



**LATE ITEMS
ATTACHMENTS TO REPORTS
GENERAL COUNCIL MEETING
ITEMS UNDER SEPARATE COVER
24 JUNE 2020**

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MARYVALE RAIL RESERVE ENVIRONMENTAL MANAGEMENT REGISTER REMOVAL

Site Investigation Report

Meeting Date: 24 June 2020

Attachment No: 1



Maryvale Rail Reserve, Lot 68 on CP900445

Contaminated Land Investigation Report

31 May 2020

Prepared for: Southern Downs
Regional Council




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1. INTRODUCTION

Southern Downs Regional Council (SDRC) engaged Environmental Advisors Pty Ltd to undertake a contaminated land investigation and produce this Report for the Maryvale Rail Reserve, formally identified as Lot 68 CP900445 (Site).

The Site is listed on the Queensland Environmental Management Register (EMR) for the historical Notifiable Activities of Livestock Dip or Spray Race and Railway Yards. As the Site has been identified as an area for revitalisation and is proposed to be redeveloped for recreation purposes, this Report is required to inform the proposed redevelopment with the objective of removing the Site from the EMR. The investigation has been staged as follows:

- Soil assessment works undertaken in accordance with the SDRC Contract 19_209 Acceptance Letter dated 18th July 2019 and produced Contaminated Land Investigation Report (CLIR) dated 8th October 2019,
- Subsequent appointment of Contaminated Land Auditor (CLA) Mr Trevor Lloyd, and
- This revision of the CLIR incorporating CLA comments, and additional field works involving ash delineation and a groundwater assessment performed in accordance with *Maryvale Rail Reserve, Lot 68 on CP900445, Sampling, Analysis and Quality Plan, Environmental Advisors, 6th February 2020 (SAQP)*.

1.1. PURPOSE

SDRC is seeking information on the suitability of the Site for the proposed redevelopment and for removal from the EMR. The purpose of this Report is to determine the suitability of the Site for the proposed redevelopment, inform any required additional assessment or related works, and to progress removal of the Site from the EMR. The purpose was achieved by:

- Investigating and reporting within this Report the current Site condition with respect to contamination;
- Providing an assessment of Site suitability with respect to contamination and contamination related risks; and
- Providing an assessment and report commensurate to a *Contaminated Land Investigation Document (CLID)* as defined by the *Environmental Protection Act 1994 (EP Act)*.

The scope of work to satisfy this purpose was based on the requirements of the EP Act and the National Environment Protection Council 1999, as amended 2013, *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*. The information provided in this Report was guided by the requirements of the Queensland Auditor Handbook for Contaminated Land *Module 6: Content requirements for contaminated land investigation documents, certifications and audit reports (ESR/2018/4224) (Module 6)*.

This Report is subject to the limitations set out in Section 14. It is to be read in conjunction with these limitations, as well as the assumptions and qualifications contained throughout the Report, with no part taken in isolation to represent the findings.



2. PROJECT INFORMATION

Project details are presented in Table 1 below.

Table 1 Project Details

Item	Detail	Refer to
Trigger	Voluntary	Section 1
Suitably Qualified Professional (SQP)	Andrew Winters of Environmental Advisors Pty Ltd	-
SQP Support Team	Jane Smalley	-
Type of Contaminated Land Investigation Document	Site Investigation Report	-
Site Address	Wienholt Street, Maryvale, QLD, 4370	Smartmap, Appendix A
General Latitude and Longitude	425395.99 m E 6894491.81 m S	Google Earth
Registered Lot and Plan	Lot 68 on CP900445	Smartmap, Appendix A and Current Certificate of Title, Appendix B
Tenure	Reserve	Smartmap, Appendix A
Site Owner	SDRC	Appendix B
Site Owner Address	64 Fitzroy Street, Warwick, QLD, 4370	-
Current Site Occupier	SDRC	Drawing 1, Appendix A
Current Site Use	Public Open Space/Vacant	-
Site Plan	Attached	Drawing 1, Appendix A
Site Area	5.191 ha	Smartmap, Appendix A
Site Zoning	Community Facilities	SDRC Map, Appendix A
Proposed Use/zoning	Short term accommodation – RV and Caravan Set down area and camping area Community Facilities	Information provided by the client
Local Government	SDRC	-
CLR / EMR Status	The land is listed on the EMR for Notifiable Activities of <i>Livestock Dip or Spray Race and Railway Yards</i> The land is not listed on the Contaminated Land Register (CLR)	Appendix C



Existing, pending or proposed development approval or building works approval	None available	SDRC ETrack portal ¹
Permits, Approvals and Licences	None identified	-
Environmentally Sensitive Areas	Millar Vale Creek located approximately 400m to the north west of Site.	Section 4
Previous Investigations	None provided	-

2.1. DETAILED OBJECTIVES

To fulfil the purpose of the investigation the following objectives were defined:

Table 2 Project Objectives

Identify potential sources of contamination and Areas of Environmental Concern (AEC) from historic or current activities	<ul style="list-style-type: none"> • Completion of a desktop Site history investigation and background information review (Section 3) • Site walkover undertaken on the 19 August 2019
Identification of potential receptors	<ul style="list-style-type: none"> • Review of current and proposed Site use • Review of environmental Site setting including relevant government database review.
Collection of Site information relating to the potential movement of contamination via movement pathways	<ul style="list-style-type: none"> • Review of local geology and soil for soil migration pathway information • Review of local hydrology and topography for overland migration pathway information • Review of local and regional hydrogeological material for groundwater migration pathway information • Review of available Site plans for potential contamination migration pathway information • Review of underground service plans (DBYD) • Site walkover undertaken on the 19 August 2019 • Prepare a Conceptual Site Model (CSM)

¹ Source:
<https://onlineservices.sdrc.qld.gov.au/eProperty/P1/eTrack/eTrackApplicationSearch.aspx?r=P1.WEBGUEST&f=%24P1.ETR.SEARCH.ENQ>, last accessed 21 November 2019



<p>Provide detail on the identified AEC including the location, type and volume of contamination</p>	<ul style="list-style-type: none"> • Review selected information sources and identify/confirm AEC • Prepare Sampling and Analysis Quality Plan (SAQP) • Excavation of 65 test pits over the 19th, 20th and 21st August 2019, for visual and olfactory observation and sample collection within the AEC. • Excavation of additional 23 test pits on 25th March 2020 for the purpose of ash delineation associated with AEC 2. • Soil sampling via excavator and open test pits with hand collection directly into laboratory supplied jars. • samples. • Photographic lithological recording to map any areas of concern. • Collection of soil samples and analysis for various parameters including: <ul style="list-style-type: none"> ○ Heavy Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) ○ Organochloride and Organophosphorus (OC/OP) pesticides ○ Polycyclic aromatic hydrocarbons (PAH) ○ Phenols ○ Total recoverable hydrocarbons (TRH) / benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN) ○ Asbestos ○ Per- and polyfluoroalkyl substances (PFAS) • Installation of 3 groundwater monitoring bores on 25th and 26th March 2020 for the purpose of sampling and analysis of groundwater for: <ul style="list-style-type: none"> ○ Field parameters including pH, electrical conductivity, redox, temperature, total dissolved solids ○ Dissolved heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) ○ OC/OP pesticides ○ PAH/Phenols ○ TRH/BTEXN ○ PFAS
<p>Identify any areas of uncertainty</p>	<ul style="list-style-type: none"> • Review of information collected and highlight data gaps.
<p>Provide an assessment of Site contamination related Risks</p>	<ul style="list-style-type: none"> • Completion of a revised conceptual Site model. • Assessment of potential risks by considering source² – pathway – receptor relationships for identified sources and potential receptors. As a screening level assessment, the Site Contamination Risk Equation (SCRE) is used: $\text{Source} \times \text{Pathway} \times \text{Receptor} = \text{Risk}$ <p>Each variable can have the following values:</p> <p>1 = Exists</p> <p>0 = Does not exist³</p> • If any of the variables have a value of 0 then the Risk is also 0 or low risk. • Evaluate the risk of undetected contamination based upon either an area-based or volume-based assessment, and how this may affect the SCRE.

