red silt with some pebble bands and quartz grit.

Previous intrusive investigations at the site (AECOM, 2011) indicated that the site-specific geology comprises clayey sand and sandy gravel fill material to 0.2 metres below ground level (mBGL) underlain by stiff silty clay.

2.3 HYDROGEOLOGY

Groundwater was not encountered during the previous drilling investigation and it was not possible to establish a groundwater flow direction. Due to the surface water bodies located to the north (e.g. Goan Waterhole, Trangie Cowal, Macquarie River), groundwater is expected to flow to the north.

A review of the Department of Primary Industries registered groundwater bore database (www.allwaterdata.water.nsw.gov.au) conducted on 31 July 2017 identified three registered groundwater bores within a 500 m radius of the site. The wells are summarised in Table 2.2.

Table 2.3 Groundwater well database summary

BORE ID	LOCATION	TOTAL DEPTH (m)	STATUS	PURPOSE
GW065699	North	108.0	Converted	Town water supply
GW053089	South west	96.0	Converted	Town water supply
GW005691	West	40.3	Cancelled	Domestic, Irrigation

The nearest surface water body identified was the Goan Waterhole located approximately 250 m north-east of the site.

2.4 SURROUNDING LANDUSE

Surrounding land uses include:

- North: Rural properties, cleared land, railway tracks and grain storage facility.
 - South: Narromine Street. Residential properties.
 - East: Rural properties, cleared land and railway tracks.
 - West: Commercial and residential properties.
-

2.5 PREVIOUS INVESTIGATIONS

WSP has previously been provided with a groundwater monitoring well report for the site completed by AECOM (AECOM 2011, *Groundwater Monitoring Well Report – Caltex Trangie (20820)*), in addition WSP has previously completed assessment works at the site in 2017 (WSP 2018, Trangie Service Station (Site ID: 20820) Environmental Site Assessment) and 2021 (WSP 2021, Trangie Service Station (Site ID: 20820) Environmental Site Assessment).

Prior to the 2017 investigation, the well network consisted of four on-site wells. Monitoring wells MW01 to MW04 were installed by AECOM in 2009 (AECOM, 2011). During the AECOM 2009 GME, the wells MW01 and MW03 were dry and MW02 and MW04 contained an insufficient amount of water for sample collection during the subsequent sampling event. Hydrocarbon odours were noted on bailers during groundwater gauging in MW01 and MW03.

During the 2009 drilling investigation, all the soil samples analysed were below the laboratory limit of reporting (LOR) for TRH and BTEX. Lead was the only analyte having concentrations above the laboratory limit of reporting (LOR) with results ranging between 5 and 11 mg/kg. The soil PID readings ranged from 6.5 to 19.8 parts per million (ppm).

In 2017, Ampol (operating as Caltex) commissioned WSP to undertake an ESA at the site to evaluate groundwater quality and refine the CSM. WSP installed four additional groundwater monitoring wells; MW01A was installed on-site near existing well MW01, MW02A was installed on-site near existing well MW02, MW03A was installed on-site near existing well MW03 and MW04A was installed on-site near existing well MW04. During the 2017, ESA no groundwater samples were collected due to insufficient groundwater. Prior to the 2021 assessment, there was no historical groundwater contaminant data available.

In 2021 Ampol commissioned WSP to undertake an additional ESA which included soil sampling, additional groundwater well installation and a GME. During the intrusive works no evidence of impacted soil was observed, with laboratory analysis confirming no exceedances of the adopted site criteria for soil.

Groundwater was encountered at depths between 19.045 mBTOC (MW05) and 19.325 mBTOC (MW03B) during the GME. Groundwater flow was inferred to flow to the west based on groundwater elevations.

Analytical results of the groundwater were below the adopted site criteria with the exception of an isolated concentration of toluene in MW03B that exceeded the nominated freshwater ecosystem guidelines. We note that groundwater was encountered at a depth exceeding 19 mBGL and the nearby surface water bodies (e.g. Goan Waterhole located 250 m to the north-east) are situated above the standing water level, and thus are not considered to be surface water receptors. The nearest receiving water body will be several kilometres away, and thus it is considered that no complete exposure pathway to a freshwater ecosystem exists.

Concurrently with the 2021 ESA, WSP conducted a Hazardous Building Materials Assessment. In September 2021 WSP completed this hazardous building materials survey at the site. The scope of services for this inspection comprised a detailed visual inspection of all accessible areas on the site. Representative samples were collected from materials suspected of containing asbestos, synthetic mineral fibres (SMF), and paint systems suspected of containing lead. A summary of the hazardous building materials inspection findings is shown in Table 2.4 and a summary of inaccessible areas is shown in Table 2.5. The Hazardous Materials register is provided in Appendix C.

Table 2.4 Summary of hazardous materials identified at the time of inspection

HAZARDOUS MATERIAL	FOUND
Friable asbestos containing materials (ACM)	No
Non-friable ACM	Yes
Synthetic mineral fibre (SMF)	Yes (assumed)
Lead-based paints	Yes
Capacitors with polychlorinated biphenyls (PCBs)	Yes (assumed)

Table 2.5 Summary of inaccessible areas at time of inspection

INACCESSIBLE AREAS	DETAILS
Above 3 meters in height	Not fully accessed in line with company OHS ¹ policies — Refuelling station awning
Within confined spaces	Not fully accessed in line with company OHS ¹ policies — No manhole to ceiling space
Electrical equipment	All electrical equipment, internal and external, was unable to be assessed due to electrical hazards. — Electrical backing board for switch board

(1) OHS: Occupational Health & Safety

2.6 AREAS OF ENVIRONMENTAL CONCERN IDENTIFIED

Based on the review of the site setting, site history, previous and current assessments, the following areas of potential concern have been identified. The locations of the AECs are shown on Figure 3, Appendix A.

- **AEC 1:** current north western UST farm (Depot 1 – Depot 3).

- **AEC 2:** current diesel UST (Depot 4).
- **AEC 3:** current AST (Depot 5).
- **AEC 4:** underground fuel piping between UST (AEC1 / AEC 2) to the bowzers directly in front of the retail shop
- **AEC 5:** area between the AST (AEC 3) and diesel bowzers north west of the retail shop service station.
- **AEC 6:** area beneath the oil/water separator / septic tank.
- **AEC 7:** buildings and infrastructure identified as containing or potentially containing hazardous materials.

The management of hazardous materials present in buildings and infrastructure, is discussed in Section 5.4.

2.7 CONTAMINANTS OF POTENTIAL CONCERN

Through review of the site setting, site history and historical assessments, the contaminants of potential concern in the proposed demolition and petroleum storage and distribution infrastructure removal works include the following:

- Total recoverable hydrocarbons (TRH);
- Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene (BTEXN)
- Polycyclic aromatic hydrocarbons (PAH);
- Lead;
- Synthetic mineral fibre (SMF)
- PCBs; and
- Asbestos.

3 CONCEPTUAL SITE MODEL

A Conceptual Site Model (CSM) is a representation of the overall picture of the site that shows the possible relationships between a contaminant source, exposure pathways and receptors. This is known as the source-pathway-receptor (SPR) model. For a risk to be present, all three of the following components must exist:

- a potential source of contamination;
- a receptor that could be adversely affected by the contaminants (such as a people, or an ecosystem); and
- a pathway that allows the receptor to be exposed to or affected by the contaminant (e.g. contaminated groundwater ingestion of contaminated vapour inhalation).

A CSM for the site (excluding hazardous materials present in buildings) has been developed. This CSM for the site is presented in Table 3.1. Although risks to on-site workers and on-site maintenance workers in shallow trenches have been evaluated, these potential pathways are expected to be managed through occupational exposure controls in accordance with health and safety legislation.

3.1 SOURCE ZONES

No PID readings (less than 1 ppm) were reported, and soil sample analysis did not report hydrocarbon impacts in soil in the newly installed on-site wells or additional boreholes above the adopted site criteria during the most recent intrusive works. The aquifer that was capable of producing water was encountered at a depth greater than 19 mBGL and water sample analysis identified an exceedance of the adopted criteria for 95% protection of species for freshwater guidelines during the most recent GME.

3.2 EXPOSURE PATHWAYS

Exposure of human receptors to contamination can occur through dermal contact, ingestion or inhalation of volatile vapours. Exposure to surface water bodies can occur through discharge of impacted groundwater.

Based on the nature and distribution of hydrocarbon impacts identified during this investigation and site geology/hydrogeology, anticipated primary transport mechanisms for the migration of identified contaminants are:

- Historic seepage of hydrocarbon fuels because of product loss from the on-site petroleum storage and distribution infrastructure into the underlying soils – no impacted soil material was encountered during the drilling program.
- Lateral and vertical migration of hydrocarbons through underlying soils into the groundwater – groundwater impacts were not identified in the aquifer sampled beyond 19 mBGL. No evidence of migration has been observed.

3.3 POTENTIAL RECEPTORS

Identified receptors include:

- on- and off-site commercial site workers
- on- and off-site maintenance and construction workers
- users of groundwater abstracted for beneficial use
- aquatic ecosystems and recreational users of surface water bodies that receive discharge from groundwater.

3.4 POTENTIALLY COMPLETE EXPOSURE PATHWAYS

The potentially complete exposure pathways and associated risks are summarised in table 3.1 below.

Table 3.1 Source-pathway-receptor linkages

Source	pathway	Receptor	Pathway complete? – risk evaluation
Soil – shallow soil impacted by surface spills and leaks of petroleum products from UPSS.	Intrusion of vapour into on-site retail building(s).	Workers at the site.	Low risk: soil impacts have not been detected in soil samples collected for laboratory analysis.
	Intrusion of vapours through soil profile into services and excavations.	Intrusive maintenance workers (shallow trench).	Low risk: soil impacts have not been detected at the site.
Groundwater – no groundwater encountered at site.	Intrusion of vapours into on-site retail building.	Workers and visitors at the site.	Low risk: groundwater was encountered at a depth exceeding 19 mBGL and concentrations below the adopted soil vapour criteria.
	Vapour migration from groundwater through soil profile into service trenches and excavations.	Intrusive maintenance workers (shallow trench).	Low risk: groundwater was encountered at a significant depth, i.e., greater than 19 mBGL.
	Intrusion of vapour into down-gradient off-site buildings through migration of contaminants in groundwater.	Residents to the north west of the site.	Low risk: groundwater was encountered at a depth exceeding 19 mBGL and concentrations below the adopted health screening levels.
	Abstraction of impacted groundwater for beneficial use.	Users of groundwater abstraction bores.	Low risk: two groundwater abstraction bores are located within 500 m of the site. Both wells intersect aquifers at a depth greater than 90 mBGL. The depth of the extraction wells is too great to be affected by any possible hydrocarbon impacts.
	Migration of impacted groundwater to surface water receptor.	Nearby surface water receptors	Low risk: groundwater was encountered at a depth exceeding 19 mBGL and nearby surface water bodies (e.g. Goan Waterhole located 250 m to the north-east) are above the SWL, and thus are not considered to be surface water receptors. The nearest surface water receptor will be several kilometres away, and thus is unlikely to be affected by impacts associated with the site.

4 REMEDIAL OBJECTIVE AND METHOD SELECTION

4.1 REMEDIATION OBJECTIVES

The primary objective of the remediation work is to remove site infrastructure and any significantly contaminated soil around the infrastructure deemed unsuitable to remain at the site. A further objective is to ensure that the site is suitable for continued (non-sensitive) commercial / industrial use.

4.2 REMEDIAL ENDPOINTS

The remedial works will be considered completed when:

- The buildings present at the site have been demolished and the materials along with the sites hard stand have been removed off-site.
- The primary sources (USTs and AST) and associated infrastructure has been appropriately decommissioned and removed.
- Concentrations of contaminants in soil around and beneath the primary sources are assessed as not posing a risk to future site users or offsite receptors. The adopted criteria to evaluate concentrations of contaminants in soils are described in Appendix B.

In accordance with the NEPM (NEPC, 2013) the following statistical criteria will be adopted with respect to comparison of the criteria:

- the 95% Upper Confidence Limit of the arithmetic mean for chemical contaminants does not exceed the validation criteria
 - the individual contaminant concentration does not exceed the validation criteria by more than 250%; and
 - the standard deviation of individual contaminant populations does not exceed 50% of the validation criteria.
-

4.3 REMEDIAL OPTIONS APPRAISAL

The remediation options have been assessed based upon the likelihood of achieving the remediation objectives presented in Section 4.1 and their suitability against the remediation hierarchy presented in *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013). This hierarchy includes the following:

- *On-site treatment of the contamination so that it is destroyed or the associated risk is reduced to an acceptable level; and*
- *Off-site treatment of excavated soil, so that the contamination is destroyed or the associated risk is reduced to an acceptable level, after which soil is returned to the site;*
- or,*
- *If the above are not practicable,*
 - *Consolidation and isolation of the soil on site by containment with a properly designed barrier;*
- and*

- Removal of contaminated material to an approved site or facility, followed, where necessary, by replacement with appropriate material;

or,

- Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

When deciding which option to choose, the sustainability (environmental, economic and social) of each option should be considered, in terms of achieving an appropriate balance between the benefits and effects of undertaking the option.

Table 4.1 presents an options assessment for management of identified soil/fill contamination.

Table 4.1 Management of risk associated with the in ground fuel infrastructure

MANAGEMENT APPROACH	ADVANTAGES	DISADVANTAGES	OUTCOME
2.1 – Do nothing	— Low cost option.	— Does not address potential source contamination on the site — Potential soil impacts have not been removed surrounding the tanks. — The tanks remain onsite as a potential liability — Does not meet the requirements of the UPSS regulation (<i>Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019</i>), which stipulates that if the UPSS has not been used for two years or more it is considered abandoned and should be decommissioned	Not preferred

MANAGEMENT APPROACH	ADVANTAGES	DISADVANTAGES	OUTCOME
2.2 – Foam filling and in-situ decommission of UST	— Immediate risks associated with impacts are contained on site. — Foam filling is designed to provide long term decommission of UST	— Potential soil impacts have not been removed surrounding the tanks. — The tanks remain on site as a potential liability — Short term moderate financial cost involving filling the tank in-situ — Does not comply with NSW UPSS regulation which preferences off-site removal if there is insufficient justification for in-situ decommissioning — Retention of in-ground structures limits the potential for replacement with new UPSS	Not preferred
2.3 – Excavate and dispose tank, soils and liquid waste and re-instate excavations with ‘clean’ fill.	— Immediate risks associated with impacts are removed. — Fastest remediation option of the site — No further ongoing management or notification required on-site — Complies with UPSS regulation — Provides space for installation of new UPSS	— Short term moderate financial cost involving off-site disposal and importation of ‘clean fill’	Preferred

4.4 PROPOSED REMEDIATION METHOD

Based on the findings of the remediation options review, the following methodology is proposed to meet the remediation goals and objectives of the site.

4.4.1 UPSS DECOMMISSIONING

The UPSS will be excavated and the USTs, fuel lines, bowzers and associated fuel infrastructure, will be removed and disposed of. In accordance with the ‘*Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation, 2019*’ (EPA, 2020), the UPSS will be removed from the ground and appropriately disposed of, in accordance with:

- Australian Standard AS 1940–2017, The Storage and Handling of Flammable and Combustible Liquids
- Australian Standard AS 4976–2008, The Removal and Disposal of Underground Petroleum Storage Tanks
- SafeWork NSW safety alert WC01188, Potential risks when removing underground storage tanks.

Section 5.5 provides further detail on proposed approach.

4.4.2 VALIDATION OF EXCAVATION EXTENTS

After removal of the tanks and lines, soils from the walls and floors of the excavation will be sampled to characterise the remaining soils. Soils will be submitted for laboratory analysis for the contaminants of potential concern (refer Section 2.7). The results of laboratory analysis will be compared to the adopted criteria described in Section 4.2.

Further assessment and / or additional excavation may be undertaken if residual soil impacts are assessed as posing a risk to future commercial site users.

4.4.3 REMEDIATION OF IMPACTED SOILS (IF ANY)

Any excavated soil which is found to exceed the adopted site criteria will be either removed from site for disposal to an appropriately licensed waste disposal facility or treated on site to enable site reuse.

The on-site treatment may include methods such as soil vapour extraction or bioremediation. While there can be significant costs and timeframes for soil treatment, soil treatment minimises the volume of soil removed off site and sent to landfill and the volume of imported material required to reinstatement the excavations.

For any material that cannot be treated and / or reused, the proposed remediation method is excavation and off-site disposal.

Sections 5.6 and 5.7 provide further detail on proposed temporary stockpiling and material tracking approach for the works.

4.4.4 VALIDATION OF IMPORTED MATERIAL

Once the UPSS and associated infrastructure have been removed from site and the excavation validated, the excavation will be backfilled with either site won material which is reported below adopted site criteria or imported fill. The suitability of imported fill will be evaluated using the protocols outlined in Section 5.9.

5 PROPOSED REMEDIATION WORKS

5.1 PRE-WORK NOTIFICATIONS

The ‘Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation, 2019’ (EPA, 2020), identify the following notification protocols prior to, UPSS decommissioning.

- Local authorities Clause 23 of the Regulation requires the person responsible for the storage system to advise the relevant local council at least 30 days prior to the proposed decommissioning of the UPSS. For urgent or unforeseen situations, the notification must be made as soon as possible.

This RAP and associated development consent application is the notification to the local council that the decommissioning of UPSS is proposed.

5.2 PRELIMINARIES

Prior to commencement of remedial works at the site, the following activities would need to be completed:

- Receipt of all relevant regulatory approvals for the use of the chosen remediation technology;
 - Preparation of a health, environmental and safety plan (HESP) and a construction, environment management plan (CEMP) prior to commencement of site works;
 - Induction of all site personnel to ensure that they are aware of the health, safety and environmental management requirements relating to the excavation of potentially contaminated soils; and
 - Confirmation that the contractor conducting the excavation has adequate safety equipment (for example, adequate fencing, barrier boards, barricades and warning signage) to secure the work area and minimise the danger to contractor personnel and the public for the duration of the remediation works.
-

5.3 EXISTING GROUNDWATER WELL DECOMMISSIONING

Existing wells in areas of the site where excavations will occur are at risk of being destroyed or compromised. These wells will be decommissioned prior to commencement of earthworks at the site. The wells are to be decommissioned in accordance to the requirements of the National Uniform Drillers Licensing Committee (2011) *Minimum Construction Requirements for Water Bores in Australia* document.

5.4 DEMOLITION OF ABOVE GROUND STRUCTURES

Prior to demolition of the site’s above ground infrastructure, removal and disposal of all hazardous substances outlined in the site hazmat register (2021) supplied as Appendix C, must be completed and the work area given clearance by an appropriately qualified hygienist. These works will only be carried out by contractors holding appropriate licenses, consent and/or approvals to manage, handle and dispose of the hazardous substances.

Removal and disposal of hazardous substances shall be in accordance with the requirements of the material safety data sheets, environmental authorities and statutory requirements, where applicable may include atmospheric monitoring or health surveillance where it is identified that these activities are required. Site specific controls to minimise risk will be outlined with the CEMP and developed onsite during the removal and demolition phase of works.