² A source is considered to be a potential source of a hazardous contaminant(s).

³ In practical terms it is not possible to assess source related hazards to a level where they can be stated to be as being non-existent and some residual hazard that may result in a risk may remain. Non-existent is intended to mean low risk.



Determine if management or remediation measures are required to make the Site suitable for the proposed use and define these measures.	<ul style="list-style-type: none"> • Where potentially unacceptable (subjective) risks exist, determine measures to alter the source-receptor-pathway relationship to reduce these risks. • Where there is other fixed proposed Site uses (fixed receptors) remedial or management measures involve the modification of the pathway and source variables.
Prepare a compliant Report	<ul style="list-style-type: none"> • Prepare a CLID compliant with Module 6 and EP Act s.389 (refer to CLID checklist presented in Appendix L).



3. SITE HISTORY AND BACKGROUND INFORMATION REVIEW

3.1. INFORMATION PROVIDED BY SDRC

As part of this investigation SDRC provided correspondence between SRDC and Qld Department of Environment and Science (DES) regarding the listing of the Site on the EMR (copies provided in Appendix C). A review of the information provided the following:

- Reporting of Notifiable Activities at the Site was provided to DES (then Department of Environment and Resource Management) in October 2011 by a SDRC representative;
- The Notification form states *"This reserve is a former Railway Yard. Qld Rail museum has advised Council that they cannot locate the plans for these, however they suspect that a Cattle Dip may have been part of the yards. Also, rail sleepers treated with arsenic or creosote may have been stored in the yards"*;
- A Notice of Consideration of listing the land on the EMR was dated 12 March 2012;
- In response to the Notice of Consideration, a letter from the Lands Office, dated 15 March 2012, states *"I refer to your letter dated 12 March 2012 and advise that a search of our departmental files has revealed no evidence that the land historically contained either a cattle dip or was used to store treated rail sleepers or creosote"*;
- A Statutory Declaration from the SDRC representative states:
 - *"Concern was raised of the potential contamination of the land following correspondence from members of the Maryvale community on 26 November 2010 due to the existence of the former railway yards and potential contamination arising from railway sleepers treated with either arsenic or creosote.*
 - *Information was sought from the Curator of Queensland Railways workshops rail museum at North Ipswich. This museum holds Station Yard Plans for former railway stations throughout Queensland. Unfortunately the plan for Maryvale is one of the few that cannot be located. The Curator did advise that the Maryvale Station was closed circa 1964.*
 - *The Curator also raised the possibility of a cattle dip being utilised at the Site as was the case with many railway stations in the early to mid 1900's. Therefore, details of what actually did exist at the Maryvale Station Yards (e.g. cattle dip etc) are unknown.*
 - *Accordingly the Southern Downs Regional Council cannot declare that this land is contaminated. The land is definitely not being used for a notifiable activity."*

In addition to the correspondence, a diagram showing the layout of the former Maryvale Railway Station and line were provided (Appendix D). It is not known if the diagram depicts 'as constructed' infrastructure or proposed plans for the Site, however the diagram shows:

- The rail line entering the Site from the west and running along the length of the Site to the north east. Two branches come off the main line, one to the southern 'triangle' and the other to an Engine Shed;
- Structures on Site include:
 - Shelters Shed, platform and loading bank;
 - Goods shed and platform;



- Engine Shed, Tank (most likely water storage to service steam locomotives, however, it may potentially have been used for diesel following introduction of the diesel locomotives in the 1950s - source: <https://www.sdsr.org.au/east-warwick-railway-station/>) and an Ash Pit (assumed to be a shallow (<1.5m) pit used for collection of ash emptied from steam engine); and
- Quarters.

The interpolated locations of these structures and areas are shown on Drawing 2 presented in Appendix A. The information provided by SDRC indicates the Site has been historically used as a railway station with a railway line, platforms and other infrastructure previously located across the Site. These areas are considered Areas of Environmental Concern (AEC) and are further discussed in Section 6. Based on information provided by SDRC and the walkover site inspection undertaken by Environmental Advisors, no notifiable activities are currently being carried out on Site.

The presence of a cattle dip has been based on information from one source (Curator of Queensland Railways workshops rail museum) indicating the possibility that a dip existed at Maryvale Railyards based on examples of other yards. The plans do not show the presence of a dip. No conclusive information is available regarding the presence or otherwise of a dip

3.2. AVAILABLE ONLINE RESOURCES

A comprehensive online search was conducted to verify the information provided by SDRC. The results of the searches are summarised below:

- Southern Downs Steam Railway WebSite (<https://www.sdsr.org.au/via-recta-the-line-that-never-was/>)
 - The rail line through Maryvale was constructed as part of the the Via Recta line. The Via Recta line was proposed to be a direct link from Brisbane to the NSW border. Construction of the rail line was approved, commenced and operated, however, the final part between Maryvale and Mt Edwards was never completed.
 - Construction of the rail line began on 7th December 1909 and was opened on 30th September 1911.
 - The rail line was officially closed on 1st November 1960.
- The History and Memories of Freestone (<http://www.voicom.com.au/freestone/railway.htm>)
 - The rail line was closed after it had become an 'uneconomical operation', as reported by the Commissioner for Railways in June 1961 and the tracks were dismantled shortly after closure.
- Queensland Places (<https://www.queenslandplaces.com.au/southern-downs-regional-council>)
 - Warwick was linked to Toowoomba by rail in 1871. In the 1880s branch lines were opened from Warwick to Stanthorpe (1881), to Killarney (1885) and beyond Stanthorpe to the border (1887). Various branch and spur lines came later: east from the main line to Allora (1897) and Goomburra (1912); west from Warwick to Karara (1904) and Inglewood (1907); north-east from Warwick to Maryvale (1911); and to the west of Stanthorpe to the soldier-settlement farms of Pozieres and Amiens. The climate encouraged settlement along the numerous valleys, and the branch railways were laid down to transport the produce and livestock. They have now been closed, and only the western line to Inglewood and the southern line to Stanthorpe continue.
- National Library of Australia (<https://trove.nla.gov.au/>)
 - Various searches performed for *Maryvale*, *Maryvale rail station*, *Maryvale Cattle*, *Maryvale Dip*;



- Numerous results were obtained, the following two images were considered of significant note.



Image 1: Official Opening Maryvale Station, dated 1911

The image shows a steam locomotive, rail line and a crowd of people standing on an earthen platform. Of note is the construction of the tracks on what appears to be a light coloured subgrade which appears to have been cut into the earth at the right hand side of the photo and filled approximately 0.3-0.5m in depth in the left hand side of the photo and the earthen embankment.



Image 2: Railway at Maryvale, Queensland, ca. 1913: Freight being loaded onto a goods train at Maryvale



Image 2 shows the platforms and Goods Shed in the background, lighter coloured material on the surface in the vicinity of the tracks, a levelled area adjacent then a slope down the northern side of the line (right hand side of photograph). The areas to the south of the line (left hand side of photograph) appears to have been cut to construct the rail line.

- Environmental Authority Register search (<https://apps.des.qld.gov.au/env-authorities/map/>) indicates that a current prescribed Environmentally Relevant Activity (ERA) (Permit EPPR00558813 for Lot 197 ML2303 attached to SDRC) exists some 600m to the south of the Site (ERA 63 - Sewage Treatment).
- A search of current and historical mining exploration, production or infrastructure permits (<https://georesglobe.information.qld.gov.au/>) indicates that the Site and broader Maryvale locality, was subject to historical coal exploration permits (EPC's) for the time periods "1971-1980" and "after 2010" including surrendered EPC1431 held by Blackwood Corporation Limited for mining. Whilst the specifics of the EPC are unknown, no evidence of mining was identified on or around the Site, although from anecdotal information there were low grade coal mines understood to have been historically active in the area (prior to 1971 and unlikely to have been recorded on publicly accessible mining databases).

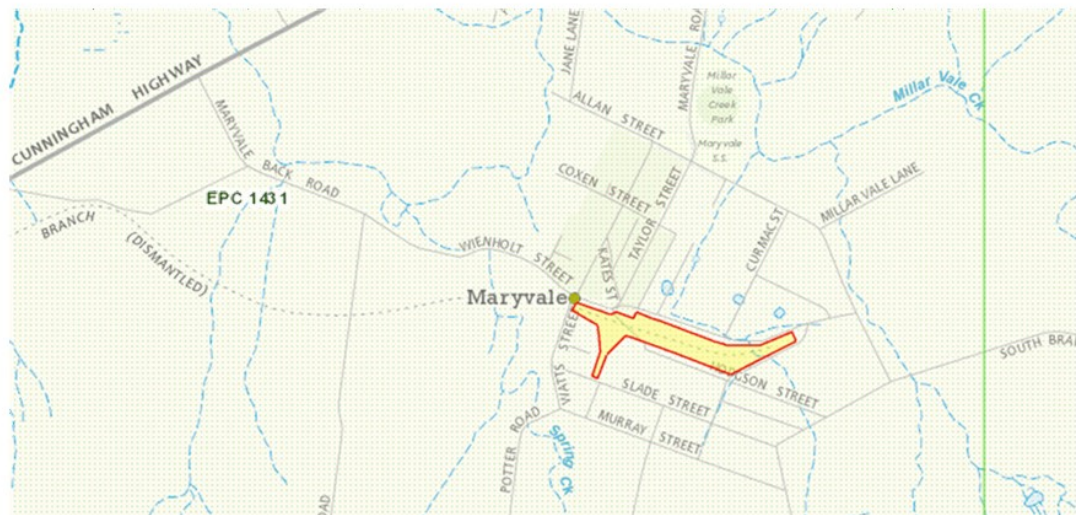


Image 3: Historical Mining EPC's

- Queensland Heritage Register (<https://apps.des.qld.gov.au/heritage-register/results/?q=maryvale>) - no results relating to the Site or surrounds.
- Queensland WWII Historic Places (<https://www.ww2places.qld.gov.au/search?place=maryvale&type=®ion=&submit=Search>) - no results for Maryvale.
- Australian Pesticides map (<https://pesticides.australianmap.net/location/queensland/>) - no data for the Site or surrounds.
- Cattle tick clearing facilities—locations for years 2013-2014 and 2014-2015 (<https://www.data.qld.gov.au/dataset/cattle-tick-clearing-facilities-locations>) - no data for the Site or surrounds.



- Cattle dip Site locator (https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks/cattle-dip-Site-locator?sq_content_src=%252BdXJsPVh0dHAIM0EIMkYIMkZidGMuZHBpLm5zdy5nb3YuYXUIMkZEaXAIMkZTZWFyY2hSZXN1bHRzTGZldCZhbGw9MQ%253D%253D&srchdipname=&srchroad=&srchTown=&selection=QLD&submit=Search) - no data for the Site or surrounds.
- National Pollutant Inventory (<http://www.npi.gov.au/>) - no data for the Site or surrounds.
- DES Enforcement Register locations (<https://apps.des.qld.gov.au/enforcement-tools/map/>) - no data for the Site or surrounds.

The information from the online resource review, confirms information provided by SDRC indicating the rail line and Maryvale station was constructed from 1909 to 1911, with platforms, shelters and sheds located on Site and this infrastructure demolished/removed some time after 1960.

No information relating to the presence of a cattle dip was found.

No other potential contamination sources were noted.

3.3. HISTORICAL AERIAL PHOTOGRAPHS

Selected historical aerial photography is presented in Appendix E. A summary of the review of selected aerial photography is provided in Table 3 below. Site features are shown in Drawing 2, Appendix A.

Table 3 Aerial Photograph Review

Image	Site	Surrounds
1951	<ul style="list-style-type: none"> • The Rail line is clearly visible running across the Site. • The Shelters Shed and Good Shed are visible. The surrounding area appears disturbed. • No indication of the Engine Shed is visible. • A dark coloured area in the vicinity of the Quarters is visible. • A drainage line running north south is visible in the eastern part of the Site 	<ul style="list-style-type: none"> • The Porters Cottage and Hotel are visible. Minimal development in the surrounding area. • The surrounding area appears to be used for grazing. • Sporadic patches of vegetation are visible.
1956	<ul style="list-style-type: none"> • The Rail line is visible traversing the Site. • The Shelters Shed is visible. Four smaller structures are visible in the vicinity of the Shelters Shed. • The Goods Shed is no longer visible, however, a long, light colour rectangular area is visible in the footprint (possible slab) • A square fenced area (possible pig yard) is visible further to the east of the Goods Shed location adjacent to the Rail line. • A cluster of trees is visible in the footprint of the Quarters 	<ul style="list-style-type: none"> • No significant changes are visible in the surrounding areas. • The surrounding area appear to be used for a mix of grazing, agriculture and residential.



1961	<ul style="list-style-type: none"> The rail line is no longer visible, and the footprint appears to be disturbed. Similarly, the other structures are no longer visible, and areas of disturbance are noted in their footprints. This correlates with information from The History and Memories of Freestone indicating that the rail line was removed following closure in 1960. A small dark coloured area is visible in the centre of the Site (possible vehicle). The light-coloured rectangular area in the footprint of the Goods Shed is visible. 	<ul style="list-style-type: none"> No significant changes are visible in the surrounding areas. Weinholt Street appears to have been constructed adjacent to the northern boundary of the Site.
1971	<ul style="list-style-type: none"> The Site appears vacant with the exception of a small square shaped structure in the centre of the Site. The remainder of the Site is unchanged. 	<ul style="list-style-type: none"> The surrounding area appears unchanged.
1981	<ul style="list-style-type: none"> The small structure is visible as well as the light-coloured rectangular area in the footprint of the Goods Shed is visible. The remainder of the Site is unchanged. 	<ul style="list-style-type: none"> The surrounding area appears unchanged.
1989	<ul style="list-style-type: none"> The area to the east of the structure appears disturbed (location of current Cattle Yard). The light-coloured rectangular area is no longer visible. Additional erosion appears to have occurred in the drainage channel in the eastern part of the Site. A disturbed area is visible adjacent to the south eastern boundary in the vicinity of the abandoned windmill and well. The remainder of the Site is unchanged. 	<ul style="list-style-type: none"> The surrounding area appears relatively unchanged with only some additional residential development occurring.
1993	<ul style="list-style-type: none"> The structures and the cattle yard currently on Site are visible in the centre of the Site. A small dark coloured area is visible to the north east of the cattle yard (Old scales) The area of the abandoned windmill and well appears disturbed (current drainage line) 	<ul style="list-style-type: none"> The surrounding area appears relatively unchanged.
2005	<ul style="list-style-type: none"> The structure is no longer visible. The cattle yards and old scales are still visible. A dam is visible in the western part of the Site. The abandoned windmill is visible in the centre of the Site 	<ul style="list-style-type: none"> The surrounding area appears relatively unchanged.