Transport of demolition waste and disposal of materials must be conducted in accordance with the requirements of the *POEO Act 1997*. The contractor will track the movement of all demolition materials handled for offsite disposal as part of the demolition component of the remediation program.

5.5 UPSS REMOVAL WORKS

5.5.1 OVERSIGHT

All excavation works undertaken should be completed by experienced licensed contractors, experienced in the decommissioning and removal of fuel infrastructure and the remediation of contaminated soils (a duly qualified person).

An environmental scientist should be present during all excavation works, particularly to assess the contamination status of the soil excavated from around the tanks, and to determine whether further excavation of tank pit walls and floor is required to remove contaminated soil.

5.5.2 CODES OF PRACTICE

As a minimum, the following Codes of Practice are applicable to the work and a copy of each should be obtained by the contractor. Standards should be the most recent version available unless otherwise specified:

- AS 4976–2008, *The Removal and Disposal of Underground Petroleum Storage Tanks*
- AS 1940 Section 9, *The storage and handling of flammable and combustible liquids*.
- Contaminated Sites Environment Protection Policy.
- SafeWork NSW safety alert WC01188; *Potential risks when removing underground storage tanks*
- NSW Environmental Protection Agency (NSW EPA) 2020, *Underground Petroleum Storage Systems – Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*

5.5.3 METHOD

The hardstand will be broken to allow access to the tanks and fuel lines. Once the hard standing is removed from above the tanks, the soil material around the tanks will be excavated and stockpiled onsite (see Section 5.6). It is expected that the majority of the excavated material can be reused onsite, pending validation.

Tanks must be cleared prior to excavation by draining all products, vapour venting and de-gassing. Once tanks are ‘cleared’ they will be gas tested for vapours and then deemed safe by an appropriately qualified person. The tank atmosphere and the excavation area shall be checked regularly for presence of vapour until the tank is removed from the site. Following removal, tanks must be properly labelled and disposed of. The order in which the tanks are removed will be dictated by the preference of the experienced contractor undertaking the works.

All applicable permits must be obtained prior to the beginning of any work associated with tank clearance. All product liquid and residue removed from the tank shall be handled in accordance with appropriate standards and local regulations associated with environmentally hazardous materials and dangerous goods. The contractor shall submit written procedures to complete the following activities outlined below.

- Draining pipes and pumping out tanks.
- Removal of pipework.
- Removal of tank from ground.
- Labelling of tanks.
- Transporting of tanks.

- Tank destruction.
-

5.6 TEMPORARY STOCKPILING

Stockpile management procedures, soil erosion and sedimentation controls and procedures to manage contamination will be applied during the remediation process. Temporary stockpiles will be located in accordance with the following general requirements:

- Stockpiles will only be placed at approved locations;
 - Stockpiles will be strategically located to mitigate environmental impacts while facilitating material handling requirements;
 - Potentially contaminated materials will only be stockpiled at locations that do not pose unacceptable risk of environmental impairment of the stockpile area or surrounding areas (i.e. sealed surfaces such as sealed concrete, asphalt, plastic sheeting or a mixture of these);
 - Stockpiles will only be constructed in areas of the site that have been located and prepared in accordance with the requirements of this RAP. All such preparatory works will be undertaken prior to the placement of material in the stockpile; and
 - Access routes will be established around the material stockpiles to enable access from the road.
-

5.7 MATERIAL TRACKING

Materials excavated from the site and relocated on-site or disposed of off-site must be tracked in order to provide detailed and accurate information about the location and quantity of all materials both on- and off site from the time of their excavation until their disposal.

The location of disposal locations will be determined by the remediation contractor. For any truck moving contaminated material on-site or off-site, the following information would be recorded:

- Origin of material;
- Material type;
- Approximate volume;
- Final destination; and
- Truck registration number (for off-site disposal only).

This information, along with the landfill docket number for materials disposed of to an off-site facility, will be provided in the validation report.

5.8 DEWATERING

Standing water levels at the site during the last on-site investigation (WSP ESA 2021) were recorded between 19.045 – 19.325 metres below top of casing (mBTC), and thus dewatering is extremely unlikely to be required.

5.9 REINSTATEMENT OF EXCAVATIONS

Following validation, excavations will be backfilled up to the original ground level. It is not planned to reinstate the concrete over the excavation area, but rather track roll the soil material placed in the excavations.

Excavated soils with contaminant concentrations below the site assessment criteria may be reused on-site. The material should be assessed for its potential to pose risk to human and ecological receptors. The material will not be considered suitable for reuse if contaminant concentrations exceed assessment criteria or potential risks are identified. Refer to Section 6.2.3 for qualifications to the reuse of material at the site.

Where sufficient suitable material is not available from the site, appropriately certified virgin excavated natural material (VENM) or excavated natural material (ENM) will be imported for use as backfill (see Section 6.2.3).

5.10 POST-WORK NOTIFICATIONS

The ‘*Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation, 2019*’ (EPA, 2020), identify the following notification protocols following UPSS decommissioning.

- A UPSS report is to be provided to the relevant local council (or the EPA, if the UPSS is located in an unincorporated area), within 60 days of the UPSS removal or following the completion of subsequent remediation (whichever is the later).

The receipt of the final laboratory report confirming achievement of the remedial end points (refer Section 4.2) will confirm the cessation of the remedial works. As a consequence, the cessation date of remedial works and the commencement of the 60 day reporting period, will be the date the final laboratory report associated with validation of excavated or imported soils below adopted criteria is received.

- SafeWork NSW will be notified using the prescribed SafeWork NSW form.

6 VALIDATION STRATEGY

6.1 DATA QUALITY OBJECTIVES

Systematic planning is critical to successful implementation of any assessment and is used to define the type, quantity and quality of data needed to inform decisions. The United States Environmental Protection Agency (US EPA) has defined a process for establishing data quality objectives (DQOs) (US EPA, 2000a and 2000b), which has been referenced in *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)* (NEPM) Schedule B2 – Guideline on Site Characterisation ((National Environmental Protection Council (NEPC), 2013).

DQOs ensure that:

- The study objectives are set;
- Appropriate types of data are collected (based on contemporary land use and chemicals of potential concern); and
- The tolerance levels are set for potential decision making errors.

The DQO process is a seven-step iterative planning approach. The outputs of the DQO process are qualitative and quantitative statements which are developed in the first six steps. They define the purpose of the data collection effort, clarify what the data should represent to satisfy this purpose and specify the performance requirements for the quality of information to be obtained from the data. The output from the first six steps is then used in the seventh step to develop the data collection design that meets all performance criteria and other design requirements and constraints. The DQO process adopted for the UPSS replacement and soil remediation works is outlined in Table 6.1.

Table 6.1 Data quality objective process

Step	Description	Outcomes
1	State the problem	Ampol intends to remove the current UPSS and above ground infrastructure at the Trangie service station depot and in the process excavate soils in the vicinity of the UPSS. The remedial works will be considered to be completed when concentrations of contaminants in soil around and beneath the former primary sources are assessed as not posing a risk. To evaluate if the remedial end points have been achieved, assessment of contaminant concentrations at the extent of excavations and excavated soils is required.
2	Identify the decisions	The decisions to be made are as follows: <u>Excavation extents</u> 1 What are the residual concentrations of contaminants of concern in soil at the site? 2 Does the contamination pose a risk? 3 If there is a risk, what is the most appropriate remedial/management strategy to be employed at the site? <u>Excavated soils</u> 4 What are the contaminant concentrations in excavated soils? 5 Does the contamination pose a risk if re-used on-site to backfill excavations? 6 If soils cannot be re-used, are the soils appropriately classified to enable off-site disposal?
3	Identify the inputs to the decision	The inputs required to make the above decisions are: — the results of previous investigations

		— field and analytical data to be collected during the works — the adopted site criteria — national and NSW EPA made, endorsed or approved criteria for classifying waste.
4	Define the study boundaries/ constraints on data	The boundaries of the investigation have been identified as follows: — Spatial boundaries: the spatial boundary of the site is defined as the site boundary. The vertical extent of the study area is defined as the depth to impacted soils (if any). The site boundary is shown on Figure 1. — Temporal boundaries: As the data and information obtained from the previous investigations has been relied upon, the temporal boundary will be from the date of the oldest available assessment data to the date of acquisition of the final laboratory results
5	Develop a decision rule	The purpose of this step is to define the parameters of interest, specify the action levels and combine the outputs of the previous DQO steps into an ‘if...then...’ decision rule that defines the conditions that would cause the decision maker to choose alternative actions. The parameters of interest are concentrations of contaminants of concern in soil (refer Section 2.7). The extent of excavations and stockpiles of excavated soils will be sampled and submitted for laboratory analysis using the protocol outlined in Section 6.2. The laboratory results will be compared to the assessment criteria detailed in Section 4.2. For the purposes of assessing this site (with commercial/industrial end point), the following questions need to be satisfied with the following if/then outcomes: <u>Excavation extents</u> 1 The extent of excavations will be sampled and submitted for laboratory analysis using the protocol outlined in Section 6.2. 2 The laboratory results will be compared to the assessment criteria detailed in Section 4.2. 3 If soils at the extent of the UPSS excavations are found to contain contaminant concentrations above the investigation levels, then soil will be subject to further excavation or management if the practical extent of excavation has been reached <u>Excavated soils</u> 4 The stockpiles of excavated soils will be sampled and submitted for laboratory analysis using the protocol outlined in Section 6.2. 5 The laboratory results will be compared to the assessment criteria detailed in Section 4.2. 6 If stockpiled soils at are found to contain contaminant concentrations above the investigation levels, then soil will be subject to off-site disposal or on-site treatment 7 If stockpiled soils at are found to contain contaminant concentrations below the investigation levels, then soil will be subject to re-use to backfill completed excavations.
6	Specify limits on decision errors	The acceptable limits on decision errors to be applied in the investigation and the manner of addressing possible decision errors have been developed based on the data quality indicators (DQIs) of precision, accuracy, representativeness, comparability and completeness and are presented in Table 6.4 and Table 6.5.
7	Optimise the design for obtaining data	The purpose of this step is to identify a resource-effective data collection design for generating data that satisfies the DQOs. This assessment has been designed considering the information and data from the previous assessments. The resource-effective data collection design that is expected to satisfy the DQOs is described below.

6.2 VALIDATION METHODOLOGY

6.2.1 EXCAVATION VALIDATION

The minimum number of samples required for tank pit validation is based on the NSW EPA (2014) *Technical Note: Investigation of Service Station Sites*, which specifies a minimum of two samples per tank with samples taken from each tank wall and floor. Where the tank is 4-10 m long, at least two samples from each of the four walls and under each end should be taken. If a tank is longer than 10 m, at least three samples from each of the walls and under each end should be taken. For UPSS pipeline trench validation, the sample ratio is 1 sample analysed per 5 m of trench excavation.

Sampling numbers and analysis will conform to the minimum validation sample requirements of:

- Minimum of one base sample per 10m by 10m grid; and
- Minimum of one sample from each wall per 10 lineal meters. Where the excavation is greater than 2m depth, validation samples are to be collected from the upper 2m (i.e. 0-2m) and the lower 2m (i.e. 2-4m) of each excavation wall)

Where initial validation results indicate residual contamination remains within an AEC, the excavation will be further excavated and re-validated at the following rate:

- One sample per wall and base, or one sample per 5 lineal meters, whichever is greater; and
- One sample at each sampling point from each 2m depth interval (i.e. 0-2m, 2-4m, etc).

Samples will be analysed for the contaminants of potential concern for the site, namely TRH, BTEXN, PAH and lead.

Quality assurance/quality control (QA/QC) samples will be collected and analysed as described in Section 6.3. The excavations will be left open while waiting for laboratory results.

6.2.2 VALIDATION & MANAGEMENT OF STOCKPILES

The excavated soils generated during the UPSS removal works, including tank pit sand, will be segregated into separate stockpiles based on field observations, such as soil type, field PID readings, olfactory evidence of contamination and depths (i.e. above or below the tanks) where the soils are excavated. The NEPM (2013) Schedule B2, Guideline on Site Characterisation, outlines the minimum number of samples for assessment of stockpiles. For stockpile volume less than 200 m³, the recommended sampling frequency is 1 per 25 m³. For stockpiles greater than 200 m³, lower sampling rates should be suitable for calculating the 95% upper confidence level (UCL).

All the stockpile soil samples shall be analysed for TRH, BTEX, PAH and lead. If the stockpiled soil is to be disposed of off site, then analysis of PFAS and heavy metals (including lead) will also be conducted as a minimum. Samples will be collected directly from the excavator bucket or using a decontaminated trowel to ensure soil samples are collected from a minimum depth of 300 mm below the stockpile surface.

Excavated soils may be suitable for re-use on-site if contaminant concentrations are less than the site assessment criteria, and the site has sufficient area to accommodate the material. In addition, any soils intended to be retained and beneficially reused on site should not exhibit discolouration (staining), be malodorous or have abnormal consistency i.e. contain abundant fill, rubble or asbestos, and engineering suitability must also be considered. If contaminant concentrations or characteristics do not meet these criteria, the material will be disposed of at an appropriately licensed NSW landfill facility.

For off-site disposal, the soil analytical results will be compared guideline values in the waste classification guidelines (NSW EPA, 2014; see Section 6.5). Appropriately licensed NSW contractors must be engaged for the removal, transport and disposal of all contaminated soils from the site. If the soils are disposed off-site, disposal dockets for tracking of waste will be maintained by the contractor for inclusion in the UPSS validation report.

6.2.3 VALIDATION OF IMPORTED SOILS

Where VENM is required for backfilling, it should be certified as VENM and be assessed to determine that it is suitable for the intended use. This would involve:

- Review of VENM certification and relevant testing undertaken by the supplier;
- Reviewing the history of the source of the material and compare source site with acid sulfate soil maps;
- Potential inspection of source location;
- A visual inspection of material prior to unloading for foreign material or unusual staining or appearance different to that described in the VENM certification; and
- Confirmation sampling as required.

Where ENM is to be imported to the site for use as backfill, the material should be assessed in accordance with the NSW EPA requirements under the Resource Recovery Order under Part 9, Clause 93 of the *Protection of the Environment Operations (Waste) Regulation 2014* (NSW Government, 2014) prior to being imported to the site. Confirmation sampling will be undertaken of ENM imported to site.

Confirmation sampling for VENM and ENM should be undertaken at a rate of 1 sample per 200 m³ of material, with a minimum of 3 samples collected. Samples will be analysed for TRH, BTEXN, PAHs, metals (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn) and asbestos¹. Reported concentrations will be evaluated against adopted site criteria (refer Section 4.2) and the following additional criteria in Table 6.2.

Table 6.2 Supplementary evaluation criteria

ANALYTE	HUMAN HEALTH (COMMERCIAL/ INDUSTRIAL) ¹ (mg/kg)
Bonded ACM	0.05% (w/w)
Fibrous asbestos (FA) and asbestos fine (AF)	0.001% (w/w)
Arsenic (As)	3000
Cadmium (Cd)	800
Chromium VI (Cr)	3000
Copper (Cu)	250,000
Mercury (Hg)	4000
Nickel (Ni)	4000
Lead (Pb)	1500
Zinc (Zn)	400,000

- (1) National Environmental Protection Council (NEPC), National Environmental Protection Measure (NEPM, 2013) – Table 1A(1): Health Investigation Levels.

¹ Note this testing is for confirmation only. It does not obviate the need for appropriate VENM or ENM certification to be provided by the supplier.

6.3 GENERAL QA/QC PROTOCOLS

A summary of the QA/QC protocols to be followed during the remediation and validation works is presented in Table 6.3.

Table 6.3 Data quality indicators

TASK	DESCRIPTION
General	Work will be undertaken in accordance with standard operating procedures, based on industry accepted standard practice.
Soil screening with PID	The PID will be serviced and calibrated as per the manufacturer requirements and the PID would be calibrated at the beginning and end of each day of fieldwork and records sheet maintained for inclusion in the validation report.
Equipment decontamination	Any soil and groundwater sampling equipment will be decontaminated after the collection of each soil sample by washing with phosphate-free detergent (such as Decon 90 or Liquinox PFAS free detergent) and potable water, followed by a final distilled water rinse. One rinsate blank will be collected per day and analysed for the contaminants of concern. All results should be non-detect.
Transport	Samples will be stored in an ice brick-cooled esky and transported to the laboratory. To ensure the integrity of the samples from collection to receipt by the analytical laboratory, soil samples will be sent by courier to the laboratories under 'chain of custody', describing sample preservation, and transport duration, for receipt at the laboratory within 24 hours of sampling or at minimum within holding times.. One trip blank per sample batch will be sent to the laboratory. Results for trip blanks should all be non-detected.
QA samples	Field and laboratory QA samples will be analysed as follows: — intra-laboratory duplicate samples at a rate of 1 in 20 primary samples; and — inter-laboratory duplicate samples at a rate of 1 in 20 primary samples.
Soil and groundwater QA sample relative per cent differences (RPDs)	The precision of the data is assessed by calculating the RPD of duplicate samples. As per the data acceptance criteria detailed in the NEPM 2013, RPD values of 30% will be adopted as acceptance criteria for analytes in soil. In the absence of published criteria, RPD values of 100% will be adopted as acceptance criteria for analytes in groundwater. If a cause cannot be determined the data may require qualification.
Laboratory analysis	The laboratories selected will meet WSP's in-house compliance requirements under the respective ISO 9001 QA programs. They will perform their own internal QA/QC programs and will use appropriate detection limits for the analyses to be undertaken. Laboratories will be NATA accredited for the analysis performed.
Holding Times	Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses will be completed within standard guidelines.
Rinsate blanks	While the number of equipment blanks varies between projects, a rate of one rinsate blank for each sampling day will be adopted and analysed for TPH, BTEXN and lead.
Field/trip blanks	For soil sampling programs, the field/trip blanks will consist of laboratory-supplied sand blank containing acid-washed quartz sand or deionised water. One field/trip blank will be analysed per sample batch for volatile TPH and BTEX compounds. These samples will be analysed for the purpose of monitoring for contamination that might be introduced during sampling or transit.
Trip spikes	Laboratory-prepared trip or VOC spikes consisting of distilled, de-ionised water or sand spiked with known concentrations of BTEX will be included at a rate of one per sample batch. These samples are to be submitted for BTEX analysis with results compared with the known additions. The purpose of these samples is to monitor VOC losses during transit.