2018	<ul style="list-style-type: none"> The cattle yards, old scales, dam and windmill are still visible. 	<ul style="list-style-type: none"> Additional residential development has occurred in the surrounding area.
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The historic aerial photographs generally correlate with SDRC and online data information and indicate:

- Site has been mostly vacant since 1961;
- No tank is visible in the 1951 photograph indicating, if a tank had been located on Site then it was most likely used for water storage as diesel locomotives were introduced in QLD in 1953 (refer to S3.1);
- No indicators of gross or widespread contamination or significant filling or vegetation distress was observed;
- No evidence of a cattle dip on Site was observed;
- No other indicators of potential contamination or AEC were associated with the Site; and
- Surrounding areas have mostly been used for residential purposes and considered to have a low potential for contamination.

3.4. CURRENT AND HISTORIC TITLE REVIEW

A review of the current and historic titles was completed, the results of which are summarised in Table 4 below. Copies of the current and historic title are provided in Appendix B.

Table 4: Summary of Current and Historic Titles

Date of acquisition and term held	Registered Proprietor(s) & Occupations
07.01.1964 (1964 to 1976)	George Peter Wilkinson (Special Lease for the purpose of Manufacturing, Industrial, Residential or Business Purposes – Special Lease No. 28061)
15.01.1976 (1976 to 1983?)	Kevin Harold Servin Mary Gwen Servin (Married Woman)
08.05.1983? (1983 to 1996?)	Kevin Harold Servin
19.01.1996 (1996 to current)	Southern Downs Regional Council (Reserve for Sport and Recreation)
Trustee Permits:	
14.12.2004 (2004 to 2007)	Geoffrey Allan Grant Sonya Violetta Grant
01.11.2007 (2007 to 2010)	Carle Edney

The current title confirms the current site owner is SDRC, prior to which the site was leased/owned by individuals.

An internet search for these individuals did not return any pertinent information relating to potential site use. Based on the aerial photographs for the above time, it appears the site was either vacant or possible used for cattle grazing (sometime between 1981 and 1989) following construction of the cattle yard. No additional potential for contamination was identified in the historic title review.



4. SITE SETTING REVIEW

4.1. SURROUNDING LAND USES

The surrounding land is predominantly used for residential purposes with the exception of the hotel to the north, a landscaping/bobcat hire yard adjacent to the south east corner and a public park to the north west. There is a sewage treatment facility located approximately 600m to the south and operated by Council.

The surrounding land uses are considered to present a low risk of contamination to the Site.

4.2. TOPOGRAPHY

The Site topography is provided in Image 4 below and was obtained through SDRC. The map shows the Site generally slopes down in a northerly direction across the eastern portion of the Site and to the west in the westerly portion of the Site. This corresponds with regional topography sloping to the north and west towards Millar Vale Creek.

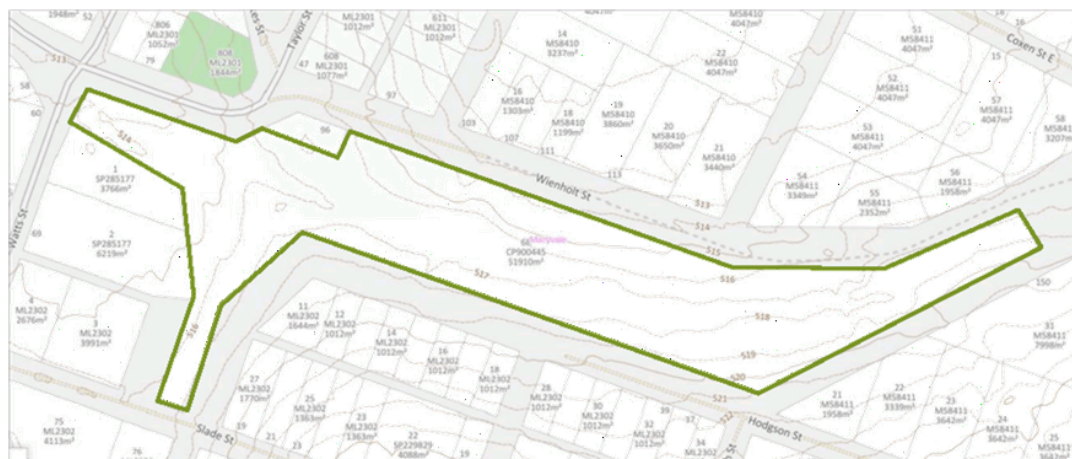


Image 4: Site Contours from SDRC mapping

SDRC mapping presented in Appendix A also shows the Site being outside of any flooding areas.

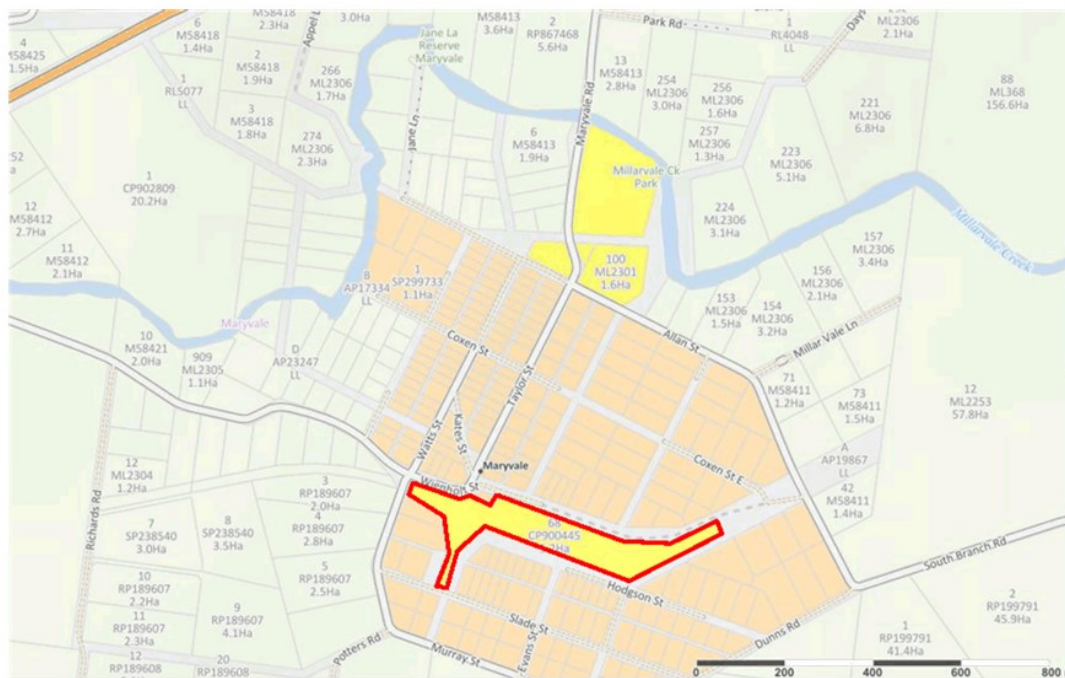
4.3. GEOLOGY

Surface geology mapping (accessed via Qld Globe) shows the Site is underlain by Main Range Volcanics comprising Olivine basalt of Eocene – Miocene age.

The Atlas of Australian soils (accessed via Qld Globe) shows the Site and surrounding area is underlain by Hard pedal mottled-yellow duplex soils.

The Site is located outside any mapped acid sulfate soil zones.

Millar Vale Creek is located approximately 400m to north west and 500m to the north east of the Site, see Image 5 below and legend provided within SDRC mapping presented in Appendix A.



A tributary of Millar Vale Creek runs through the eastern part of the Site, see Image 6 over page.

No permanent hydrological features are present at the Site. As indicated by the topology in Image 4, surface run-off would be expected to be comprised of two elements:

- Overland flow generally occurring across the majority of the Site in a northerly direction, discharging to primarily grassed roadside drainage channels along Wienholt Street and then flowing in an unnamed tributary (refer Image 6) to Millar Vale Creek, and
- Estimated eastern third of the Site (as well as off-site residential/rural land to the south-east of the Site) draining to the unnamed ephemeral tributary that cuts across the Site in a north-south orientation near the eastern boundary, which drains off-site as described above.

QLD Globe mapping shows the Site is mapped as a potential groundwater dependant ecosystem (moderate confidence) defined as *Ecosystems intermittently connected to aquifers with fresh salinity in geologically stratified permeable rock (basalt) in high rainfall areas*. Approximately 50m to the north of the Site a potential groundwater dependant ecosystem (high confidence) defined as *Ecosystems intermittently connected to aquifers with fresh salinity and neutral pH in unconsolidated Quaternary alluvia supported by groundwater flow from geologically stratified, fractured basalt aquifers in high rainfall areas*, is mapped.



Whilst no registered bores or known abstraction is directly associated with the Site, approximately 25 registered groundwater bores are located within a 500m radius (refer to Image 6 over page and Appendix D).

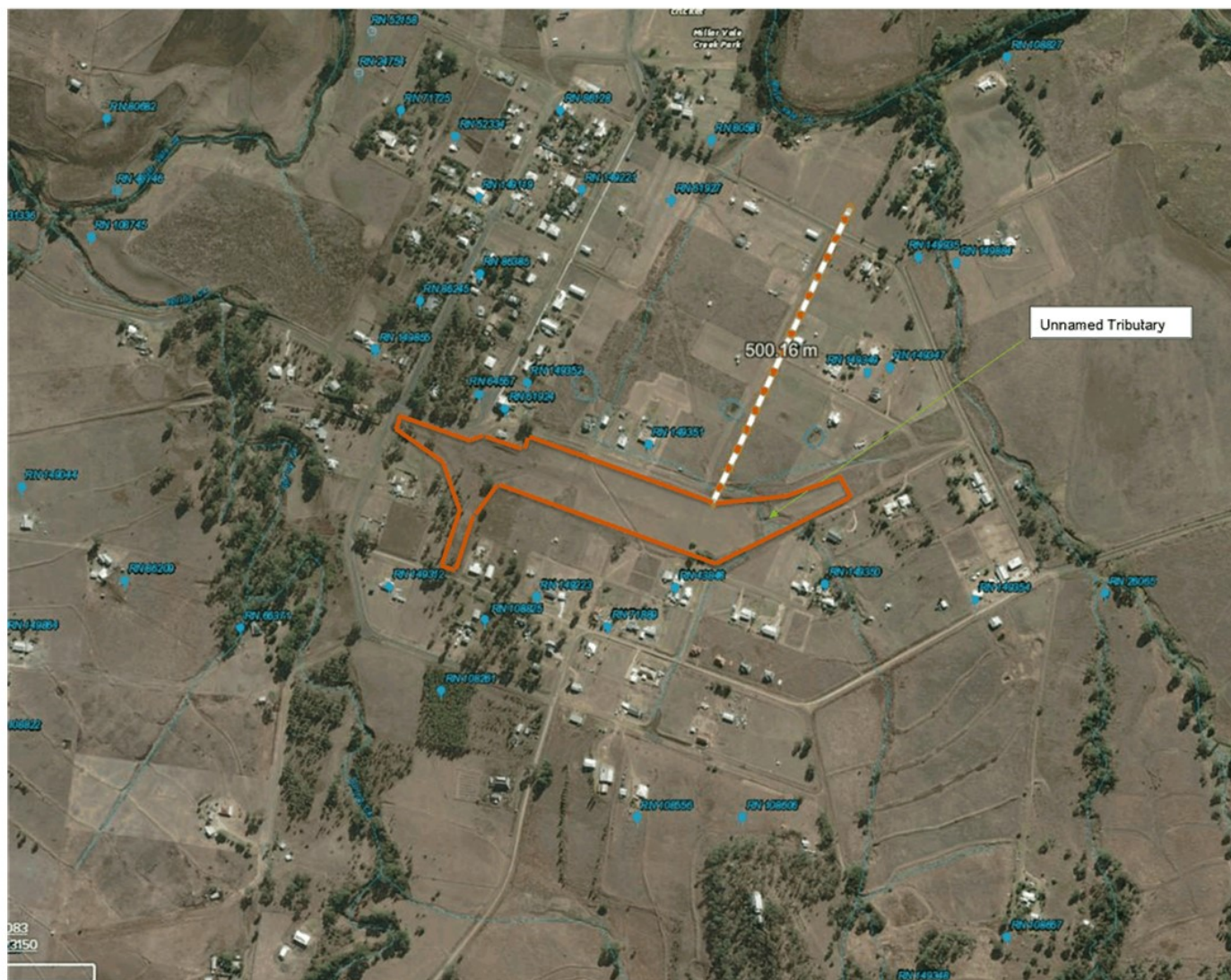


Image 6 Registered groundwater bores and watercourses, with indicative Site boundary



These registered bores are associated with residential land use and may be used for agricultural or potable purposes. Information from the three closest bores to both the north and south is summarised in Table 5 below.

Table 5: Bore Summary

Bore Id	Distance and direction from Site	Role	Standing water level	Aquifer depths	Yield (L/s)
149312	65m South	Water Supply	NA	24-30mbgl	0.78
43848	50m South	NA	-18.3m	23-24mbgl 26-29mbgl 34-37mbgl	NA
149350	110m South	Water Supply	-15.0m	18-24mbgl	0.22
64557	64m North	NA	NA	NA	NA
61924	45m North	NA	NA	17-21mbgl	NA
149351	45m North	Water Supply	NA	18-24mbgl	2.5

The bore report cards infer that groundwater may be found between 15 – 24m below ground level at the Site.

4.6. SUBSURFACE INFRASTRUCTURE

Dial before you dig plans did not indicate the presence of any underground services located on the site. A Telstra line was located adjacent to the north western boundary however was outside of the boundaries of the site.

The site walkover identified the presence of an old weighbridge and an abandoned bore (discussed in Section 5).

4.7. ENVIRONMENTALLY SENSITIVE AREAS

SDRC maps a Category C regulated Vegetation – High value regrowth area approximately 200m west of the Site (Appendix A). QLD Globe maps the same area as Category C or R area containing endangered regional ecosystem and of least concern (Appendix D).

4.8. ENVIRONMENTAL VALUES

The Site is located within the Condamine River Basin which is managed under DES 2019, *Healthy Waters Management Plan: Condamine River basin*. The following Environmental Values are identified at the Site:

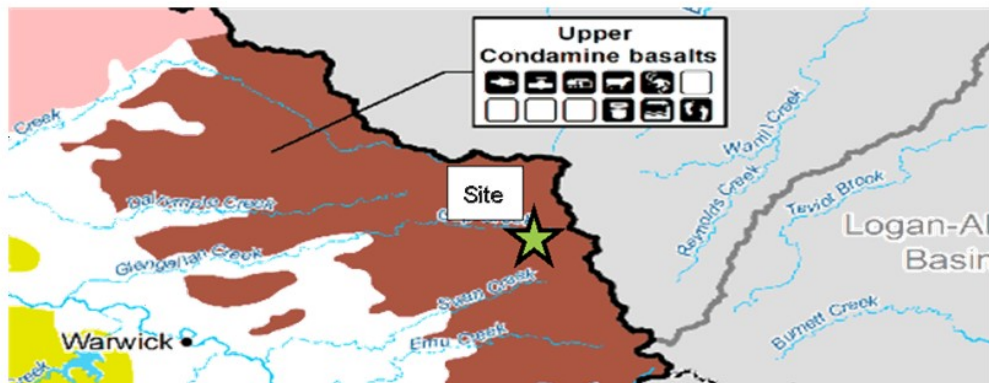
- From Figure 16: Environmental values that apply to the surface waters in each sub-catchment within the Condamine River basin.