TASK	DESCRIPTION
Laboratory Duplicates	Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These sub-samples are selected by the laboratory to assess the accuracy and precision of the analytical method. The selected laboratories should undertake QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. Intra-laboratory duplicates should be performed at a frequency of 1 per 10 samples.
Laboratory Control Standard	A laboratory control standard is a standard reference material used in preparing primary standards. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. Laboratory control samples should be performed on a frequency of 1 per 20 samples or at least one per analytical run.
Matrix Spikes / Matrix Spike Duplicates (MS/MSD)	MS/MSDs are field samples to which a predetermined stock solution of known concentration has been added. The samples are then analysed for recovery of the known addition. Recoveries should be within the stated laboratory control limits of 70 to 130% and duplicates should have RPDs of less than 50%.
Surrogate Spikes	Surrogate spikes provide a means of checking, for every analysis that no gross errors have occurred at any stage of the procedure leading to significant analyte loss. Recoveries should be within the stated laboratory control limits of 70 to 130%.
QA/QC Conclusion	The QA/QC indicators should either all comply with the required standards or show no variations that would have a significant effect on the quality of the data.
Decontamination procedure	All non-disposable sampling equipment will be washed with Decon 90 and rinsed with clean water before and after each sample is collected. Disposable nitrile gloves were worn during sampling and were changed between samples to minimise the potential for cross contamination.
Sample handling	All soil and groundwater samples will be stored in chilled eskies after collection and during transport by courier to the laboratory. Prior to delivery to the laboratory, a chain of custody form (COC) will be completed. The COC will be signed and accompany the samples. Upon receipt by the laboratory, COC and/or samples receipt notices will be returned to confirm the receipt, condition of samples and specified analysis

6.4 DATA QUALITY INDICATORS (DQI)

DQIs for sampling techniques and laboratory analyses of collected representative soil and groundwater samples define the acceptable level of error required for this validation assessment. The adopted field methodologies and data obtained were assessed by reference to the following measures:

- **Accuracy:** a quantitative measure of the closeness of reported data to the true value;
- **Comparability:** a qualitative parameter expressing the confidence with which one data set can be compared with another;
- **Completeness:** a measure of the amount of useable data (expressed as a per cent) from a data collection activity
- **Representativeness:** the confidence (expressed qualitatively) that data are representative of each media present on the site; and
- **Precision:** a quantitative measure of the variability (or reproducibility) of data.

A summary of the field and laboratory DQIs for the validation assessment are provided in Table 6.4 and Table 6.5.

Table 6.4 DQIs for field techniques

DQI
Precision
Standard operating procedures (SOPs) appropriate and complied with.
Collection of intra-laboratory duplicates

DQI
Accuracy
WSP SOPs appropriate and complied with
Collection and analysis of inter-laboratory duplicates
Collection of rinsate blanks, trip blanks and spikes
Representativeness
Appropriate media sampled according to the sampling plan outlined within this RAP
Comparability
Same SOPs used on each occasion
Experienced sampler
Climatic conditions (temperature, rainfall, wind)
Same type of samples collected
Completeness
SOPs appropriate and complied with
All required samples collected

Table 6.5 DQIs for laboratory analysis

DQI	Acceptable Limits
Accuracy	
Laboratory prepared trip blanks (one per batch)	Non-detect for contaminants analysed
Rinsate blanks (one per day)	Non-detect for contaminants analysed
Method blanks	Non-detect for contaminants analysed
Matrix and surrogate spikes and laboratory control samples	Laboratory specific
Matrix spike duplicates	Laboratory specific
Reference materials	Laboratory specific
Reagent blanks	Non-detect for contaminants analysed
Comparability	
Sample analytical methods used (including clean-up)	As per NEPM (NEPC, 2013)
Same units (justify/quantify if different)	-
Same laboratories (justify/quantify if different)	-
Sample practical quantitation limit (PQLs)	< nominated criteria
Completeness	
All critical samples analysed	-
All required analytes analysed	-
Appropriate methods and PQLs	As per NEPM (NEPC, 2013)
Sample documentation complete	As per NEPM (NEPC, 2013)

DQI	Acceptable Limits
Sample holding times complied with	As per NEPM (NEPC, 2013)
Representativeness	
All required samples analysed	-
Precision	
Blind (intra-laboratory) duplicates and split (inter-laboratory) duplicates at rate of 1:20 primary samples for the same analysis of primary samples (not including asbestos, pH, cation exchange capacity (CEC), organic or clay content – if required)	Variable (see Table 6.3)
Laboratory duplicates	Laboratory specific
Laboratory prepared trip spikes (one per batch for volatiles)	70–130%
National Association of Testing Authorities (NATA) certified laboratories used	-

6.5 WASTE CLASSIFICATION CRITERIA

Prior to the transportation of soils off-site for disposal, the excavated soils will be classified ex-situ in accordance with the NSW EPA 2014, *Waste Classification Guidelines – Part 1: Classifying Waste* and the 2016 addendum to this guideline, which covers PFAS contaminated waste.

The guidelines provide the criteria for classifying waste and follow a step-by-step process to classify wastes into groups that pose similar risks to the environment and human health, enabling their management and appropriate disposal.

Any waste that contains asbestos must be classified as special waste (asbestos). Asbestos is the fibrous form of mineral silicates within the serpentine or amphibole groups of rock-forming minerals.

Otherwise, solid waste may be classified as general solid waste (putrescible or non-putrescible), restricted solid waste or hazardous waste either based on its pre-classified description or by chemical testing.²

Where soil is classified based on its chemical composition it is assessed initially using the contaminant threshold (CT) limits without considering leachability of the chemicals within the waste. If the concentrations exceed the CT values further assessment using the specific contaminant concentration (SCC) values and the leachable concentration using TCLP values may be used instead to allow for higher total concentrations within the waste.

The waste classification is assigned based on the chemical in the waste falling into the highest waste class.

A summary of the waste acceptance criteria is included in Table 6.6.

Table 6.6 Waste classification criteria

CHEMICALS	CT (WITHOUT TCLP) ¹		SCC (WITH TCLP) ²			
	GENERAL SOLID (CT1)	RESTRICTED SOLID (CT2)	GENERAL SOLID ⁴		RESTRICTED SOLID	
			TCLP1	SCC1	TCLP2	SCC2
			(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
TRH C ₆ -C ₉	650 ¹	2,600 ¹	NA	650	NA	2,600
TRH C ₁₀ -C ₃₆	10,000 ¹	40,000 ¹	NA	10,000	NA	40,000

² Where a soil is special waste, and also has chemicals within the restricted solid waste or hazardous waste range it should be classified as both special waste and restricted solid waste, or special waste and hazardous waste and managed accordingly.

CHEMICALS	CT (WITHOUT TCLP) ¹		SCC (WITH TCLP) ²			
	GENERAL SOLID (CT1)	RESTRICTED SOLID (CT2)	GENERAL SOLID ⁴		RESTRICTED SOLID	
			TCLP1	SCC1	TCLP2	SCC2
	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
Benzene	10	40	0.5	18	2	72
Toluene	288	1,152	14.4	518	57.6	2,073
Ethylbenzene	600	2,400	30	1,080	120	4,320
Total xylene	1,000	4,000	50	1,800	200	7,200
Benzo(a)pyrene	0.8	3.2	0.04	10	0.16	23
Total PAHs	200 ¹	800 ¹	NA	200	NA	800
Arsenic	100	400	5	500	20	2,000
Cadmium	20	80	1	100	4	400
Chromium (VI)	100	400	5	1,900	20	7,600
Lead	100	400	5	1,500	20	6,000
Mercury	4	16	0.2	50	0.8	200
Nickel	40	160	2	1,050	8	4,200
PFOS + PFHxS ³	NA	NA	0.05	1.5	0.2	7.2
PFOA	NA	NA	0.05	18.0	2.0	72.0

NA Not applicable

(1) Extracted from Table 1 in Waste Classification Guidelines. Part 1: Classifying Waste (NSW EPA, 2014).

(2) Extracted from Table 2 in Waste Classification Guidelines. Part 1: Classifying Waste (NSW EPA, 2014).

(3) PFOS and PFHxS are to be summed for comparison against the TCLP and SCC values.

(4) PFOS, PFHxS and PFOA: Values are the same for general solid waste (putrescible) and general solid waste (non-putrescible).

6.6 REPORTING

At the completion of the site works, a site validation report will be prepared in general accordance with the NSW EPA (2020) *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land – Contaminated Land Guidelines and Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation, 2019* (2020). The UPSS validation report will detail the methodologies and results of the validation works and will include, at a minimum:

- Executive summary;
- Introduction;
- Scope of work;
- Site identification details;
- Summary of the site history;
- Summary of the site condition and surrounding environment;
- Summary of the site geology and hydrogeology;
- Review of existing records and previous reports;
- Conceptual site model;

- Remediation activities undertaken (including extent and observations of excavation/s and treatment, waste documentation materials tracking and imported fill documentation);
- Validation sampling and analysis plan (including methodology);
- QA/QC protocols for field works and laboratory analysis;
- Basis for validation criteria and validation sampling records;
- Review of laboratory data and details of statistical analysis of validation results and evaluation against the clean-up criteria; and
- Conclusions and recommendations.

7 REMEDIAL CONTINGENCIES

At this stage it is anticipated that the above proposed approach should be effective in managing the identified contamination, however contingency strategies may be required in the event of certain scenarios. Possible unexpected findings are listed in Table 7.1.

Table 7.1 Remedial contingencies

POTENTIAL ISSUES	PROPOSED CORRECTIVE ACTIONS	RESPONSIBLE PERSON	COMMUNICATION AND ADDITIONAL SAMPLING/ MONITORING
Unexpected contaminated soil finds	If soil is encountered during the remedial works which appears to be different from the soils otherwise identified in this RAP, or point sources of contamination such as buried drums or wastewater interceptors are encountered, the following procedures will apply: - Any unexpected materials or soil which have been excavated should be stockpiled on bunded, strong, impermeable plastic sheeting, protected from erosion and all seepage retained (divided into domains or stockpiles representing similar material types). - Excavation works at that part of the site where the unexpected material (soil, asbestos containing material or physical find) is encountered will cease until inspection is carried out by the environmental consultant or its representative. - Based on visual inspection, the environmental consultant will provide interim advice on construction health and safety, soil storage and soil disposal to allow other remediation activities to proceed if possible. - Based on sampling and analysis of the material, the environmental consultant will provide advice based on comparison of the laboratory test results to appropriate criteria relating to human health, potential environmental impacts and waste disposal. In the context of the above, unexpected material would include, but is not limited to the following, oily materials or materials with unusual odours, drums, metal or plastic chemical containers, buried solid waste, ash, slag, coke or brightly coloured material, asbestos containing material etc.	Contractor	The findings are to be recorded in the daily site log and provided to Ampol and the environmental consultant immediately (initial notification) and detailed report to Ampol within 24 hours of the finding.

POTENTIAL ISSUES	PROPOSED CORRECTIVE ACTIONS	RESPONSIBLE PERSON	COMMUNICATION AND ADDITIONAL SAMPLING/ MONITORING
Impacted soil hotspot areas are larger in size than estimated	All soil containing contaminants above the relevant health assessment criteria will require management, even soils outside the areas defined. Should additional soils be identified beyond the areas highlighted, these soils will still need to be excavated for off-site disposal.	Contractor	Unexpected finds are to be recorded in the daily site log and provided to Ampol and the environmental consultant within 24 hours of breach occurring. All excavations need to be validated as per the validation sampling and monitoring.
Excavation limitations	A number of limitations have been identified that potentially would render chasing out of impacted soils no longer feasible or logistically possible. These include: — beyond the proposed excavation limits set out in the document — horizontally beyond the site boundary — vertically below the groundwater table — excavation will not be undertaken if they may affect building stability.	Contractor	Should impacted materials be found to extend beyond these spatial limits, excavation is to stop and the Ampol's project manager notified. It may be more appropriate to risk assess or manage the contamination
Unexpected contamination suggests that there is a potential risk to human health associated with soil vapour soil	Complete further excavation of impacted soils and / or undertake additional assessment of potential risk such as soil vapour implant installation. Consider installation of a vapour barrier or venting system during construction of any new future onsite buildings.	Consultant to advise Ampol	Additional assessment of vapour risk to be undertaken and/or engineering controls (vapour barrier or venting) to be incorporated into construction of buildings onsite.
Excessive stormwater collecting in excavations	Minimise active contaminated work area; improve stormwater diversion. Check control measures are adequate to prevent surface water runoff entering and leaving excavation and stockpile areas. Temporary bunding or diversion drain, silt fences/hay bales surrounding stockpiles and protection of existing drains to be regularly inspected to ensure that they are in good condition and if necessary upgraded where their performance is deteriorating. Excavations should be pumped out to remove excess water where necessary.	Contractor	Breaches are to be recorded in the daily site log and provided to Ampol and the environmental consultant within 24 hours of breach occurring. Water to be disposed of offsite is to be sampled and analysed for contaminants of concern.

POTENTIAL ISSUES	PROPOSED CORRECTIVE ACTIONS	RESPONSIBLE PERSON	COMMUNICATION AND ADDITIONAL SAMPLING/ MONITORING
Excessive dust	Use water sprays; stop dust-generating activity until better dust control can be achieved or apply interim capping systems on stockpiles or exposed material. Stop work in high wind conditions.	Contractor	Breaches are to be recorded in the daily site log and provided to Ampol and the environmental consultant within 24 hours of breach occurring. No additional monitoring/sampling required.
Excessively wet materials	Stockpile and dewater on-site or add absorbents and bunds. There is the potential for water to accumulate in excavation areas. If water does accumulate, it will require removal (remediation contractor to provide method statement to Ampol and its environmental consultant) prior to controls being implemented.	Contractor to consult environmental consultant	Water accumulated in excavations to be sampled by environmental consultant for contaminants of concern. Management/disposal options to be formulated based on analytical results.
Heavy rain	Ensure sediment and surface water controls are operating correctly. If possible, divert surface water away from active work areas or excavations. Cover and bund all stockpiles with plastic or other suitable impermeable sheeting. Consider requirement for water holding tanks on site and relevant pumping equipment.	Contractor	None.
Equipment failures	Maintain spare equipment or parts close to site; keep rental options available, shut down affected operations until repairs are made. Develop and implement routine operation and maintenance checks on equipment, service checks etc. Clean up any equipment or plant spills (i.e. hydraulic or fuel releases) with absorbent material. Stockpile the impacted material in a secure location.	Contractor	Breaches are to be recorded in the daily site log and provided to Ampol and the environmental consultant within 24 hours of breach occurring. Sample any impacted stockpiled materials that have resulted from equipment failures (TRHs, BTEX compounds and PAHs) and determine appropriate disposal/treatment option based on an assessment of analytical results.
Complaints are received relating to the works undertaken	Stop works and implement control measures to address complaint (if possible). Advise and consult with Ampol.	Contractor	Notify relevant Project Managers following complaint. Report complaint as per Ampol's management procedures.

8 SITE SAFETY PLAN

8.1 PRELIMINARIES

Appropriate Work Health and Safety (WH&S) measures would be established by the contractor for the personnel involved in remedial works at the site. This will involve the finalisation of a detailed WH&S Plan by the contractor prior to mobilisation to the site. The WH&S plan will be prepared prior to performing on-site works associated with this RAP. The plan will address the health and safety of residents and workers in the surrounding area. As a minimum, it will consider:

- site security
- potential exposure to contamination
- excavation safety
- vibration
- noise
- odour
- dust.

Work associated with the remediation of the site will conform, at a minimum, to SafeWork NSW requirements and associated Regulations. Typically, the WH&S plan will address the following issues:

- regulatory requirements
- responsibilities
- hazard identification and control
- chemical hazard control
- sample and chemical handling procedures
- personal protective equipment
- work zones
- decontamination procedures
- emergency response plans
- contingency plans
- incident reporting.

Site safety and environmental management plans will be prepared to ensure that potential hazards related to the work are identified and control measures are implemented. Job safety analyses or safe work method statements will be prepared for all tasks required to be undertaken by any of the key stakeholders and their contractors.

Service plans will be requested from the Dial Before You Dig service and from Ampol as necessary to identify the location of underground services at the site.

8.2 WORKING HOURS

Working hours should be undertaken in accordance with the conditions of development application (DA) consent. Any works to be conducted outside the normal working hours, needs to have prior agreement with Ampol and have the Council's consent.

8.3 SITE PREPARATION

Table 8.1 summarises the measures that will be implemented prior to remediation works at the site.

Table 8.1 Site preparation measures

ITEM	DESCRIPTION
Control of site	Site control will ultimately be the responsibility of the Principal Contractor.
Access	Access to the site will be controlled by the principal contractor performing the works and the site will be off limits to all non-essential personnel. Public will not have access to this area of the site.
Signage	Signage on the site will be installed, with direction to key areas (including to the site offices, decontamination units, wash down areas, exits etc.) and traffic restrictions. Signage at the main access points will include after-hours contact details.
Fencing/hoarding	Perimeter security fencing will be maintained around the site where physical barriers (such as walls and buildings) are not already in place. Shade cloth will be installed on fences and hoardings. Additional fencing will be erected where required to secure work areas and exclusion zones. Regular maintenance and repair of all retained fences and hoardings within and surrounding the site will be undertaken during the period of the remediation work.
Haul roads/parking areas and traffic management	The remediation works may slightly increase vehicle traffic in the vicinity of the site. Where necessary, details of traffic management will be incorporated into all management plans to control traffic movement associated with the works and mitigate any disruption to local residents and road users. The contractor may need to transport impacted soils off-site and clean fill material on-site. Transport to and from site will need to consider traffic management options which take into account any access restrictions to the site. At the site, parking for private, pick-up and delivery and site vehicles is already in place. Additional designated areas may need to be marked as appropriate.
Supply of utilities	The installation and commissioning of all temporary site services (e.g. electricity, water, sewerage and telecommunications) required for the duration of the works will be installed to the requirements of the appropriate regulatory authorities will be undertaken. All approvals in respect to the installation, operation and eventual removal of temporary services will be obtained.
Contractor's facilities	All site accommodation and facilities required for the remediation works will be established in conformance with relevant regulations and authority's requirements. Existing site infrastructure may be utilised for this purpose. Licensed persons in accordance with statutory requirements for the specialist activity in question will carry out all connections. The following facilities may need to be established at the site: — site office — stores — work sheds (including decontamination facilities) and changing areas for the use of the remediation contractor, all subcontractors and consultants — temporary site sheds — bins for rubbish generated by personnel.

8.4 INCIDENT RESPONSE

Response to an incident occurring on-site will be in accordance with Ampol's emergency and evacuation procedures and incident reporting procedures. A WH&S plan and incident contact numbers are to be maintained in an on-site register. All other relevant emergency contact numbers such as police, fire brigade and hospital will be listed in the WH&S plan and posted on site for easy access.

Local contractors (including a plumber and electrician) should be on call should an incident be reported by the site workers or local residents.

9 CONSTRUCTION & ENVIRONMENTAL MANAGEMENT PLAN SUMMARY

A construction environmental management plan (CEMP) should be developed as industry best practice for the site remediation works to ensure that the on-site and off-site environment is not adversely impacted during the remediation works. The CEMP should address and take into consideration the issues discussed in the following sections. The CEMP should be prepared by the principal contractor or delegate.

9.1 ODOUR AND VAPOUR

The remediation works may result in significant vapours and odours being released into the atmosphere, particularly when excavation of potentially heavily contaminated soil is carried out. At these times, consideration should be given to prevailing weather conditions and if distinct odours are detected, site works should cease until the odours can be reduced or controlled.

The site supervisor shall monitor all open excavations and remediated soils with a PID to ensure ambient air concentrations are within the acceptable work safe limits. Concentrations of PID monitoring shall be recorded by field staff and submitted for review on a daily basis. If ambient air concentrations of VOCs exceed 15 ppm for over 30 minutes based on short term exposure limit of 15 ppm for benzene (NOHSC, 1995), work should cease until levels drop.