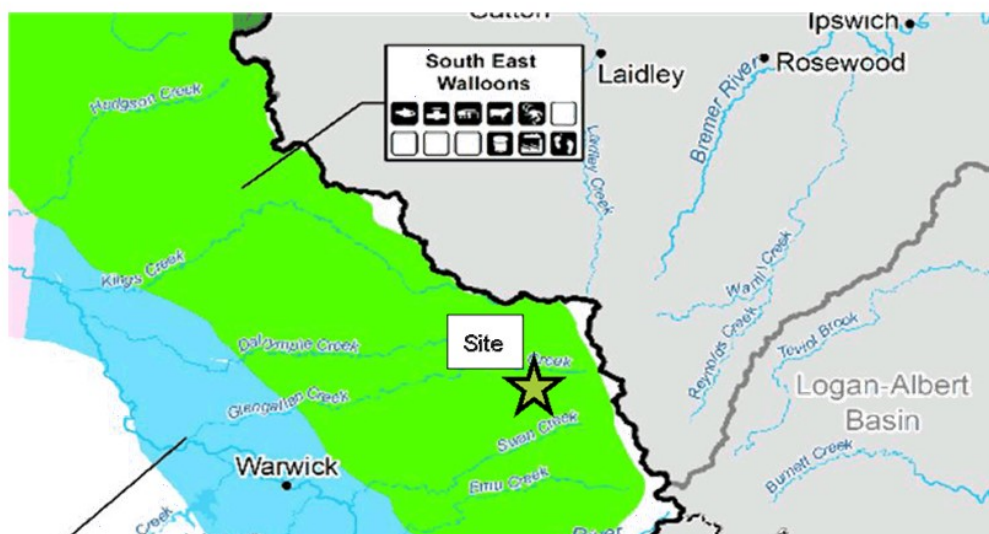
- From Figure 17: Environmental values that apply to the Alluvial aquifer zones within the groundwaters of Condamine River basin.



From Figure 18: Environmental values that apply to the Fractured Rock aquifer zones within the groundwaters of Condamine River basin.



- From Figure 22: Environmental values that apply to the Lower GAB aquifer zones within the groundwaters of Condamine River basin



From Figure 23: Environmental values that apply to the Basal GAB aquifer zones within the groundwaters of Condamine River basin.





Key

	Aquatic ecosystem <ul style="list-style-type: none"> The intrinsic value of aquatic ecosystems, habitat and wildlife in waterways, waterholes and riparian areas, for example, biodiversity, ecological interactions, plants, animals, key species (such as turtles, yellowbelly, cod and yabbies) and their habitat, food and drinking water.
	Irrigation <ul style="list-style-type: none"> Suitability of water supply for irrigation, for example, irrigation of crops, pastures, parks, gardens and recreational areas.
	Farm water supply/use <ul style="list-style-type: none"> Suitability of domestic farm water supply, other than drinking water. For example, water used for laundry and produce preparation.
	Stock watering <ul style="list-style-type: none"> Suitability of water supply for production of healthy livestock.
	Aquaculture <ul style="list-style-type: none"> Health of aquaculture species and humans consuming aquatic foods (such as fish and prawns) from commercial ventures.
	Human consumers of aquatic foods <ul style="list-style-type: none"> Health of humans consuming aquatic foods, such as fish and prawns, from natural waterways.
	Primary recreation <ul style="list-style-type: none"> Health of humans during recreation which involves direct contact and a high probability of water being swallowed, for example, swimming, diving and water-skiing.
	Secondary recreation <ul style="list-style-type: none"> Health of humans during recreation which involves indirect contact and a low probability of water being swallowed, for example, wading, boating, rowing and fishing.
	Visual recreation <ul style="list-style-type: none"> Amenity of waterways for recreation which does not involve contact with water. For example, walking and picnicking adjacent to a waterway.
	Drinking water supply <ul style="list-style-type: none"> Suitability of raw drinking water supply. This assumes minimal treatment of water is required, for example, coarse screening and/or disinfection.
	Industrial use <ul style="list-style-type: none"> Suitability of water supply for industrial use, for example, food, beverage, paper, petroleum and power industries, mining and minerals refining/processing. Industries usually treat water supplies to meet their needs.
	Cultural, spiritual and ceremonial values <ul style="list-style-type: none"> Cultural, spiritual and ceremonial values of water means its aesthetic, historical, scientific, social or other significance, to the past, present or future generations.

All of the above values (with the exception of Secondary recreation) are identified as environmental values for the Site.

Queensland Globe mapping indicates the Site is mapped, with moderate confidence, within an area of potential groundwater dependant ecosystems (**GDE**) through an igneous rock aquifer. The GDE is defined as an *Ecosystems intermittently connected to aquifers with fresh salinity in geologically stratified permeable rock (basalt) in high rainfall areas* (refer to mapping presented in Appendix D).



5. SITE WALKOVER

A Site walkover by the SQP and two other Environmental Advisors field staff was completed in conjunction with the first day of test pitting works on 19th August 2019. The following was noted:

- The Site was vegetated with grass and mostly vacant, except for;
 - Cattle yard that was constructed of dilapidated timber and located in the centre of the Site. No signs of a cattle dip/spray race were visible;
 - An abandoned windmill and bore are located in the centre of the Site, adjacent to a drainage channel;
 - An old railway scale was located in the footprint of the former Goods Shed.
- The general location of the former railway line was discernible in the central and eastern part of the Site;
- Earthen (cut and filled) platforms were observed in the areas of the former shelter sheds, good sheds and the railway line footprint in the western part of the Site;
- The eastern part of the railway "triangle" in the southern part of the Site appeared to have been cut;
- No signs of illegal dumping or filling were observed in the drainage channels on Site;
- No signs of illegal dumping or vegetation distress were observed elsewhere at the Site; and
- The surroundings areas were mostly used for residential purposes with the exception of the Hotel, public park and landscaping/bobcat hire yard adjacent to the south east corner of the Site.

Selected Site photographs are provided below.



Photograph 1 - General view of Site



Photograph 2 - Cattle Yard



Photograph 3 - Old Scale



Photograph 4 - Cut Areas in SE of Site

No environmentally relevant activities were identified to be carried out on site at the time of the inspection.
Evidence of the former historic railway was observed on site.



6. AREAS OF ENVIRONMENTAL CONCERN AND POTENTIAL FOR CONTAMINATION

Based upon the site setting review, site walkover and site history information, surrounding land uses are considered to have low potential to cause contamination on the subject Site.

Six Areas of Environmental Concern (AEC) have been identified within the Site. AEC details and associated Potential Contaminants of Concern (PCOC) are presented in Table 6, with AEC graphically presented in Drawing 3.



Table 6: AEC Details

	AEC	Identified from	Potential for Contamination	Potential Contaminants of Concern	AEC Area
1	Former rail lines	S3.1 Information provided by SDRC	Filling sourced on and off-site (from unknown origin) used for ballast, creosote treated timbers, herbicide and pesticide treatments and other maintenance activities	Metals (including arsenic, cadmium, chromium, copper, lead, nickel, mercury and zinc)	1,200m (linear)
2	Former Shelters Shed, platform and loading bank	S3.2 Available Online Resources	Filling sourced on and off-site (from unknown origin) including potential burial/deposition of ash and other waste materials, use of creosote treated timbers, herbicide and pesticide treatments, residual demolition materials including asbestos	Organochloride and Organophosphate (OC/OP) pesticides	0.3ha
3	Former Goods shed and platform	S5 Site Walkover (noted features or interpolated areas)	Filling sourced on and off-site (from unknown origin) including potential burial/deposition of ash and other waste materials, use of creosote treated timbers, herbicide and pesticide treatments, residual demolition materials including asbestos	Polycyclic aromatic hydrocarbons (PAH) Phenols	0.1ha
4	Former Tank, Ash Pit and Engine Shed		Filling sourced on-site, burial/deposition of ash, use for creosote treated timbers, bulk storage of chemicals/oils, herbicide and pesticide treatments, residual demolition materials including asbestos. Note: it is assumed the tank was used for water storage only.	Total Recoverable Hydrocarbons (TRH) and benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN)	0.25ha
5	Former Quarters		Herbicide and pesticide treatments, filling sourced on-site, residual demolition materials including asbestos	Per- and polyfluoroalkyl substances (PFAS) Asbestos	0.02ha
6	Cattle yards		Cattle treatment, possible associated dip or spray race, termite treatment of timber posts	Metals, OC/OP pesticides	0.2ha
7	Groundwater		Potential for impact from AEC 1 through 6 above	Metals, OCP/OPP, PAH, TRH/BTEXN, PFAS	Site



7. CONCEPTUAL SITE MODEL

A conceptual Site model (CSM) is the interpretation and assimilation of all Site related information into assumptions and hypotheses regarding contamination sources, subsurface contaminant distribution, and dominant transport/fate processes (US EPA 1995). The CSM has been developed based on the findings of desktop assessment, walkover and resultant AEC and PCOC.

The CSM is presented in Table 7 and Image 7 below.



Table 7 Conceptual Site Model

AEC	Potential Source / Media	Pathway	Receptor	PCOC
1. Former rail lines 2. Former Shelters Shed, platform and loading bank 3. Former Goods shed and platform	Filling, burial/deposition of ash, use for creosote treated timbers, termite treatment of buildings <i>Soils up to depth of 1.5m, dust and sediment/contamination in stormwater runoff and infiltration</i>	Ingestion, dermal contact, inadvertent inhalation	Current and future Site users Maintenance / Construction workers	Metals, OC/OP pesticides, PAH, Phenols, TRH/BTEXN, PFAS, Asbestos
		Stormwater runoff and discharge	Millar Vale Creek	
		Leaching/vertical migration of contaminants	Groundwater	
4. Former Tank, Ash Pit and Engine Shed	Filling, burial/deposition of ash, use for creosote treated timbers, bulk storage of chemicals/oils, termite treatment of buildings <i>Soils up to depth of 1.5m, dust and sediment/contamination in stormwater runoff and infiltration</i>	Ingestion, dermal contact, inadvertent inhalation	Current and future Site users Maintenance / Construction workers	
		Stormwater runoff and discharge	Millar Vale Creek	
		Leaching/vertical migration of contaminants	Groundwater	
5. Former Quarters	Filling, termite treatment of buildings <i>Soils up to depth of 1.5m, dust and sediment/contamination in stormwater runoff and infiltration</i>	Ingestion, dermal contact, inadvertent inhalation	Current and future Site users Maintenance / Construction workers	
		Stormwater runoff and discharge	Millar Vale Creek	
		Leaching/vertical migration of contaminants	Groundwater	



6. Cattle yards	Cattle treatment, termite treatment of timber posts <i>Soils up to depth of 1.5m, dust and sediment/contamination in stormwater runoff and infiltration</i>	Ingestion, dermal contact, inadvertent inhalation	Current and future Site users Maintenance / Construction workers	Metals, OC/OP pesticides, asbestos
		Stormwater runoff and discharge	Millar Vale Creek	
		Leaching/vertical migration of contaminants	Groundwater	

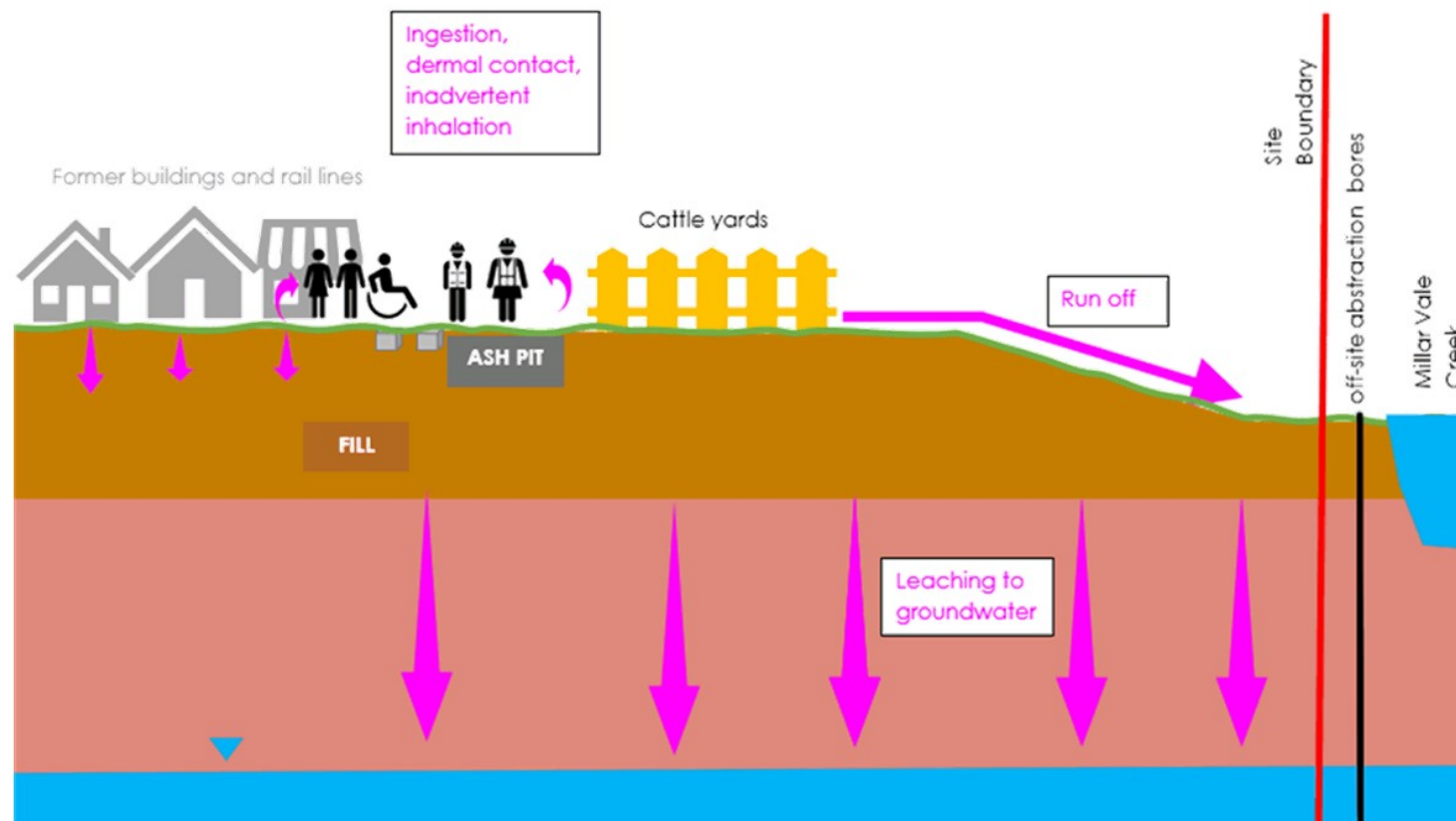


Image 7 Graphical CSM



8. SAMPLE, ANALYSIS AND QUALITY PLAN

A systematic planning process was used to define the objectives of this Report and to develop a sampling plan for the collection and evaluation of representative data to achieve the Report's objectives. In addition, for the groundwater assessment and ash delineation, a formal SAQP was prepared.