Additional or complimentary control measures could be implemented, including the following:

- Workers may be fitted with vapour masks or respirators for continuation of site works in the area.
 - Site boundary odour misting suppression system utilised.
 - Wetting down the excavated soil with the use of water sprays containing odour suppressant such as ‘Biosolve’[®] or ‘Anotek’[®].
 - Boundary air monitoring with ambient air sampling methodologies such as ‘Radiello’[®] passive samplers sorption tube samplers.
-

9.2 DUST

During the earthworks, dust will be visually monitored. If excessive dust is being generated, areas of earthworks will be sprayed with water to reduce dust levels. Soil to be stockpiled should be covered or wetted down to minimise dust generation.

During excavation and transport of any soil off-site, truck wheels should be cleaned to prevent potentially contaminated soil from being transported onto local roads.

9.3 PLANT AND MACHINERY

It is the responsibility of the remediation contractor to ensure that all plant and machinery used on the site is properly maintained and in good working condition.

9.4 NOISE

Increased noise levels may result from the use of on-site and off-site mechanical equipment during the course of the remediation works. To mitigate any noise which may arise as a result of site works, all works should be carried out during normal working hours and in accordance with NSW regulations on this matter.

Noise control measures to be implemented during the remediation works may include:

- Specified entry controls for construction vehicles entering and leaving the site.
- Suitable construction techniques and methodologies.
- Use of quieter equipment.
- Restricted use of reversing alarms and all equipment should be fitted with alarm types that adjust output sound levels according to the prevailing ambient noise level.

All practical measures will be taken to minimise generation of noise, and contact information for enquires or complaints will be posted on the site entrance gate.

9.5 STOCKPILE MANAGEMENT

A stockpile register is to be utilised on-site. The register will contain information pertaining to the stockpile including but not limited to the origin of the soil, contaminants, volume, soil analysis and soil type. A map (plan) of stockpile locations will be provided to ensure all stockpiles are recorded. Any stockpile movements on-site will be recorded. All off-site soil load out will be recorded including time of load out, truck registration and destination. A period of fine weather will be chosen for load out of material.

Suitable stockpile areas will be identified on-site. Locations will be selected based on the area being flat, away from runoff receptors and reasonably sheltered from wind. All material to be handled will require being at optimum soil moisture content as to prevent spread of the material through the air as dust.

9.6 WATER, EROSION & SEDIMENT MANAGEMENT PLAN

9.6.1 *SURFACE WATER*

Sediment and leachate control measures must be incorporated for any stockpiled material to prevent contaminants entering the stormwater system or from migrating off-site. Control measures should be established to prevent surface water run-off entering and leaving excavation and stockpile areas. Control measures may include:

- Temporary bunding or diversion drains.
- Impermeable sheeting placed under and/or over stockpiles.
- Silt fences/silt socks to surround stockpiles.
- Protection of existing drains with silt fencing/sandbags.

These mitigation measures should be regularly inspected to ensure that they are in good condition and if necessary upgraded where their performance is deteriorating.

9.6.2 *SUBSURFACE SEEPAGE AND ACCUMULATED EXCAVATION WATER*

Excavations surfaces are expected to be left open for short durations only, where possible, to minimise the potential of any surface water entering work areas. If water does accumulate (e.g. rainfall or groundwater ingress), then it will require removal prior to validation and reinstatement. Any water accumulated in excavations will be sampled and analysed for

TRH and BTEXN compounds. Upon receipt of the analytical results, management and/or disposal options will be formulated.

All excavations remaining open on-site will be fenced and with clear signage advising of the excavation. No one is to enter excavations. Excavations are to be backfilled immediately after validation sampling and validation of the excavation is complete.

9.6.3 *EROSION AND SEDIMENT*

Drains, gutters, roads and access ways shall be maintained free of sediment in accordance with regulatory requirements. Where required, gutters and roadways shall be swept regularly to keep them free from sediment. As for surface water, control measures should be implemented.

Erosion of soil and resulting deposition of excavated or eroded materials on any waterway on or adjacent to the site is to be avoided using proper precautions including temporary fabric filter fencing and other appropriate erosion and sediment control structures. Additional sediment, erosion and water quality management measures may include:

- Entry and exit of vehicles from the site will be confined to one stabilised point. The requirement for a wheel wash will be determined following regular inspections and by agreement between the main site contracting supervisor and the Principal Contractor.
- Diversion banks/drains upslope of the work to divert water around the disturbed area. Drains must discharge onto stable, preferably vegetated surfaces or through sediment controls such as silt fences, straw bales, hessian sandbags.
- Check dams / temporary bunds, to provide temporary protection by limiting flow velocity.
- Level spreaders or straw bales at the end of diversion banks of any overland flow paths leading from the disturbed area, to dissipate flows and trap sediments.
- Sediment fences erected and maintained at the site boundary, and in other areas where required to minimise the transportation and mobilisations of sediments in overland stormwater flows at the site.
- Geotextile filter fabric fences down slope of the work areas in highly sloping areas.
- Straw bales or filter fabric socks at the entrance to any drains, gutters or watercourses.
- Soil stockpiles will be placed in suitable locations away and clear of areas of potential concentrated water flow, including driveways. Stockpiles will also be surrounded by straw bales, covered in plastic or similar erosion control measures will be implemented.
- Maintain all sediment controls as necessary until the site is stable. Once the project site has been stabilised, temporary sediment controls will be removed.
- Any permanent water-retaining structures or other erosion and water management controls will be routinely maintained.
- All erosion and sediment controls will be checked at least weekly and after rain to ensure they are maintained in a functional condition.
- Emergency response of spillages will comprise deployment of spill kits, hessian sandbags, erecting sediment fences and similar to minimise the impacts.

All erosion and sediment control management infrastructure should be designed, installed and decommissioned (post-works) in accordance with the “Blue Book” – Managing Urban Stormwater: Soils and Construction (Landcom, 2004).

9.6.4 *EQUIPMENT AND CLEANING OPERATIONS*

Throughout the site remediation project, controls will be placed on the operation and movement of equipment. General procedures that will be implemented include:

- Excavation equipment will be washed in an environmentally sound manner prior to leaving the site.
- Effective truck wheel-washing facilities will be provided, if necessary, to ensure that contaminated soil is not tracked off-site.
- No trucks or equipment carrying contaminated soils should be allowed to move across unsealed ground surfaces, except across designated transport corridors.

All contaminated soil requiring off-site disposal will be transported to an appropriate landfill facility. All transport trucks loaded with contaminated soil for off-site disposal should be sealed and the load completely/securely covered to prevent wind-blown emissions or spillages and covers should be maintained until unloading. All truck tailgates should be securely fixed prior to loading and immediately after unloading soils and all vehicles are to be operated in a manner so as to prevent loss of soils during loading, transport and unloading activities.

As part of the CEMP, a preferred transport route to the nominated facility is required to be identified.

9.7 ASBESTOS

Any asbestos work on site will be completed in accordance to the following:

- SafeWork NSW, Code of Practice – How to Manage and Control Asbestos in the Workplace 2016 and;
- SafeWork NSW, Code of Practice – *How to Safely Remove Asbestos 2019*.

The following asbestos controls which are to be followed, but not limited to are:

- removal to be under taken by a Class A or Class B removalists
- notification to SafeWork NSW
- undertaken in accordance with an asbestos removal control plan (ARCP) developed by the removal contractor
- removalists and site personnel are inducted to site and made aware of asbestos register
- appropriate PPE, decontamination zones, clear exclusion/safe zones and designated points of entry/exit (as designated by ARCP)
- community and stakeholder notification where required.
- air monitoring and asbestos clearance certificates issues during and throughout the works.

10 SUMMARY

The purpose of this RAP is to provide a framework to validate the removal of UPSS infrastructure and potentially impacted soils to facilitate the replacement of the UPSS and redevelopment of the retail buildings. The actions required to carry out the RAP are summarised as follows:

- Obtain relevant approvals to facilitate the works.
- Demolish / decommission and remove above ground infrastructure (canopy, building, AST, etc.).
- Perform an underground services check to locate the position of any services prior to any excavation works.
- Decommission groundwater monitoring wells that will be damaged during the excavation works.
- Drain pumps and pipework.
- Remove the residual product in the USTs and dispose off-site by a licensed waste contractor.
- Remove concrete and excavate to expose the top of USTs and associated infrastructure.
- Degas the USTs to make safe for removal and transport off-site for destruction.
- Excavate and stockpile soil material above and around the UPSS, so as to allow tank removal.
- Remove the UPSS and associated infrastructure.
- Provide tank destruction certificates.
- Collect soil samples from the excavations and stockpiles for analyses and validation.
- Assess soil beneath other infrastructure where potentially contaminating activities have occurred.
- Remove any impacted soils which are to be classified and disposed off-site to an EPA approved landfill.
- Provide waste disposal certificates.
- Backfill the resulting excavations with approved clean imported VENM and/or excavated soil sourced from site found to be suitable for reuse.
- Report on work completed.

11 LIMITATIONS

- 1 This Report has been prepared by WSP Australia Pty Limited (“WSP”) for the benefit of Ampol Australia Petroleum Pty Ltd (“Ampol”), the registered proprietor or tenant of the site requested to be investigated by WSP (“Site”) under its agreement with Caltex dated 21 March 2018 (“Agreement”).
- 2 The nature and extent of the environmental consulting and remediation works at the Site detailed in the Report reflects the scope of the Services set out in the Request for Proposal under the Agreement and the Scope of Works set out in Schedule 4 Templates, Item 1 – Scope of the Agreement.
- 3 A potential purchaser (but not including a purchaser’s successor in title) of the Site may rely on the findings contained in the Report for the purpose of considering the possible (but not actual) level of contamination of or at that Site at the time of the contamination assessment of the Site was undertaken (“Permitted Purpose”).
- 4 The registered proprietor of the land to which the report relates at the time of writing the report (but not including any proprietor’s successor in title) may rely on the findings contained in the Report for the purpose of assessing the possible level of contamination of that Site (“Permitted Purpose”) and subject to the limitations set out in Schedule 4 Templates, Item 1 – Scope of the Agreement.
- 5 The findings contained in the Report are subject to the qualifications, assumptions and limitations set out in the Report or otherwise communicated to, or by, Caltex. To the extent of any inconsistency between this Limitation Statement and the qualifications, assumptions and limitations in the Report, this Limitation Statement shall prevail.
- 6 The Report may contain information provided by others. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of this information. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the Report (“Conclusions”) are based in whole or in part on this information, those Conclusions are contingent upon the accuracy and completeness of that information. WSP accepts no responsibility for the reliability, accuracy, completeness or adequacy of information provided by others.
- 7 WSP has prepared the Report without regard to any special or particular interest of any person (including that of a potential purchaser), other than Caltex when undertaking the Services or setting out its findings in the Report.
- 8 The Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose and does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise in relation to the Site (“Investment Decision”).
- 9 Matters material to a potential purchaser, may have been omitted from the Report, or may not have been investigated because of the scope of the Services. It follows that a potential purchaser should be cognisant of the restrictions inherent in or otherwise set out in the Report and should commission the preparation of a contamination assessment of the Site that caters for its own interests and scope of services, and which will provide findings in relation to the level of contamination of or at the Site at the time the potential purchaser is making an Investment Decision.
- 10 The Report has not and will not be updated for events occurring after the date of the Report or any other matter which may have a material effect on its contents which come to light after the date of the Report. WSP will not be obliged to inform a potential purchaser of any matter arising or coming to its attention after the date of the Report, which may affect or qualify the Report.

- 11** WSP is not liable to a potential purchaser in respect of errors or omissions in the Report which a potential purchaser knows of, or ought to be aware of, from:
- a** its own actual knowledge and inquiries
 - b** inquiries made by its advisers; or
 - c** matters which a potential purchaser should have been aware of by making reasonable inquiry (including the inquiries recommended at Item 9 above).
- 12** To the fullest extent permitted at law, WSP, its related bodies corporate, its officers, employees and agents assume no liability and will not be liable to any potential purchaser for, or in relation to, any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of income or profit, revenue or loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, business interruption and pure economic loss) of any kind (and whether arising in contract, tort (including negligence), under statute, in equity or otherwise, suffered or incurred by a potential purchaser (or any other third party) arising out of or in connection with any matter outside the ambit of the Permitted Purpose in relation to the Report or findings expressed in the Report.

BIBLIOGRAPHY

- AS 1940 Section 9, The storage and handling of flammable and combustible liquids
- AS 4976–2008, The Removal and Disposal of Underground Petroleum Storage Tanks
- Friebel, E. and Nadebaum, P., (2011); Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation for the Environment, Adelaide, Australia
- Landcom (2004); The “Blue Book” – Managing Urban Stormwater: Soils and Construction
- National Uniform Drillers Licensing Committee (2011) Minimum Construction Requirements for Water Bores in Australia document.
- NEPC (2013), National Environmental Protection (Assessment of Site Contamination) Measure.
- NEPC (2013), National Environmental Protection (Assessment of Site Contamination) Amendment Measure No. 1.
- NSW Environmental Protection Agency (EPA) (2020), *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land – Contaminated Land Guidelines*
- NSW Environmental Protection Authority (EPA) (2014); Waste Classification Guidelines – Part 1: Classifying Waste
- NSW Environmental Protection Authority (EPA) (2016); Addendum to the Waste Classification Guidelines (2014) – Part 1: Classifying Waste
- SafeWork NSW safety alert WC01188; Potential risks when removing underground storage tanks.
- WSP (2018), Trangie Service Station (Site ID: 20820) Environmental Site Assessment, August 2017 (WSP Ref: PS102587-CLM-REP-001 RevB)
- WSP (2021), Trangie Service Station (Site ID: 20820) Environmental Site Assessment, October 2021 (WSP Ref: PS126485-CLM-REP-001_ESA Report_RevA)

FIGURES
APPENDIX A



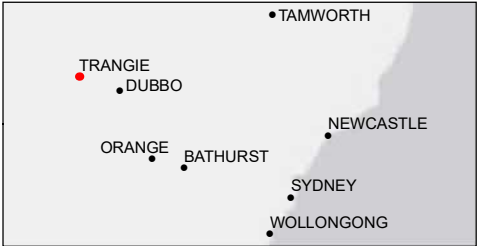


Trangie (20820)
76 Narromine Street, Trangie, NSW

Figure 1
Regional site location plan

Legend

 Site boundary



Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A3
1:4,000
Date: 28/10/2021

Data sources: NSWSS

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No.	Product	Capacity
DEPOT 1	E10	4.5 kL
DEPOT 2	E10	4.5 kL
DEPOT 3	PULP	10.5 kL
DEPOT 4	DIESEL	4.5 kL
DEPOT 5	DIESEL AST	59.5 kL



Trangie (20820)
76 Narromine Street, Trangie, NSW

Figure 2
Site layout plan and monitoring locations

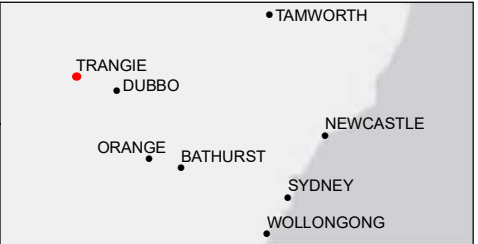
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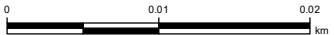
 Site boundary

 Existing monitoring well

 Bowser

 Tank





Coordinate system: GDA 1994 MGA Zone 55

 Scale ratio correct when printed at A3

1:500

Date: 28/10/2021

Data sources: NSWSS

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No registered groundwater bores within map extent

ADOPTED SITE CRITERIA
APPENDIX B



B1 ADOPTED SITE CRITERIA

Table B.1 Site Criteria (mg/kg)

ANALYTE	MANAGEMENT LIMITS ¹	HUMAN HEALTH (COMMERCIAL/ INDUSTRIAL) ²	HUMAN HEALTH (INTRUSIVE MAINTENANCE WORKER) ³	HEALTH SCREENING LEVELS ⁴			
				0 - <1M	1 - <2M	2 - <4m	4m+
F1 (C₆-C₁₀ less BTEX)	700	-	-	260	370	630	NL
F2 (C₁₀-C₁₆ less naphthalene)	1,000	-	-	NL	NL	NL	NL
C₆-C₁₀ Fraction	-	26,000 ⁶	82,000 ⁶	-	-	-	-
C₁₀-C₁₆ Fraction	-	20,000 ⁶	62,000 ⁶	-	-	-	-
F3 >C₁₆-C₃₄	3,500	27,000 ⁶	85,000 ⁶	-	-	-	-
F4 >C₃₄-C₄₀	10,000	38,000 ⁶	120,000 ⁶	-	-	-	-
Benzene	-	430 ⁶	760 / 1,100 ⁶	3	3	3	3
Toluene	-	99,000 ⁶	120,000 ⁶	NL	NL	NL	NL
Ethylbenzene	-	27,000 ⁶	85,000 ⁶	NL	NL	NL	NL
Total Xylene	-	81,000 ⁶	130,000 ⁶	230	NL	NL	NL
Lead	-	1,500	-	-	-	-	-
Naphthalene	-	11,000 ⁶	880 / 29,000 ⁶	NL	NL	NL	NL
Carcinogenic PAHs (BaP TEQ)⁷	-	40	-	-	-	-	-
Total PAHs	-	4,000	-	-	-	-	-

- (1) National Environmental Protection Council (NEPC), National Environmental Protection Measure (NEPM, 2013) – Table 1B(6): Management Limits for TPH fractions F1-F4 in soil – Coarse.

The 'management limits' screening criteria are designed as 'policy considerations' to screen for potential risks associated with the formation of LNAPL, fire and explosive hazards, and effects on buried infrastructure. Separate human health and ecological screening criteria have been adopted for both soils and groundwater. The management limits criteria have therefore been treated as advice for caution, not as barriers for land use or restriction on use. As a consequence, an exceedance of these criteria may not trigger additional remedial or assessment works.

- (2) National Environmental Protection Council (NEPC), National Environmental Protection Measure (NEPM, 2013) – Table 1A(1): Health Investigation Levels

- (3) CRC Care Technical Report no. 10 (CRC Care, 2011): Table B1 Intrusive Maintenance Worker (Shallow Trench) 0 m to <2 m

- (4) National Environmental Protection Council (NEPC), National Environmental Protection Measure (NEPM, 2013) for soil Health Screening Levels (HSL's) for Vapour Intrusion – Table 1A(3): Commercial / Industrial – Sand.

In the absence of clay content data, the HSLs for 'Sand' have been initially adopted as a conservative approach. Once intrusive works have been commenced and clay content analysis undertaken (if appropriate), this can be refined to reflect actual site conditions and to ensure that remedial works are not undertaken unnecessarily.

- (5) CRC Care Technical Report no. 10 (CRC Care, 2011): Table B4 Direct contact.
- (6) Benzo(a)pyrene toxic equivalency quotient, a weighted sum of carcinogenic PAHs. Further detail provided in the NEPM Schedule B1
- (7) Benzo(a)pyrene only.

NL : Not limiting

HAZMAT REGISTER
APPENDIX C



Property Address: 76 Narromine St, Trangie NSW 2823
Consultant: S Malone (WSP)
Survey Date: 21/09/21
Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Managers Office	North, east and west elevation	Fibre cement sheeting	Wall lining	WSP-151301	No asbestos detected	24 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Managers Office	South elevation	Fibre cement sheeting	Wall lining	WSP-151302	CH Asbestos Detected (Positive)	4 sq. m	1	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Computer Station	North, south, east and west elevation	Fibre cement sheeting	Wall lining	Same as WSP-151302	Presumed positive for asbestos	6 sq. m	2	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Staff Bathroom	Internal walls	Fibre cement sheeting	Wall lining	Same as WSP-151302	Presumed positive for asbestos	10 sq. m	3	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Male Bathroom	Internal walls	Fibre cement sheeting	Wall lining	Same as WSP-151302	Presumed positive for asbestos	10 sq. m	4	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Managers Office and Computer Station	Ceiling	Fibre cement sheeting	Ceiling lining	WSP-151303	CH Asbestos Detected (Positive)	12 sq. m	5	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Staff Bathroom	Ceiling	Fibre cement sheeting	Ceiling lining	Same as WSP-151303	Presumed positive for asbestos	6 sq. m	6	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Male Bathroom	Ceiling	Fibre cement sheeting	Ceiling lining	Same as WSP-151303	Presumed positive for asbestos	4 sq. m	7	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Managers Office and Computer Station	Ceiling	White paint	Paint coating	WSP-151304	0.02% w/w (Negative)	12 sq. m	-	NA	NA	NA	NA	Result 0.02% lead. < / = 0.1% lead content, "lead-free" paint as described in AS 4361.2:2017 Guide to hazardous paint management		

Property Address: 76 Narromine St, Trangie NSW 2823
Consultant: S Malone (WSP)
Survey Date: 21/09/21
Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Staff Bathroom	Ceiling	White paint	Paint coating	Same as WSP-151304	Presumed Negative	6 sq. m	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Ceiling	White paint	Paint coating	Same as WSP-151304	Presumed Negative	4 sq. m	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Managers Office	Internal walls	Blue paint	Paint coating	WSP-151305	0.05% w/w (Negative)	4 sq. m	-	NA	NA	NA	NA	Result 0.05% lead. < / = 0.1% lead content, "lead-free" paint as described in AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Computer Station	Internal walls	White paint	Paint coating	WSP-151306	0.11% w/w (Positive)	8 sq. m	8	NA	4	D	L	Result 0.11% lead. Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Staff Bathroom	Internal walls	White paint	Paint coating	Same as WSP-151306	Presumed positive for lead paint	8 sq. m	9	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Internal walls	White paint	Paint coating	Same as WSP-151306	Presumed positive for lead paint	8 sq. m	10	NA	4	D	L	Result 0.11% lead. Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Managers Office	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	WSP-151307	0.23% w/w (Positive)	2 sq. m	11	NA	4	D	L	Result 0.23% lead. Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Kitchen	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	2 sq. m	12	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Window Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	4 units	13	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Staff Bathroom	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	2 sq. m	14	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Window Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	1 unit	15	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	6 sq. m	16	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Walls	Green paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	6 sq. m	17	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Kitchen	Floor	Vinyl sheeting and backing material	Floor covering	WSP-151308	No asbestos detected	6 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Service Area	Floor	Vinyl sheeting and backing material	Floor covering	Same as WSP-151308	Presumed negative for asbestos	50 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Service Area	North, south, east and west elevation	Fibre cement sheeting	Wall lining	WSP-151309	A, C, CH Asbestos Detected (Positive)	80 sq. m	18	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		

Property Address: 76 Narromine St, Trangie NSW 2823
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MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Service Area	North, south, east and west elevation	White paint	Paint coating	WSP-151310	0.04% w/w (Negative)	80 sq. m	-	NA	NA	NA	NA	Result 0.04% lead. < / = 0.1% lead content, "lead-free" paint as described in AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Ceiling and beams	White paint	Paint coating	Same as WSP-151310	Presumed Negative for lead paint	100 sq. m	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Heating unit	White paint	Paint coating	Same as WSP-151310	Presumed Negative for lead paint	1 unit	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Ceiling	Fibre cement sheeting	Ceiling lining	WSP-151311	A, C, CH Asbestos Detected (Positive)	100 sq. m	19	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Kitchen	Ceiling	Fibre cement sheeting	Ceiling lining	Same as WSP-151311	Presumed positive for asbestos	6 sq. m	20	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Service Area	Floor	Vinyl sheeting and backing material	Floor covering	WSP-151312	No asbestos detected	12 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Male Bathroom	Floor	Vinyl sheeting and backing material	Floor covering	Same as WSP-151312	Presumed negative for asbestos	8 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	External	North, south, east and west elevation walls	White paint	Paint coating	Same as WSP-151313	Presumed positive for lead paint	200 sq. m	23	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	External	North, south, east and west elevation fascia, eaves and gutters	White paint	Paint coating	Same as WSP-151313	Presumed positive for lead paint	50 sq. m	24	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	External	Walls	Fibre cement sheeting	Wall lining	Same as WSP-151314	Presumed positive for asbestos	200 sq. m	27	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	Debris	Fibre cement sheeting	Debris	Same as WSP-151314	Presumed positive for asbestos	3 sq. m	28	NF	2	C	M	Conduct remediation works to make safe as soon as reasonably practicable. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	Window Frame	Grey/black paint	Window Frame	WSP-151315	0.13% w/w (Positive)	4 units	29	NA	3	C	M	Result 0.13% lead. Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	External	Skirting board	Grey/black paint	Skirting board	Same as WSP-151315	Presumed positive for lead paint	30 sq. m	30	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		

Property Address: 76 Narromine St, Trangie NSW 2823
Consultant: S Malone (WSP)
Survey Date: 21/09/21
Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Staff Bathroom	Cistern	Moulded fibre cement	Cistern	Visual Observation	Presumed positive for asbestos	1 unit	31	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Male Bathroom	Cistern	Moulded fibre cement	Cistern	Visual Observation	Presumed positive for asbestos	2 units	32	NF	5	E	L	Access restriction, good maaterial condition. Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Service Area	Safe	Internal insualtion	Safe	Visual Observation	Presumed negative	1 unit	33	NF	5	E	L	Suspected negative due to age and appearance		
Service Station	Ground	Service Area	Southern wall, electrical backing board	Resinous backing board	Electrical backing board	Visual Observation	Presumed positive for asbestos	1 unit	34	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	North, south, east, west elevations	Fibre cement sheeting	Fascia	Visual Observation	Presumed positive for asbestos	40 sq. m	35	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	Canopy lining	Fibre cement sheeting	Canopy	Visual Observation	Presumed positive for asbestos	30 sq. m	36	NF	5	E	L	No access due to hieght restrictions. Confirm prior to demolition or refurbishment works. Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Kitchen	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	37	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Service Area	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	2 units	38	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Service Area	Ceiling	PCB	Double Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	39	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Male Bathroom	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	40	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		

Property Address: 76 Narromine St, Trangie NSW 2823
Consultant: S Malone (WSP)
Survey Date: 21/09/21
Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	External	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	6 units	41	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	External	Ceiling	PCB	Double Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	42	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Male Bathroom	Hot water unit	SMF	Insulation	Visual Observation	Presumed positive for SMF	1 unit	44	NF	5	E	L	Handle in accordance with the Code of Practice for the Safe Use of Synthetic Mineral Fibre Products [NOHSC: 2006 (1990)].		
Service Station	Ground	Managers Office	Air conditioning unit	SMF	Insulation	Visual Observation	Presumed positive for SMF	1 unit	45	NF	5	E	L	Handle in accordance with the Code of Practice for the Safe Use of Synthetic Mineral Fibre Products [NOHSC: 2006 (1990)].		
Service Station	Ground	Service Area	Air conditioning unit	SMF	Insulation	Visual Observation	Presumed positive for SMF	1 unit	46	NF	5	E	L	Handle in accordance with the Code of Practice for the Safe Use of Synthetic Mineral Fibre Products [NOHSC: 2006 (1990)].		
Shed	Ground	Internal	Walls	Fibre cement sheeting	Wall lining	WSP-151314	A, C, CH Asbestos Detected (Positive)	20 sq. m	25	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Shed	Ground	External	Walls	Fibre cement sheeting	Wall lining	Same as WSP-151314	Presumed positive for Asbestos	60 sq. m	26	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Shed	Ground	Internal	North, south, east and west elevation walls	White paint	Paint coating	WSP-151313	0.18% w/w (Positive)	20 sq. m	21	NA	3	C	M	Result 0.18% lead. Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Shed	Ground	External	North, south, east and west elevation walls	White paint	Paint coating	Same as WSP-151313	Presumed positive for lead paint	60 sq. m	22	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Shed	Ground	Internal	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	43	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		

APPENDIX C

ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM SEARCH

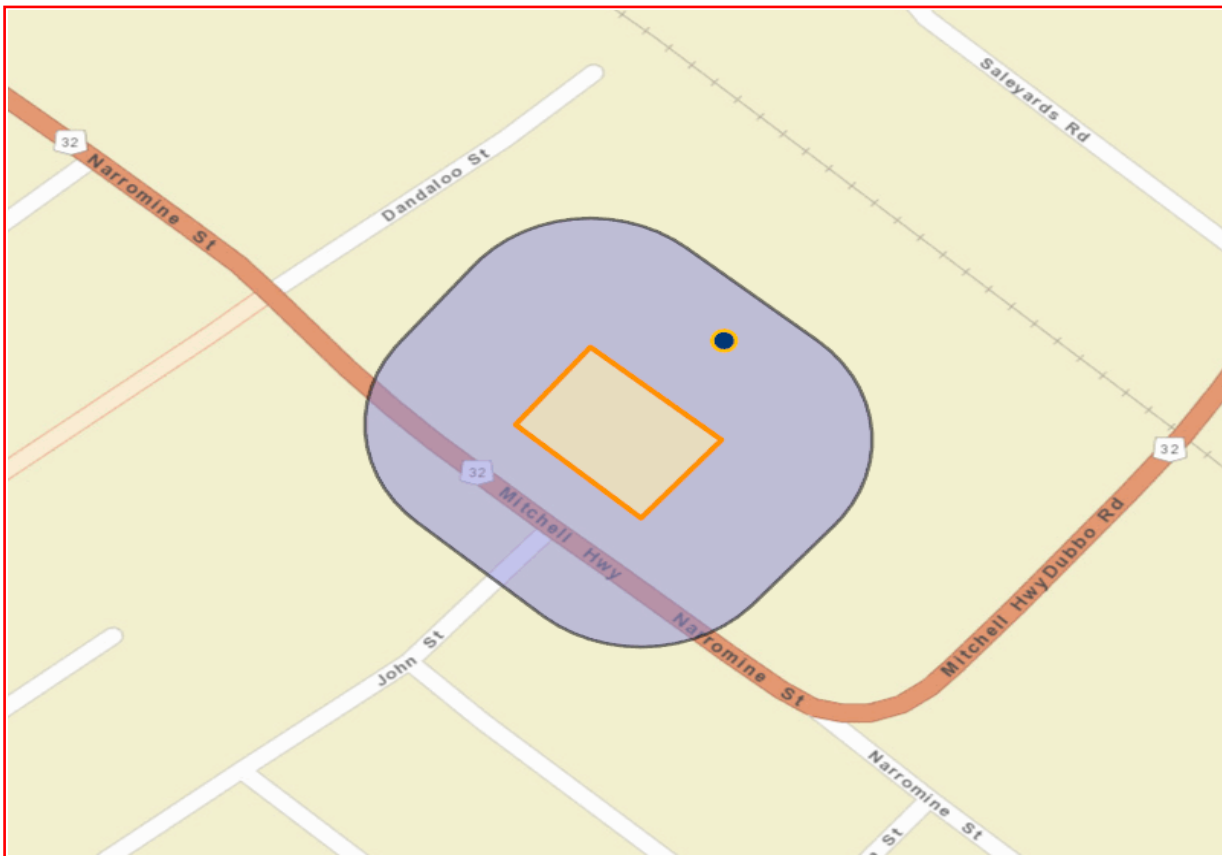
WSP Australia Pty Ltd
 Level 3 55 Bolton Street
 Newcastle New South Wales 2300
 Attention: Mark Maund
 Email: mark.maund@wsp.com

Date: 04 November 2021

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 101, DP:DP832919, Section : - with a Buffer of 50 meters, conducted by Mark Maund on 04 November 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

1	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(https://www.legislation.nsw.gov.au/gazette\)](https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

APPENDIX D

LANDOWNER CONSENT



8 November 2021

The General Manager
Narromine Shire Council
118 Dandaloo Street
Narromine, NSW 2821

Dear Ms Jane Redden,

OWNERS CONSENT FOR LODGEMENT OF DEVELOPMENT APPLICATION

DEMOLITION OF A FUEL SERVICE STATION, INCLUDING EXISTING UNDERGROUND STORAGE TANKS, AND REMEDIATION

PROPERTY: Lot 101 DP 832919 - NARROMINE STREET, TRANGIE, NSW

I confirm that Transport Asset Holding Entity of New South Wales (**TAHE**) ("**Owner**"), is the registered owner of Lot 1 DP 832919 in which this application relates.

Transport for NSW ("**TfNSW**") is the agent on behalf of TAHE and as the representative for TfNSW, I hereby grant consent for Ampol Australia ("**Applicant**") and/or its consultant WSP, contractors, advisors and/or nominees to discuss with Narromine Shire Council ("**Council**") and/or any other statutory, public, municipal, governmental or semi-governmental body of any kind or any court, including but not limited to the Land and Environment Court, or any other party, in relation to the Property, including preparing, lodging and obtaining a Development Application.

This Consent is limited to the extent of the works proposed and mentioned above for the demolition of a fuel services station, the removal of the underground storage tanks owned by the Applicant and all associated remediation of the site to the satisfaction of TAHE.

For and on behalf of the Owner

Witness

Teena Renés

Natalie Wild

Print Full Name:

Print Full Name:

Signature

Signature

8 November 2021

8 November 2021

Date

Date

If you require any further information or clarification with respect to the above, please contact the undersigned at your convenience.

Yours faithfully,

A handwritten signature in blue ink, appearing to be 'Teena Renes', with a stylized, flowing script.

Teena Renes
Property Manager
Regional Property & Asset Renewal
Transport for NSW

0481 482 826

Teena.Renes@transport.nsw.gov.au

APPENDIX E

INDICATIVE WASTE MANAGEMENT PLAN

1 APPENDIX E - WASTE MINIMISATION AND MANAGEMENT PLAN

Table 1 Applicant and project details

APPLICANT DETAILS	
Name	Ampol Australia Petroleum Pty Ltd
Address	29-33 Bourke Road, Alexandria NSW 2015
PROJECT DETAILS	
Address of development	76 Narromine Street, Trangie, NSW (Lot 101 DP832919)
Existing buildings and other structures currently on the site	Fuel Service Station including a retail building, and aboveground and underground storage tanks.
Description of proposed development	Remediation of site including demolition and removal of all infrastructure including underground tanks.
OBJECTIVE	
The remediation would be undertaken to allow for future divestment and redevelopment of the site for non-sensitive commercial/industrial land use. The environmental protection works are permissible within the zone.	

Table 2 Types and volume of waste

TYPE OF WASTE	REUSE	RECYCLING	DISPOSAL	COMMENTS
Concrete	-	-	50 m ³	Concrete overlying tanks/UPSS and canopy footing.
Hazardous/special waste (waste fuel)	-	-	4,000 L	Residual fuel in tanks.
Other (fuel tanks)	-	-	2 x 4.5 kL tanks 1 x 10.5 kL tanks 1 x 60 kL tank	Tanks emptied of fuel before transport/disposal.
Other (soils)	200 m ³	-	-	Analytical results show little to no contamination in soil. Intent is to reuse soil onsite where possible.

APPENDIX F

DEMOLITION PLAN



No.	Product	Capacity
DEPOT 1	E10	4.5 kL
DEPOT 2	E10	4.5 kL
DEPOT 3	PULP	10.5 kL
DEPOT 4	DIESEL	4.5 kL
DEPOT 5	DIESEL AST	59.5 kL

76 Narromine Street, Trangie, NSW

Demolition Site Plan

Aboveground and underground infrastructure to be removed onsite

Legend

Site boundary

Bowser

Underground storage tank

Aboveground storage tank

Oil/water separator

Area to be remediated



0 0.01 0.02 km

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

1:500 Date: 22/10/2021

Data sources: NSWSS

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No registered groundwater bores within map extent

APPENDIX G

HAZARDOUS MATERIALS ASSESSMENT

Design for a better *future /*

AMPOL PETROLEUM
AUSTRALIA PTY LTD

AMPOL SERVICE
STATION TRANGIE

HAZARDOUS
MATERIALS
ASSESSMENT

wsp



OCTOBER 2021

Question today *Imagine tomorrow* Create for the future

Ampol Service Station Trangie Hazardous Materials Assessment

WSP
Level 27, 680 George Street
Sydney NSW 2000
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
wsp.com

REV	DATE	DETAILS
A	06/10/2021	Draft

	NAME	DATE	SIGNATURE
Prepared by:	Shai Malone	29/09/2021	
Reviewed by:	Ben Shelton	29/09/2021	
Approved by:	Chris Virtue	06/10/2021	

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GLOSSARY

ACRONYM	DEFINITION
A	Amosite Asbestos (brown Asbestos)
AC	Asbestos cement (Asbestos-containing fibrous cement material)
ACM	Asbestos containing material
AS 1216	Standards Association of Australia, Classification and Class Labels for Dangerous Goods
AS 1319	Standards Association of Australia, Rules for the Design and Use of Safety Signs for the Occupational Environment
AS 1715	Standards Association of Australia, Selection, Use and Maintenance of Respiratory Protective Devices
AS 1716	Standards Association of Australia, Respiratory Protective Devices
ASCC	Australian Safety & Compensation Council
C	Crocidolite Asbestos (blue Asbestos)
CH	Chrysotile Asbestos (white Asbestos)
DECC	Department of Environment and Climate Change (now NSW EPA)
EPA	Environment Protection Authority
Fibres/mL	Countable fibres per millilitre of air sampled
FC	Fibre cement (usually sheeting)
L/min	Litres per minute of air
NAD	No Asbestos Detected
NATA	National Association of Testing Authorities, Australia
NOHSC	National Occupational Health and Safety Commission
PAM	Presumed Asbestos material
PCB	Polychlorinated biphenyls
PPE	Personal protective equipment
RPE	Respiratory protective equipment
SMF	Synthetic Mineral Fibre
WH&S	Workplace health and safety

EXECUTIVE SUMMARY

WSP Australia Pty Ltd (WSP) was engaged by Ampol Petroleum Australia Pty Ltd (the Client) to conduct a Hazardous Building Materials Survey of structures located within the site boundary at Trangie Ampol Service Station located at 76 Narromine St, Trangie NSW 2823. The assessment was undertaken by Shai Malone (Occupational Hygiene Consultant) on the 21st September 2021.

The scope of services for this inspection comprised a detailed visual inspection of all accessible areas on the site. Representative samples were collected from materials suspected of containing Asbestos and paint systems suspected of containing Lead. Visual identification was undertaken for Synthetic Mineral Fibres (SMF) and Polychlorinated Biphenyls (PCBs). All data generated from the survey was used to create a hazardous building materials register (Appendix B). A summary of the hazardous building materials inspection findings is shown in **Table E.1** and a summary of inaccessible areas is shown in **Table E.2**.

Table E.1 Summary of hazardous materials identified at the time of inspection

HAZARDOUS MATERIAL	FOUND
Friable asbestos containing materials (ACM)	No
Non-friable ACM	Yes
Synthetic mineral fibre (SMF)	Yes (Assumed)
Lead-based paints	Yes
Capacitors with polychlorinated biphenyls (PCBs)	Yes (Assumed)

Table E.2 Summary of inaccessible areas at time of inspection

INACCESSIBLE AREAS	DETAILS
Above 3 meters in height	Not fully accessed in line with company OHS policies: - Refuelling station awning
Within confined spaces	Not fully accessed in line with company OHS policies - No manhole to ceiling space
Electrical equipment	All electrical equipment, internal and external, was unable to be assessed due to electrical hazards. - Electrical backing board for switch board

Asbestos containing materials were identified in the internal wall and ceiling surfaces within the manager's office, computer station, staff bathroom, male bathroom, service station main room, kitchen and shed. Asbestos containing materials were identified in the external wall structure of the service station and shed.

Assumed asbestos containing materials were identified in the cisterns in the staff bathroom and male bathroom and the canopy and fascia of the external structures of the service station. Assumed fibre cement fragments were identified to external ground surfaces.

It is recommended to maintain good condition ACM current remove identified asbestos containing materials under non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.

No lead dust was identified at the time of the inspection due to the ceiling space being inaccessible. Suspect dust should be managed in accordance with AS/NZS 4361.2:2017, *Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings*.

Lead based paint systems were identified internally within the computer area, staff bathroom, male bathroom, managers office, kitchen, main service station area, male toilets and shed. Lead based paint systems were identified on the exterior of the service station and shed. These should be managed in accordance with AS/NZS 4361.2:2017, *Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings*.

Synthetic Mineral Fibre (SMF) containing insulation was assumed to be present within a hot water unit within the male bathroom and air conditioning unit within the main fuel station area and managers office. These should be managed in accordance with the National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].

Polychlorinated Biphenyls (PCBs) were assumed to be present within fluorescent light fittings within all internal rooms and external areas of the main building at the site.

Details of all hazardous building materials identified are presented within the register in Appendix B.

To assist in the management of possible hazardous building materials being identified on site and to ensure compliance with relevant regulations, it is recommended that a separate Hazardous Building Materials Management Plan be prepared, which should include information regarding:

- Roles and responsibilities
- Prohibitions
- Management plan and register reviews
- Labelling
- Demolition and refurbishment work
- Asbestos removal works
- Lead paint removal works
- Incidents and emergencies
- Record keepings

1 INTRODUCTION

WSP was commissioned by Ampol Petroleum Australia Pty Ltd to undertake a Hazardous Building Materials inspection of structures located within the site boundary at Trangie Ampol Service Station located at 76 Narromine St, Trangie NSW 2823.

This report presents the findings of the inspection conducted on 21st September 2021

The term hazardous building materials for the purpose of this report refers to the following:

- Asbestos containing materials (ACM);
- Lead based paints;
- Lead containing dust;
- Synthetic Mineral Fibre (SMF) materials; and
- Light fittings and accessible electrics that may contain Polychlorinated Biphenyls (PCB) capacitors.

A complete list of the in-situ and suspected hazardous materials identified during the inspection, including details about the condition and the risk posed by each situation and a risk matrix, has been provided in the hazardous building materials register including photographs and certificates of analysis that form the deliverable component of the project. These are attached as Appendices A to D.

Note: Minimal to no disturbance of any equipment was undertaken as part of the survey such as all plant, electrical installations, operational equipment, pipe-work and associated equipment were considered live at the time of the survey. Access to ceiling and roof cavities were only made where suitable access hatches were present.

No one section or part of a section of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including the asbestos materials register and sample results.

1.1 LEGISLATIVE REQUIREMENTS

The inspection works and production of this report have been undertaken in accordance with the requirements of the following documents:

- Work Health and Safety Act 2011 (Commonwealth)
- Work Health and Safety Act 2011 (NSW)
- Work Health and Safety Regulation 2017 (NSW)
- How to Manage and Control Asbestos in the Workplace: NSW Code of Practice 2019.
- How to Safely Remove Asbestos: NSW Code of Practice 2019.
- Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres. 2nd Edition [NOHSC:3003(2005)]
- ANZECC (1997) Identification of PCB-containing Capacitors: An information booklet for Electricians and Electrical Contractors.
- AS 1319:1994, Safety Signs for the Occupational Environment
- AS/NZS 1715:2009, Selection, Use and Maintenance of Respiratory Protective Equipment
- AS/NZS 1716:2012, Respiratory Protective Devices
- AS 2601:2001, The Demolition of Structures
- AS/NZS 4361.1:2017, Guide to Hazardous Paint Management, Part 1: Lead and other hazardous metallic pigments in industrial applications
- AS/NZS 4361.2:2017, Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings
- National Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC:2015 (1994)].
- AIOH positional paper: Synthetic Mineral Fibres and Occupational Health Issues 2011
- NOHSC (1989b). Guidance Note on the Membrane Filter Method for the Estimation of Airborne Synthetic Mineral Fibres. [NOHSC:3006 (1989)] June 1989
- National Standard for Synthetic Mineral Fibres [NOSHC:1004 (1990)].
- National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOSHC:2006 (1990)].
- AS 3640:2009, Workplace Atmospheres - Methods for Sampling and Gravimetric Determination of Inhalable Dust
- Protection of the Environment Operations Act 1997 (NSW).

1.2 SCOPE OF SERVICES

The objectives of the hazardous building material inspection were to:

- Conduct a non-intrusive inspection of structures located within the site boundary at Trangie Ampol Service Station located at 76 Narromine St, Trangie NSW 2823, to identify hazardous building materials;
- Confirm the type, location, friability, disturbance potential and labelling status of hazardous building materials identified;
- Sampling of representative materials suspected of containing asbestos;
- Sampling of representative paint systems suspect of containing lead;
- Suspected ACM and Lead containing paints collected during the inspection were sent to NATA accredited laboratories for analysis.
- Prepare a Hazardous Building Materials Register, including asbestos containing materials;
- Provide a semi-quantitative risk assessment of the hazardous building materials identified and;
- Provide recommendations on the control measure strategies in the event of any refurbishment or demolition works.

2 SURVEY METHODOLOGY

2.1 SITE INSPECTION

The identification of hazardous building materials involves a combination of visual inspection of the accessible areas of the building/structure and the collection of representative samples of the suspect materials for the purpose of analytical confirmation. Where identical suspect materials are detected at different locations, visual confirmation only may have been made rather than additional sample collection.

Access was made only where safe access by solid floors, decking, walkways, protected catwalks or ladders was available. Minimal to no disturbance of any equipment was undertaken as part of the survey as all plant, electrical installations, pipe-work and associated equipment were considered live at the time of the survey.

Access through the building and structures on the site was made by systematic walkthrough, with the order of the items listed in the Asbestos Register reflective of the order of the inspection.

2.2 IDENTIFICATION OF MATERIAL

2.2.1 ASBESTOS CONTAINING MATERIALS (ACM)

Representative samples of materials suspected to contain asbestos were collected and analysed at WSP Australia's NATA Accredited Laboratory. The identification of asbestos fibres is based on using Polarised Light Microscopy supplemented with Dispersion Staining techniques. This is detailed in Australian Standard 4964-2004 '*Method for the qualitative identification of asbestos in bulk samples*'. Asbestos samples were only collected for analysis where the safety of personnel would not be compromised. Sampling was conducted in accordance with the WSP Australia's in house survey guide, SafeWork NSW's Code of Practice, '*How to Manage and Control Asbestos in the Workplace*' and the United Kingdom Health & Safety Executive publication, '*HSG 264: Asbestos: The survey guide*'.

2.2.2 LEAD-BASED PAINT SYSTEMS

Representative samples of paint suspected to be lead based were collected and analysed at Envirolab Services NATA Accredited Laboratory. Laboratory analysis of lead based paints is used to achieve a reportable weight by weight percentage of lead throughout the paint layers and is reported against AS/NZS 4361.2:2017, *Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings* lead containing paint system level of 0.1 per cent (w/w) of the dried film.

The analysis of the physical samples is achieved by digestion of the sample for determination of lead content by one of two methods, atomic absorption spectroscopy (AAS) or inductively coupled plasma emission spectrometry (ICP-AES). Collection of lead based paint samples was only conducted where the safety of personnel would not be compromised. Sampling was conducted in accordance with the WSP Australia's in house survey guide and AS/NZS 4361.2:2017, *Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings*.

Sampling methodology will consider the various paint coats and record these layers accordingly, these observations will be referred to alongside the analytical sample results to acknowledge that lead paint layers of varying lead content will affect the analytically observed lead weight concentration recorded from the sample. To this end, where multiple lead paint layers have been visually recorded but analytically determined lead percentage of the collective paint layers is below actionable limits, the paint undercoats may still be determined as hazardous due to its dilution in the sample by the non-lead topcoats. Sampling methodology may also consist of the use of a lead paint chemical colorimetric test reagent that can provide an instantaneous result of lead presence within specific layers. This testing will however be used in conjunction with a physical sample to determine the lead concentration as above.

2.2.3 LEAD CONTAINING DUST

During the inspection of the main service station building, the ceiling space was inaccessible and as such no samples were required to be taken.

2.2.4 SYNTHETIC MINERAL FIBRES (SMF) MATERIALS

If representative samples of materials suspected to contain asbestos were collected and analysed at WSP Australia's in-house NATA Accredited Laboratory, SMF can also be identified. The identification of SMF fibres is based on using Polarised Light Microscopy supplemented with Dispersion Staining techniques. Alternatively, our experienced surveyor visually identified and recorded the presence of synthetic mineral fibre products onsite.

2.2.5 POLYCHLORINATED BIPHENYLS (PCBS)

Older Style fluorescent light fittings were visually identified that may house or contain materials suspected PCBs.

3 SITE DESCRIPTION

3.1 SITE LOCATION

Site is the Ampol Trangie Service Station located at 76 Narromine St, Trangie NSW 2823.

3.2 SITE DESCRIPTION

The survey was restricted to buildings owned and managed by AMPOL. Details of the buildings are presented below:

Table 3.1 Building Description

BUILDING	BUILDING DESCRIPTION
Service Station	The service station is single story with fibre cement external walls and a corrugated pitched metal roof. Internal areas contained 6 individual spaces; managers office, computer station, kitchen, staff bathroom, main service area, male bathroom. Interior walls are constructed of fibre cement sheeting. Floors are a combination of vinyl floor tiles, linoleum and concrete. Concourse consists of a metal canopy with a fibre cement sheet lining and plastic fascia.
Shed	Building was adjoined to Service Station with one single room. Walls consisted of fibre cement sheeting and corrugated metal.

3.3 SURVEY RESTRICTIONS

The inspection was limited to the building/areas listed above. The survey was not fully intrusive and therefore, confined spaces were not accessible. No access was possible to the roof, ceiling spaces, electrical equipment.

4 HAZARDOUS MATERIALS RISK ASSESSMENT

To assess the health risk posed by the presence of ACMs, SMF, lead based paint and PCBs, the following factors must be considered:

4.1 ACM & SMF RISK ASSESSMENT FACTORS

These factors include:

- Condition of the material. This is described as being either good (not been damaged or have not deteriorated), medium (minor deterioration or damage) or poor (materials which have been extensively damaged or their condition has deteriorated over time);
- Proximity of air plenums and direct air stream;
- Friability of the material (ease with which the material can be crumbled) listed as either friable or non-friable;
- Requirement for access for building or maintenance operations and accessibility (low, medium or high);
- Likelihood of disturbance of the material;
- Exposed surface areas and;
- Environmental conditions.

These aspects are in turn judged upon; (i) potential for fibre generation; and, (ii) the potential for exposure. When these factors have indicated that there is a possibility of exposure to airborne fibres, appropriate recommendations for repair, maintenance or abatement of the asbestos containing materials are made.

4.2 LEAD BASED PAINT RISK ASSESSMENT FACTORS

Risk assessment factors include:

- Concentration of lead in paint;
- Condition of the paint.
- Deterioration/damage (peeling, flaking);
- Proximity of air plenums, direct air stream and sensitive receptors such as foodstuffs;
- Ease with which the paint can be disturbed/removed;
- Requirement for access for building or maintenance operations and accessibility (low, medium or high) and;
- Magnitude of exposed surface areas.

These aspects are in turn judged upon the potential for exposure. When these factors have indicated that there is a possibility of exposure to lead-based paint/dust, appropriate recommendations for the repair, maintenance, abatement and removal of the paint are made.

4.3 POLYCHLORINATED BIPHENYLS (PCBS) RISK ASSESSMENT FACTORS

Risk assessment factors include:

- The manufacture age and location of the capacitor;
- The condition of the capacitor (visible leaks/spills of fluid);
- Potential of exposure to the PCBs from contact with capacitors;
- Ease with which the capacitors can be accessed and;
- The requirement for access to light fittings for building or maintenance operations and accessibility (low, medium or high).

As above, these aspects are in turn judged upon the potential for exposure. When risk factors have indicated a possibility of exposure to PCBs, appropriate recommendations for the removal and disposal of the capacitors are made.

5 FINDINGS AND RECOMMENDATIONS

The findings of the assessment are presented in **Appendix C: Hazardous Buildings Materials Register**, including the details of inaccessible areas, the hazardous materials identified, extent of hazardous materials and the risk assessment for each hazardous material finding. Recommendations for each finding are also included in the register. Ampol should seek to action any recommendations in the registers including preventative maintenance to keep hazardous materials in a good sealed condition.

Documents included and referenced in the findings are:

- **Hazardous Buildings Materials Register**
- **Representative Photographs**
- **Certificates of Analysis**

Please note this hazardous building materials survey is not a destructive or pre-demolition type survey. Prior to demolition or invasive works, a pre-demolition hazardous materials survey must be undertaken.

5.1 ASBESTOS CONTAINING MATERIALS

At the time of the inspection, asbestos containing materials were identified in the following locations:

Table 5.1 Identified Low Risk Asbestos Containing Materials

BUILDING	LOCATION	MATERIAL
Service Station	Internal, computer station, north, south, east and west elevation, walls	Fibre Cement Sheeting
Service Station	Internal, staff bathroom, north, south, east and west elevation, walls	Fibre Cement Sheeting
Service Station	Internal, male bathroom, north, south, east and west elevation, walls	Fibre Cement Sheeting
Service Station	Internal, managers office, ceiling	Fibre Cement Sheeting
Service Station	Internal, computer station, ceiling	Fibre Cement Sheeting
Service Station	Internal, staff bathroom ceiling	Fibre Cement Sheeting
Service Station	Internal, male bathroom ceiling	Fibre Cement Sheeting
Service Station	Internal, main service area, north, south, east and west elevation, walls	Fibre Cement Sheeting
Service Station	Internal, main service area, ceiling	Fibre Cement Sheeting
Service Station	Internal, kitchen, ceiling	Fibre Cement Sheeting

Service Station	Internal, staff bathroom, cistern	Moulded Fibre Cement (assumed)
Service Station	Internal, male bathroom, cistern	Moulded Fibre Cement (assumed)
Service Station	Internal, main service area, electrical backing board	Bituminous Backing Board (assumed)
Service Station	External, north, south, east, west, façade walls	Fibre Cement Sheeting
Service Station	External, awning	Fibre Cement Sheeting (assumed)
Service Station	External, south, east, west, fascia	Fibre Cement Sheeting (assumed)
Shed	External, north, south, east, west, wall	Fibre Cement Sheeting

These occurrences are considered low risk under current condition and use. Maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.

At the time of the inspection, asbestos containing materials were identified in the following locations:

Table 5.2 Identified Medium Risk Asbestos Containing Materials

BUILDING	LOCATION	MATERIAL
Ground surfaces	External, adjacent south western elevation of service station	Fibre Cement Sheeting debris (assumed)

These occurrences are considered medium risk under current condition and use. Remove under controlled non-friable asbestos removal conditions as soon as reasonably practicable by a Class B (non-friable) licensed asbestos removal contractor.

5.2 LEAD CONTAINING MATERIALS

At the time of the inspection, lead containing dust was identified in the following location:

Table 5.3 Identified Medium Risk Lead Paint Coatings

BUILDING	LOCATION	MATERIAL
Shed	External, walls	White paint system
Service Station	External, walls	White paint system
Service Station	External, fascia	White paint system
Service Station	External, eaves	White paint system
Service Station	External, gutters	White paint system
Service Station	External, skirting board	Grey/black paint system
Service Station	External, window frames	Grey/Black paint system

These occurrences are considered medium risk under current condition and use. Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS/NZS 4361.2:2017, *Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings*.

At the time of the inspection, lead based paint systems were identified in the following locations:

Table 5.4 Identified Low Risk Lead Paint Coatings

BUILDING	LOCATION	MATERIAL
Service Station	Internal, computer station, north, south, east, west elevation, walls	White paint system
Service Station	Internal, staff bathroom, north, south, east, west elevation, walls	White paint system
Service Station	Internal, male bathroom, north, south, east, west elevation, walls	White paint system
Service Station	Internal, managers office, door and door frame	Blue paint system (multicolour undercoat)
Service Station	Internal, staff bathroom, door frame	Blue paint system (multicolour undercoat)
Service Station	Internal, kitchen, door frame	Blue paint system (multicolour undercoat)
Service Station	Internal, main service area, window frames	Blue paint system (multicolour undercoat)

Service Station	Internal, male bathroom, window frames	Blue paint system (multicolour undercoat)
Service Station	Internal, male bathroom, door frame	Blue paint system (multicolour undercoat)
Service Station	Internal, male bathroom, walls	Green paint system (multicolour undercoat)
Shed	Internal, walls	White paint system

These occurrences are considered low risk under current condition use. Remove any flaking sections and repaint as soon as reasonably practicable in accordance with AS/NZS 4361.2:2017, *Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings*.

5.3 SMF CONTAINING MATERIALS (SMF)

At the time of the inspection, SMF materials were visually identified in the following location:

Table 5.5 Identified SMF Containing Materials

BUILDING	LOCATION	MATERIAL
Service Station	Internal, male bathroom, hot water unit	Insulation
Service Station	Internal, managers office, air conditioning unit	Insulation
Service Station	Internal, main service area, air conditioning unit	Insulation

These occurrences are considered low risk under current condition and use. Handle material in accordance with the National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].

5.4 POLYCHLORINATED BIPHENYLS (PCBS)

At the time of the inspection, PCBs were identified in the following location:

Table 5.6 Identified PCB Containing Materials

BUILDING	LOCATION	MATERIAL
Service Station	Internal, kitchen	Single tube fluorescent light
Service Station	Internal, main service area	Single tube fluorescent light
Service Station	Internal, main service area	Double tube fluorescent light
Service Station	Internal, male bathroom	Single tube fluorescent light

BUILDING	LOCATION	MATERIAL
Service Station	External	Single tube fluorescent light
Service Station	External	Double tube fluorescent light
Shed	Internal	Single tube fluorescent light

PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.

6 GENERAL MANAGEMENT GUIDELINES

6.1 HAZARDOUS BUILDING MATERIALS MANAGEMENT PLAN

To assist in the management of ACM and to ensure compliance with relevant regulations, it is recommended that a separate Hazardous Materials Management Plan be prepared, which should include information regarding:

- Roles and responsibilities
- Prohibitions
- Management plan and register reviews
- Labelling
- Demolition and refurbishment works
- Remediation works
- Incidents and emergencies
- Record keepings

6.2 ASBESTOS GENERAL MANAGEMENT GUIDELINES

WSP Australia has provided the following recommendations as a general guide for the safe removal of asbestos containing materials in accordance with the requirements of SafeWork NSW How to Safely Remove Asbestos, Code of Practice 2019.

- Non-friable asbestos in the form of exterior wall, fascia, eave and canopy ceiling fibre cement sheeting and interior wall and ceiling lining. Non-friable asbestos was visually identified in the form of interior moulded fibre cement cisterns, electrical distribution resinous boards.
- All ACM in an in-tact condition may remain in-situ provided they are not drilled, ground or otherwise disturbed. If generated, broken pieces are to be removed as soon as practicable. As part of good ongoing management, we recommend regular inspections of ACM left in-situ to check the condition of these materials.
- Any areas of the workplace that contain ACM including plant, equipment and components should be signposted with appropriate warning signs to ensure that asbestos is not unknowingly disturbed without the correct precautions being taken. These signs should be placed at all the main entrances to the work areas where asbestos is present and should conform with *Australian Standard 1319-1994 Safety Signs for the Occupational Environment*.
- This document should be held as an Asbestos Register of the areas inspected and updated every 5 years or earlier where ACM have been disturbed or a risk assessment indicates the need for re-assessment. All occupiers of the workplace are to be provided with a copy of this register and all updates to it.
- In order to comply with the *Work Health and Safety Regulations 2017 (NSW)*, implement Asbestos management plan. A suitably qualified and experienced consultant, such as WSP, can advise and assist in developing an asbestos management plan.

- Prior to renovation or demolition works a refurbishment/demolition asbestos building materials survey should be undertaken by a suitable qualified and experience consultancy, such as WSP. A Refurbishment and/or Demolition Survey is required under the *WHS Code of Practice: Demolition Work (2016)* and *AS2601 (2001): The Demolition of Structures*.
- Prior to the commencement of any specific asbestos removal works, a site and material specific asbestos removal control plan must be developed by a competent person such as a licenced asbestos assessor or licensed asbestos removal contractor.
- All persons engaged in asbestos removal work should wear appropriate PPE including respiratory protective equipment (RPE) conforming with the requirements of AS/NZS 1716:2012, *Respiratory Protective Devices* and AS/NZS 1715:2009, *Selection, Use and Maintenance of Respiratory Protective Equipment*. Protective disposable coveralls must be chosen that provide particle-tight protection (Type 5) and limited splash-tight protection (Type 6). Disposable coveralls should not have external pockets or Velcro fastenings.
- All work should be carried out in accordance with SafeWork NSW How to Safely Remove Asbestos, Code of Practice 2019 and the NSW WHS Regulation 2017 made under NSW WHS Act 2011. Handling and disposal of asbestos waste material should be carried out in accordance with the relevant guidelines.
- All fibre air monitoring shall be carried out by a licenced asbestos assessor with NATA accreditation in accordance with National Occupational Health and Safety Commission (NOHSC), Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC:3003(2005)], NOHSC, Australia.
- Personal decontamination must be undertaken each time workers leave the asbestos work area and at the completion of the asbestos removal work. Personal decontamination should be undertaken within the nominated decontamination area. The extent of decontamination required is dependent upon the type of asbestos being removed. If friable asbestos is being removed, then a three-stage wet decontamination unit shall be required. If it is noted that non-friable ACM is being removed this may be undertaken in a nominated dry decontamination area. Refer to SafeWork NSW How to Safely Remove Asbestos, Code of Practice 2019 and NSW WHS Regulation 2017 made under the NSW WHS Act 2011 for personal decontamination methods.

A clearance inspection of the work area shall be undertaken at the completion of the works by a licenced asbestos assessor such as WSP Australia in accordance with SafeWork NSW How to Safely Remove Asbestos, Code of Practice 2016.

6.3 GENERAL LEAD PAINT MANAGEMENT

All lead paint removal/stabilisation must be undertaken in accordance with AS/NZS 4361.2:2017, *Guide to Hazardous Paint Management, Part 2: Lead paint in residential, public and commercial buildings*. It should be noted that this document does not replace AS/NZS 4361.2:2017. Rather it provides general advice to assist with the creation of a site-specific document to facilitate the safe removal/stabilisation of lead paint works.

This document provides general guidance for the removal of lead based paint systems via various methods commonly employed such as the use of a chemical strippers and the stabilisation of flaking lead based paints via scraping and wet sanding. Reference is made to a particular brand name of chemical stripper; however, this advice does not replace information provided by the manufacturer and one should always refer to the products guidance and relevant Australian legislation, standards, MSDS and guidance material.

In addition, it provides guidance for decontamination procedures. Disposal requirements and provisions for lead air monitoring and clearance inspections.

As a matter of priority, appropriate environmental management and Work, Health and Safety procedures should be put in place for the remediation works to protect the works, site staff, general public and the environment.

6.3.1 LEAD PAINT CLEARANCE

- Following the completion of the lead based paint removal works the occupational hygiene consultant will be required to undertake a thorough visual inspection of the work area and transit route.
- If removal works are not to the satisfaction of the occupational hygiene consultant, removal contractors will be required to re-enter the work area and rectify any issues arising from the inspection.
- AS/NZS 4361.2:2017 states that following the completion of works and the appropriate clean-up of the area, samples of dust can be collected and sent for analysis to determine if there has been a significant impact on the property and surrounding area from works undertaken and if the building is safe to reoccupy. Clearance dust samples can be collected and compared with the surface dust loading levels detailed within Table 2.1.
- Only following satisfactory clearance inspection, air monitoring and dust sampling, will removal works be deemed as completed.
- A final inspection of the work site will be required by the occupational hygiene consultant following removal of enclosure and equipment to ensure no debris or dust remains onsite.

6.4 GENERAL SMF MANAGEMENT GUIDELINES

All SMF removal should be done in accordance with the National Occupational Health and Safety Commission *National Code of Practice for the Safe Use of Synthetic Mineral Fibres* [NOHSC: 2006 (1990)]. Some of the practices recommended are as follows:

- The work area should be designated by using barricade tape and signs where workable. Persons not involved in the removal should not be within 3 metres of the designated area.
- Waste shall be placed in plastic bags or other containers which prevent fibre and/or dust emission, and disposed of in accordance with local waste disposal authority requirements.
- PPE including goggles, half-face P2 respirator, gloves, long sleeve and loose fitting clothing should be worn.

6.5 GENERAL PCB MANAGEMENT GUIDELINES

- Material containing less than 50 g of PCBs at a concentration of 50 mg/kg or greater should be disposed of as scheduled PCB waste at the end of its useful life.
- Waste containing less than 50 g of PCBs at a concentration of 50 mg/kg or greater shall be disposed of as scheduled PCB waste.
- Material containing PCBs at a concentration greater than 2 mg/kg and up to 50 mg/kg shall, at the end of its useful life, be disposed of by a method approved by the agency in accordance with the guidance notes appended to this plan.

APPENDIX A

STATEMENT OF LIMITATIONS





Limitation Statement: Hazardous Materials Assessment

This Report is provided by WSP Australia Pty Limited (*WSP*) for Ampol Petroleum Australia Pty Ltd (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 1 September 2021 and agreement with the Client dated 1 September 2021 (*Agreement*).

PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information*), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

Where the survey identifies that hazardous materials are on site, the Conclusions are indicative of the presence of hazardous materials and cannot be regarded as absolute without further extensive sampling, outside the scope of the services set out in the Agreement. Its conditions, including the extent and visibility of hazardous materials, can change with time. On all sites, varying degrees of non-uniformity of conditions are encountered and the presence of hazardous materials which are not visually apparent at the time of inspection, are not likely to be detected. No monitoring, common testing or sampling technique provides results that are totally representative of the presence or non-presence of hazardous materials at the Site. Site conditions, including subsurface conditions can change with time due to natural and anthropogenic causes. .

Only material that was physically accessible at the time of inspection was sampled. Consequently, not all hazardous material may have been located at the Site. The survey identifying hazardous materials on site should be reviewed prior to demolition or refurbishment as a more detailed destructive survey may be required prior to demolition or refurbishment works. Care should be taken during normal site works, refurbishment or demolition works when entering previously inaccessible areas. If suspect material is encountered, works should cease in the area until samples have been collected and analysed by competent personnel.

It is impossible to locate all hazardous materials during an inspection. This is due to such factors as (without limitation):

- Time, budget and constraints requested by the Client;
- Access restrictions;
- The need to avoid causing physical damage to fixtures or structures on the Site;
- The need to minimise hazardous materials exposures to building occupants;
- The need to minimise inconvenience when the Site is in use (e.g. occupied) whilst an inspection is being conducted; and / or
- The availability of relevant building / plant construction plans.

Hazardous materials that could be routinely encountered in the normal day-to-day activities occurring on the Site, have been identified and assessed, however there is no guarantee that the Site is free of hazardous materials, since future activities may reveal hazardous materials in areas inaccessible or unknown to WSP.

Within the limitations referred to above, the preparation of this Report has been undertaken and performed in a professional manner in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by reputable consultants. No other warranty, expressed or implied, is made.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.



Limitation Statement: Hazardous Materials Assessment

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This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) the Conclusions and implement any recommendations in an appropriate, suitable and timely manner. WSP does not (and will not) accept liability arising out of or in connection with any health or safety risks associated with hazardous materials.

In the absence of express written consent of WSP, no responsibility is accepted by WSP for the use of the Report in whole or in part by any party other than the Client for any purpose whatsoever. Without the express written consent of WSP, any use which a third party makes of this Report or any reliance on (or decisions to be made) based on this Report is at the sole risk of those third parties without recourse to WSP. Third parties should make their own enquiries, rely on the results of their own site inspections, and / or obtain independent advice in relation to any matter dealt with or conclusions expressed in the Report.

DISCLAIMER

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APPENDIX B

RISK MATRIX



RISK ASSESSMENT – ASBESTOS AND HAZARDOUS BUILDING MATERIALS

Table 1 Friability

FRIABILITY		
F	Friable	Material that; (A) is in a powder form or that can be crumbled, pulverised or reduced to powder by hand pressure when dry, and (B) contains asbestos.
NF	Non-Friable	Material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound.

Table 2 Material Condition and Disturbance Potential

MATERIAL CONDITION		
1	Unknown	No access to assess condition
2	Poor	Obvious damage or deterioration, extensive dust and contamination
3	Moderate	Major damage throughout, no debris or dust, not sealed or encapsulated
4	Fair	Minor damage or deterioration, not sealed or encapsulated
5	Good	No obvious damage or deterioration, secured in place, sealed and encapsulated
DISTURBANCE POTENTIAL		
A	Almost Certain	Disturbance very likely to occur during typical occupancy of the building and during maintenance works
B	Likely	Disturbance likely to occur during typical occupancy of the building and during maintenance works
C	Moderate Likelihood	Disturbance may occur during typical occupancy of the building and is likely during maintenance works
D	Unlikely	Disturbance unlikely during typical occupancy of the building. However, may occur during maintenance works
E	Rare	Disturbance unlikely during typical occupation of the building



Table 3 Risk Assessment Chart

MATERIAL CONDITION		LIKELIHOOD OF DISTURBANCE				
		Almost Certain	Likely	Moderate Likelihood	Unlikely	Rare
		A	B	C	D	E
Unknown	1					
Poor	2					
Moderate	3					
Fair	4					
Good	5					

LEGEND:

HIGH RISK

MEDIUM RISK

LOW RISK

APPENDIX C

HAZARDOUS BUILDING MATERIALS REGISTER



Property Address: 76 Narromine St, Trangie NSW 2823

Consultant: S Malone (WSP)

Survey Date: 21/09/21

Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Managers Office	North, east and west elevation	Fibre cement sheeting	Wall lining	WSP-151301	No asbestos detected	24 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Managers Office	South elevation	Fibre cement sheeting	Wall lining	WSP-151302	CH Asbestos Detected (Positive)	4 sq. m	1	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Computer Station	North, south, east and west elevation	Fibre cement sheeting	Wall lining	Same as WSP-151302	Presumed positive for asbestos	6 sq. m	2	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Staff Bathroom	Internal walls	Fibre cement sheeting	Wall lining	Same as WSP-151302	Presumed positive for asbestos	10 sq. m	3	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Male Bathroom	Internal walls	Fibre cement sheeting	Wall lining	Same as WSP-151302	Presumed positive for asbestos	10 sq. m	4	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Managers Office and Computer Station	Ceiling	Fibre cement sheeting	Ceiling lining	WSP-151303	CH Asbestos Detected (Positive)	12 sq. m	5	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Staff Bathroom	Ceiling	Fibre cement sheeting	Ceiling lining	Same as WSP-151303	Presumed positive for asbestos	6 sq. m	6	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Male Bathroom	Ceiling	Fibre cement sheeting	Ceiling lining	Same as WSP-151303	Presumed positive for asbestos	4 sq. m	7	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Managers Office and Computer Station	Ceiling	White paint	Paint coating	WSP-151304	0.02% w/w (Negative)	12 sq. m	-	NA	NA	NA	NA	Result 0.02% lead. < / = 0.1% lead content, "lead-free" paint as described in AS 4361.2:2017 Guide to hazardous paint management		

Property Address: 76 Narromine St, Trangie NSW 2823
Consultant: S Malone (WSP)
Survey Date: 21/09/21
Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Staff Bathroom	Ceiling	White paint	Paint coating	Same as WSP-151304	Presumed Negative	6 sq. m	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Ceiling	White paint	Paint coating	Same as WSP-151304	Presumed Negative	4 sq. m	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Managers Office	Internal walls	Blue paint	Paint coating	WSP-151305	0.05% w/w (Negative)	4 sq. m	-	NA	NA	NA	NA	Result 0.05% lead. < / = 0.1% lead content, "lead-free" paint as described in AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Computer Station	Internal walls	White paint	Paint coating	WSP-151306	0.11% w/w (Positive)	8 sq. m	8	NA	4	D	L	Result 0.11% lead. Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Staff Bathroom	Internal walls	White paint	Paint coating	Same as WSP-151306	Presumed positive for lead paint	8 sq. m	9	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Internal walls	White paint	Paint coating	Same as WSP-151306	Presumed positive for lead paint	8 sq. m	10	NA	4	D	L	Result 0.11% lead. Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Managers Office	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	WSP-151307	0.23% w/w (Positive)	2 sq. m	11	NA	4	D	L	Result 0.23% lead. Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Kitchen	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	2 sq. m	12	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Window Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	4 units	13	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Staff Bathroom	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	2 sq. m	14	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Window Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	1 unit	15	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Door and Door Frame	Blue grey paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	6 sq. m	16	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Male Bathroom	Walls	Green paint (Multicoloured undercoat)	Paint coating	Same as WSP-151307	Presumed positive for lead paint	6 sq. m	17	NA	4	D	L	Maintain good condition in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Kitchen	Floor	Vinyl sheeting and backing material	Floor covering	WSP-151308	No asbestos detected	6 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Service Area	Floor	Vinyl sheeting and backing material	Floor covering	Same as WSP-151308	Presumed negative for asbestos	50 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Service Area	North, south, east and west elevation	Fibre cement sheeting	Wall lining	WSP-151309	A, C, CH Asbestos Detected (Positive)	80 sq. m	18	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		

Property Address: 76 Narromine St, Trangie NSW 2823
Consultant: S Malone (WSP)
Survey Date: 21/09/21
Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Service Area	North, south, east and west elevation	White paint	Paint coating	WSP-151310	0.04% w/w (Negative)	80 sq. m	-	NA	NA	NA	NA	Result 0.04% lead. < / = 0.1% lead content, "lead-free" paint as described in AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Ceiling and beams	White paint	Paint coating	Same as WSP-151310	Presumed Negative for lead paint	100 sq. m	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Heating unit	White paint	Paint coating	Same as WSP-151310	Presumed Negative for lead paint	1 unit	-	NA	NA	NA	NA	Presumed negative for lead paint. Confirm status prior to demolition or refurbishment works in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	Service Area	Ceiling	Fibre cement sheeting	Ceiling lining	WSP-151311	A, C, CH Asbestos Detected (Positive)	100 sq. m	19	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Kitchen	Ceiling	Fibre cement sheeting	Ceiling lining	Same as WSP-151311	Presumed positive for asbestos	6 sq. m	20	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Service Area	Floor	Vinyl sheeting and backing material	Floor covering	WSP-151312	No asbestos detected	12 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	Male Bathroom	Floor	Vinyl sheeting and backing material	Floor covering	Same as WSP-151312	Presumed negative for asbestos	8 sq. m	-	NA	NA	NA	NA	No action required		
Service Station	Ground	External	North, south, east and west elevation walls	White paint	Paint coating	Same as WSP-151313	Presumed positive for lead paint	200 sq. m	23	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	External	North, south, east and west elevation fascia, eaves and gutters	White paint	Paint coating	Same as WSP-151313	Presumed positive for lead paint	50 sq. m	24	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	External	Walls	Fibre cement sheeting	Wall lining	Same as WSP-151314	Presumed positive for asbestos	200 sq. m	27	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	Debris	Fibre cement sheeting	Debris	Same as WSP-151314	Presumed positive for asbestos	3 sq. m	28	NF	2	C	M	Conduct remediation works to make safe as soon as reasonably practicable. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	Window Frame	Grey/black paint	Window Frame	WSP-151315	0.13% w/w (Positive)	4 units	29	NA	3	C	M	Result 0.13% lead. Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Service Station	Ground	External	Skirting board	Grey/black paint	Skirting board	Same as WSP-151315	Presumed positive for lead paint	30 sq. m	30	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		

Property Address: 76 Narromine St, Trangie NSW 2823

Consultant: S Malone (WSP)

Survey Date: 21/09/21

Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	Staff Bathroom	Cistern	Moulded fibre cement	Cistern	Visual Observation	Presumed positive for asbestos	1 unit	31	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Male Bathroom	Cistern	Moulded fibre cement	Cistern	Visual Observation	Presumed positive for asbestos	2 units	32	NF	5	E	L	Access restriction, good material condition. Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Service Area	Safe	Internal insulation	Safe	Visual Observation	Presumed negative	1 unit	33	NF	5	E	L	Suspected negative due to age and appearance		
Service Station	Ground	Service Area	Southern wall, electrical backing board	Resinous backing board	Electrical backing board	Visual Observation	Presumed positive for asbestos	1 unit	34	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	North, south, east, west elevations	Fibre cement sheeting	Fascia	Visual Observation	Presumed positive for asbestos	40 sq. m	35	NF	5	E	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	External	Canopy lining	Fibre cement sheeting	Canopy	Visual Observation	Presumed positive for asbestos	30 sq. m	36	NF	5	E	L	No access due to height restrictions. Confirm prior to demolition or refurbishment works. Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Service Station	Ground	Kitchen	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	37	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Service Area	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	2 units	38	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Service Area	Ceiling	PCB	Double Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	39	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Male Bathroom	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	40	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		

Property Address: 76 Narromine St, Trangie NSW 2823
Consultant: S Malone (WSP)
Survey Date: 21/09/21
Inaccessible Areas: Heights above 1.8m. Foundation spaces. Wall cavities. Electrical equipment. Confined Spaces. Ceiling spaces.

MATERIAL IDENTIFICATION										RISK ASSESSMENT				RISK MANAGEMENT	CORRECTIVE ACTIONS	
Building	Level	Primary Location	Secondary Location	Material	Application	Sample Number	Result	Size	Photo Number	Friability (F, NF)	Condition (1-5)	Disturbance Potential (A-E)	Risk Rating (L, M, H)	Consultant Comments	Remediation Comments	Remediation Date
Service Station	Ground	External	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	6 units	41	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	External	Ceiling	PCB	Double Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	42	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		
Service Station	Ground	Male Bathroom	Hot water unit	SMF	Insulation	Visual Observation	Presumed positive for SMF	1 unit	44	NF	5	E	L	Handle in accordance with the Code of Practice for the Safe Use of Synthetic Mineral Fibre Products [NOHSC: 2006 (1990)].		
Service Station	Ground	Managers Office	Air conditioning unit	SMF	Insulation	Visual Observation	Presumed positive for SMF	1 unit	45	NF	5	E	L	Handle in accordance with the Code of Practice for the Safe Use of Synthetic Mineral Fibre Products [NOHSC: 2006 (1990)].		
Service Station	Ground	Service Area	Air conditioning unit	SMF	Insulation	Visual Observation	Presumed positive for SMF	1 unit	46	NF	5	E	L	Handle in accordance with the Code of Practice for the Safe Use of Synthetic Mineral Fibre Products [NOHSC: 2006 (1990)].		
Shed	Ground	Internal	Walls	Fibre cement sheeting	Wall lining	WSP-151314	A, C, CH Asbestos Detected (Positive)	20 sq. m	25	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Shed	Ground	External	Walls	Fibre cement sheeting	Wall lining	Same as WSP-151314	Presumed positive for Asbestos	60 sq. m	26	NF	5	D	L	Label as containing asbestos and maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.		
Shed	Ground	Internal	North, south, east and west elevation walls	White paint	Paint coating	WSP-151313	0.18% w/w (Positive)	20 sq. m	21	NA	3	C	M	Result 0.18% lead. Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Shed	Ground	External	North, south, east and west elevation walls	White paint	Paint coating	Same as WSP-151313	Presumed positive for lead paint	60 sq. m	22	NA	3	C	M	Remove flaking sections and repaint as soon as reasonably practicable in accordance with AS 4361.2:2017 Guide to hazardous paint management		
Shed	Ground	Internal	Ceiling	PCB	Single Tubed Fluorescent Light	Visual Observation	Presumed positive for PCBs	1 unit	43	NF	5	E	L	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Confirm or remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003		

APPENDIX D

CERTIFICATES OF ANALYSIS





Certificate of Analysis

WSP Australia Pty Limited



Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC:
17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION: AMPOL Trangie - 76 Narromine Street, Trangie, NSW 2823

CLIENT: WSP - CLM Team NSW

CLIENT ADDRESS: 680 George Street, Sydney NSW 2000

TELEPHONE: 0413 172 208

EMAIL: James.Johnston2@wsp.com

CONTACT: James Johnston

CERTIFICATE NO: SYD-PS126485-145854

DATE/S SAMPLED: 21/09/2021

DATE RECEIVED: 22/09/2021

DATE ANALYSED: 27/09/2021

ORDER NUMBER: N/A

SAMPLED BY: Shai Malone

TEST METHOD: Qualitative identification of asbestos fibres in bulk and soil samples at WSP Corporate Laboratories by polarised light microscopy, including dispersion staining, in accordance with AS4964 (2004) Method for the qualitative identification of asbestos in bulk samples and WSP's Laboratory Procedure (LP3 - Identification of Asbestos Fibres). Trace analysis carried out on all non-homogenous samples.

Lab No	Sample ID	Location	Description	Dimensions	Identification Type
001	WSP-151301	Internal, managers office, north, east and west elevations, walls, behind storage cabinets	Fibre Cement Sheet	1 g	OF, NAD
002	WSP-151302	Internal, south elevation, managers office and computer station, walls	Fibre Cement Sheet	1 g	CH
003	WSP-151303	Internal, managers office and computer station, ceiling	Fibre Cement Sheet	<1 g	CH
004	WSP-151308	Internal, service station, kitchen and behind service desk, floor covering	Vinyl	15 g	NAD
004A			Backing Material		OF
005	WSP-151309	Internal, service station, north, south, east and west elevations, walls	Fibre Cement Sheet	5 g	A, C, CH
006	WSP-151311	Internal, service station and kitchen, ceiling	Fibre Cement Sheet	<1 g	A, C, CH
007	WSP-151312	Internal, service station entrance and male bathroom, floor covering	Vinyl	20 g	NAD
007A			Backing Material		OF
008	WSP-151314	External shed and service station, north, south, east, west elevations, walls	Fibre Cement Sheet	16 g	A, C, CH



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LOCATION: AMPOL Trangie - 76 Narromine Street, Trangie, NSW 2823
CERTIFICATE NO: SYD-PS126485-145854

LEGEND:

- | | | |
|--------------|---|--|
| NAD | - | No Asbestos Detected |
| CH | - | Chrysotile Asbestos Detected |
| A | - | Amosite Asbestos Detected |
| C | - | Crocidolite Asbestos Detected |
| UMF | - | Unknown Mineral Fibres Detected |
| SMF | - | Synthetic Mineral Fibres Detected |
| OF | - | Organic Fibres Detected |
| ¹ | - | No asbestos detected at the reporting limit of 0.1 g/kg |
| ² | - | Identification not possible due to adhering materials |
| ³ | - | Identification not possible due to degradation of fibres |

Hand picked refers to small discrete amounts of asbestos distributed unevenly in a large body of non asbestos material.

Notes:

If no asbestos is detected in vinyl tiles, mastics, sealants, epoxy resins and ore samples then confirmation by another independent analytical technique is advised due to the nature of the samples.

The results contained within this report relate only to the sample(s) submitted for testing. Sampling is not covered by the scope of accreditation. Samples analysed on an 'As Received' basis. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.

This document may not be reproduced except in full.

Approved Identifier

Name: Sneha Shakya

Approved Signatory

Name: Sneha Shakya

AUTHORISATION DATE

Monday, 27 September 2021

CERTIFICATE OF ANALYSIS 278763

Client Details

Client	WSP Australia Pty Limited
Attention	Shai Malone
Address	GPO Box 5394, Sydney, NSW, 2001

Sample Details

Your Reference	<u>PS126485 Hazmat Survey AMPOL Trangie</u>
Number of Samples	7 Paint
Date samples received	22/09/2021
Date completed instructions received	22/09/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

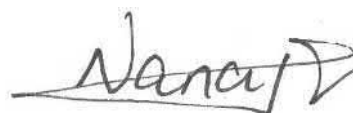
Report Details

Date results requested by	29/09/2021
Date of Issue	29/09/2021
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Hannah Nguyen, Metals Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

Lead in Paint						
Our Reference		278763-1	278763-2	278763-3	278763-4	278763-5
Your Reference	UNITS	WSP-151304	WSP-151305	WSP-151306	WSP-151307	WSP-151310
Date Sampled		21/09/2021	21/09/2021	21/09/2021	21/09/2021	21/09/2021
Type of sample		Paint	Paint	Paint	Paint	Paint
Date prepared	-	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021
Date analysed	-	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021
Lead in paint	%w/w	0.02	0.05	0.11	0.23	0.04

Lead in Paint			
Our Reference		278763-6	278763-7
Your Reference	UNITS	WSP-151313	WSP-151315
Date Sampled		21/09/2021	21/09/2021
Type of sample		Paint	Paint
Date prepared	-	29/09/2021	29/09/2021
Date analysed	-	29/09/2021	29/09/2021
Lead in paint	%w/w	0.18	0.13

Method ID	Methodology Summary
Metals-020/021/022	Digestion of Paint chips/scrapings/liquids for Metals determination by ICP-AES/MS and or CV/AAS.

Client Reference: PS126485 Hazmat Survey AMPOL Trangie

QUALITY CONTROL: Lead in Paint					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			29/09/2021	6	29/09/2021	29/09/2021		29/09/2021	[NT]
Date analysed	-			29/09/2021	6	29/09/2021	29/09/2021		29/09/2021	[NT]
Lead in paint	%w/w	0.005	Metals-020/021/022	<0.005	6	0.18	0.17	6	98	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

APPENDIX E

PHOTOGRAPHS



	PHOTOGRAPHIC LOG Hazardous Materials Resurvey
Project Code: PS126485	Site Location: Trangie AMPOL - 76 Narromine St, Trangie NSW 2823



Photo 1: Service Station, internal, managers office, southern elevation, wall lining – Asbestos containing fibre cement sheeting. (WSP-151302)



Photo 2: Service Station, internal, computer station wall lining - Asbestos containing fibre cement sheeting. (Same as WSP-151302)



Photo 3: Service Station, internal, staff bathroom, wall lining - Asbestos containing fibre cement sheeting. (Same as WSP-151302)



Photo 4: P Service Station, internal, male bathroom, wall lining - Asbestos containing fibre cement sheeting. (Same as WSP-151302)



Photo 5: Service Station, internal, managers office and computer station, ceiling lining - Asbestos containing fibre cement sheeting. (WSP-151303)



Photo 6: Service Station, internal, staff bathroom, ceiling lining - Asbestos containing fibre cement sheeting. (Same as WSP-151303)

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Photo 7: Service Station, internal, male bathroom, ceiling lining - Asbestos containing fibre cement sheeting. (Same as WSP-151303)

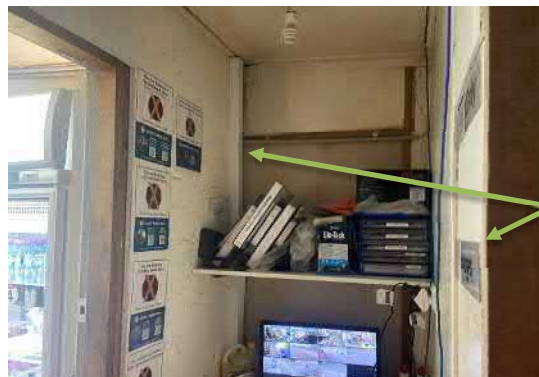


Photo 8: Service Station, internal, computer station, walls, white paint - Lead containing paint system (WSP-151306)



Photo 9: Service Station, internal, staff bathroom, walls, white paint - Lead containing paint system (Same as WSP-151306)

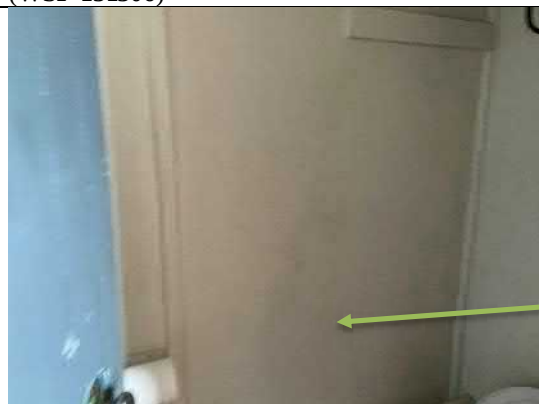


Photo 10: Service Station, internal, male bathroom, walls, white paint - Lead containing paint system (Same as WSP-151306)



Photo 11: Service Station, internal, managers office, door and door frame, blue grey paint (multicolour undercoat) - Lead containing paint system (WSP-151307)



Photo 12: Service Station, internal, kitchen, door and door frame blue grey paint (multicolour undercoat) - Lead containing paint system (Same as WSP-151307)

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Photo 13: Service Station, internal, service area, window frame, blue grey paint (multicolour undercoat) – Lead containing paint system (**Same as WSP-151307**)



Photo 14: Service Station, internal, staff bathroom, door and door frame, blue grey paint (multicolour undercoat) – Lead containing paint system (**Same as WSP-151307**)



Photo 15: Service Station, internal, male bathroom, window frame, blue grey paint (multicolour undercoat) – Lead containing paint system (**Same as WSP-151307**)



Photo 16: Service Station, internal, male bathroom, door and door frame, blue grey paint (multicolour undercoat) – Lead containing paint system (**Same as WSP-151307**)

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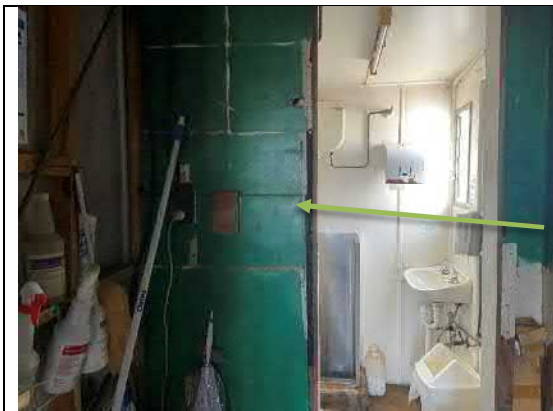


Photo 17: Service Station, internal, male bathroom, walls, green paint (same as multicolour undercoat) – Lead containing paint system (Same as WSP-151307)

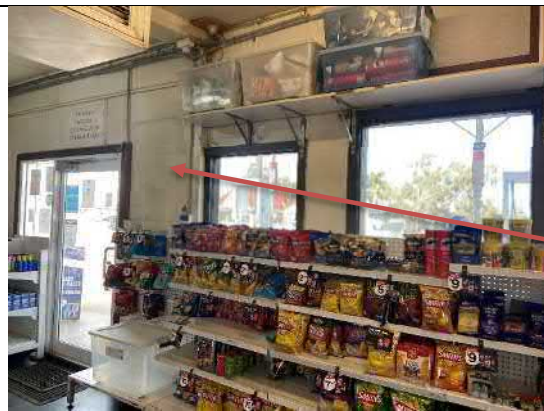


Photo 18: Service Station, internal, service area, wall lining – Asbestos containing fibre cement sheeting (WSP151309)



Photo 19: Service Station, internal, service area, ceiling lining – Asbestos containing fibre cement sheeting (WSP151311)



Photo 20: Service Station, internal, kitchen, ceiling lining – Asbestos containing fibre cement sheeting (Same as WSP151311)

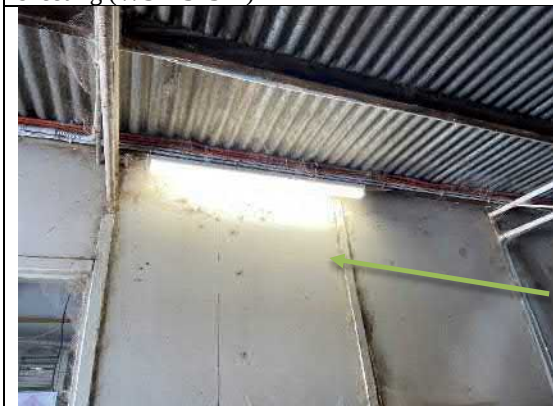


Photo 21: Shed, internal, wall lining, white paint – Lead containing paint system (WSP-151313)



Photo 22: Shed, external, wall lining, white paint – Lead containing paint system (Same as WSP-151313)

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Photo 23: Service Station, external, wall lining, white paint – Lead containing paint system (**Same as WSP-151313**)



Photo 24: Service Station, external, fascia and guttering, white paint – Lead containing paint system (**Same as WSP-151313**)

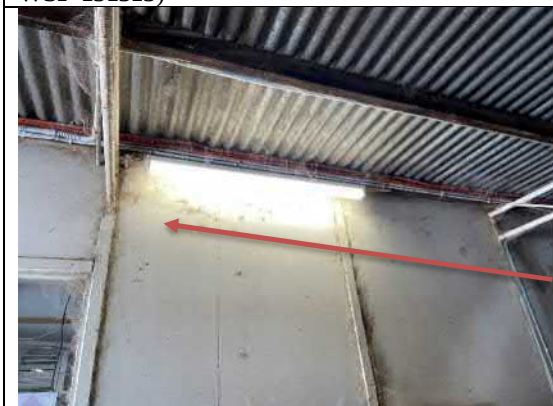


Photo 25: Shed, internal, wall lining – Asbestos containing fibre cement sheeting (**WSP-151314**)



Photo 26: Shed, external, wall lining – Asbestos containing fibre cement sheeting (**Same as WSP-151314**)



Photo 27: Service Station, external, wall lining – Asbestos containing fibre cement sheeting (**Same as WSP-151314**)



Photo 28: Service Station, external, debris - Asbestos containing fibre cement debris. (**Same as WSP-151314**)

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Photo 29: Service Station, external, window frame, grey/black paint - Lead containing paint system (WSP-151315)



Photo 30: Service Station, external, skirting board, grey/black paint - Lead containing paint system (Same as WSP-151315)



Photo 31: Service station, internal, staff bathroom, cistern – Presumed asbestos containing fibre cement sheeting.



Photo 32: Service station, internal, male bathroom, cistern – Presumed asbestos containing fibre cement sheeting.



Photo 33: Service station, internal, service area, safe – Presumed negative asbestos containing insulation lining.



Photo 34: Service station, internal, service area, southern wall, electrical backing board – Presumed asbestos containing bituminous backing board

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Photo 35: Service station, external, fascia – Presumed asbestos containing fibre cement sheeting.



Photo 36: Service station, external, ceiling – Presumed asbestos containing fibre cement sheeting.



Photo 37: Service Station, internal, kitchen – Presumed PCB containing single fluorescent lights



Photo 38: Service Station, internal, service area – Presumed PCB containing single fluorescent lights



Photo 39: Service Station, internal, service area – Presumed PCB containing double fluorescent lights



Photo 40: Service Station, internal, male bathroom – Presumed PCB containing single fluorescent lights

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Photo 41: Service Station, external, – Presumed PCB containing single fluorescent lights



Photo 42: Service Station, external – presumed PCB containing double fluorescent lights

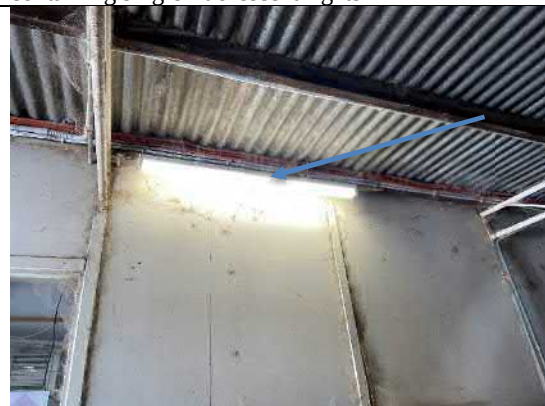


Photo 43: Shed, internal – Presumed PCB containing single fluorescent lights



Photo 44: Service Station, internal, male bathroom – presumed SMF containing hot water unit insulation



Photo 45: Service Station, internal, managers office – Presumed SMF containing air conditioning unit insulation



Photo 46: Service Station, internal, service area – Presumed SMF containing air conditioning unit insulation