This planning process is outlined in the following sections.

8.1. DATA QUALITY OBJECTIVES PROCESS

This Report was prepared with reference to the CSM and the seven-step data quality objective (DQO) process, which is provided in Appendix B, Schedule B2 of the NEPM. The DQO process is outlined as follows:

1. Stating the Problem
2. Identifying the Decision
3. Identifying Inputs to the Decision
4. Defining the Boundary of the Assessment
5. Developing a Decision Rule
6. Specifying Acceptable Limits on Decision Errors, and
7. Optimising the Design for Obtaining Data.

The DQOs for this Report are outlined in the Table 8 below.

Table 8: Data Quality Objectives

	Question	Information Sources
1	State the problem – assemble an effective planning team, describe the problem and examine the resources for investigating the problem.	
1.1	Write a brief summary of the contamination problem.	The Site is listed on the EMR for being subject to the Notifiable Activities of Livestock Dip or Spray Race and Railway Yards and uncertainty exists regarding the suitability of the Site for the proposed redevelopment and removal from the EMR
1.2	Identify members of the planning team	Environmental Advisors, Southern Downs Regional Council, Mr Trevor Lloyd (Contaminated Land Auditor)
1.3	Develop/refine the CSM, including a summary of the exposure scenarios.	The initial CSM is presented Section 7.
1.4	Specify the available resources and constraints, such as relevant deadlines for the study, budget, availability of personnel and schedule.	Environmental Advisors was commissioned to investigate the Site in accordance with our proposal dated 12 August 2019 and were commissioned on 21 August 2019. SDRC required first issue of this report by 8 October 2019. SDRC has approved additional budget to perform additional ash delineation and groundwater assessment.
2	Identify the goals of the study – identify the principal study question(s), identify potential alternative actions with implications, and combine these to make statements on the decision problem.	



2.1	Identify the principal study question(s).	The primary questions to be answered are: What is the contamination status of the Site? Is the Site suitable to be removed from the EMR?
2.2	Identify the alternative outcomes or actions that could result from resolution of the principal study question(s).	Contamination is identified and undefined risks are evident. Further investigation and delineation of contamination is required. The Site is not suitable to be removed from the EMR.
2.3	For decision problems, combine the principal study questions and the alternative actions into decision statements.	If contamination is detected at the Site, then additional investigations may be required to delineate the extent of the contamination. If contamination is detected at the Site, then the Site will remain on the EMR and remediation/management may be required to facilitate the proposed community land use.
3	Identify information inputs – identify the information needed to formulate and investigate the problem and confirm that appropriate sampling and analytical methods are available.	
3.1	Identify the information that will be required to resolve the decision statements/ estimation, including existing information and new environmental data, and identify the sources for each item of information required.	Background information – results of Site history investigation, Site setting review and walkover. Field work observations – Test Pit Logs and Purging and Sampling Records. Results of Laboratory analysis – ALS Laboratory report sheets (primary laboratory) and Envirolab (secondary laboratory). Guideline criteria provided in the NEPM.
3.2	Identify the information needed to establish the action level.	Sections 3, 4, 7, 8 and 9
3.3	Confirm that appropriate sampling and analytical methods exist to provide the necessary data.	Sampling and analytical methods will be consistent with existing guidance including NEPM. Analytical laboratories are NATA accredited
4	Define the boundaries of the study - define the target population, the spatial and temporal boundaries associated with the population, examine any practical constraints to collecting data, and factors that affect the selection of the unit which defines the scale of sampling and the scale of decision making or estimation.	
4.1	Define the target population of interest and its relevant spatial boundaries.	AEC and remainder of Site, including any sub-AEC such as extent of ash deposit(s).
4.2	Define what constitutes a sampling unit.	Groundwater and soil sampling units including fill, natural, topsoil and ash
4.3	Specify temporal boundaries and other practical constraints associated with sample/data collection.	Temporal boundary is the time in which this investigation was conducted. The practical constraints to sample/data collection include reach of excavator and drill rig, dense geology or rock, structures on Site and presence of underground services.
4.4	Specify the smallest unit on which decisions or estimates will be made.	The Limit of Reporting (LOR) of laboratory analysis combined with visual observations of test pits. Minimum sampling density for AEC per AS4482.1 <i>Guide to the Investigation and Sampling of Potentially Contaminated Soil Non-Volatile and Semi-Volatile Compounds</i> , (with lower density of sampling within remainder of Site) and for groundwater, a sampling unit from one round from each bore sampled per DES, 2018, <i>Monitoring and Sampling Manual: Environmental Protection (Water) Policy</i> .



5	Develop the analytic (statistical) approach - develop a logical "if ..., then ..., or ..." statement that defines the conditions that would cause the decision maker to choose among alternative actions.	
5.1	Specify the statistical parameter that characterises the population of interest, such as mean, median, maximum, 95% upper confidence limit (UCL) of the arithmetic average, proportion, etc.	<p>The 95% UCL of the arithmetic average will be another key statistical parameter to evaluate the significance of the laboratory data for a relevant population against assessment criteria:</p> <ul style="list-style-type: none"> • no sample to exceed 250% of the criteria; • standard deviation to be <50% criteria; and • 95% UCL is < criteria.
5.2	Specify the action level for the decision.	Refer to Section 9
5.3	Confirm that measurement detection will allow reliable comparisons with the action level.	Samples will be collected and submitted to a NATA accredited laboratory. The laboratory analytical LORs are below the adopted criteria.
5.4	Combine the outputs from the previous DQOs steps and develop an "if ..., then ..., else ..." theoretical decision rule based on the chosen action level.	If the statistical parameters of the data exceed the assessment criteria, then the data point will be considered contaminated and requiring remediation or further justification via statistical analysis or risk assessment with respect to the proposed land use or requirement to remove the Site from the EMR.
6	Specify performance or acceptance criteria - to specify probability limits for false rejection and false acceptance decision errors.	
6.1	Specify the decision rule as a statistical hypothesis test.	Null hypothesis is that the media sampled is not contaminated.
6.2	Examine consequences of making incorrect decisions from the test.	<p>Possible decision errors include:</p> <ul style="list-style-type: none"> • Classifying media as clean and classifying the risk to receptors as low when in fact significant risk exists. • Classifying media as impacted resulting in overstated risks and potentially unnecessary remediation.
6.3	Place acceptable limits on the likelihood of making decision errors. Methods to determine if sufficient numbers of samples have been collected, and to assess if the assumed hotspot size and shape are justifiable, should also be documented.	<p>Analytical results below the assessment criteria will determine if the Site is contaminated.</p> <p>Sample density and pattern based on Australia Standards and NEPM.</p>
7	Optimise the design for obtaining data - to identify a resource effective sampling and analysis design for generating data that are expected to satisfy the DQOs.	
7.1	Document the final sampling and analysis design, along with a discussion of the key assumptions underlying this design.	Refer to Section 8.2 Sampling Rationale.
7.2	Detail how the design should be implemented, together with contingency plans for unexpected events.	Refer to Section 8.2 Sampling Rationale.
7.3	Determine the quality assurance and quality control (QA/QC) procedures that would be performed to detect and correct problems to ensure defensible results.	Refer to Quality Assurance and Quality Control Appendix.
7.4	Document the operational details and theoretical assumptions of the selected design in the sampling, analysis and quality plan (SAQP).	Refer to Section 8.2 Sampling Rationale.



8.2. SAMPLING RATIONALE

8.2.1. SOIL

A systematic and targeted sampling rationale was adopted for the investigation, based on the type of AEC. The sampling rationale for each AEC as well as background locations is summarised in Table 9 over page. Sampling locations are shown on various Drawings presented in Appendix A.

Samples were collected at the surface and at regular intervals, each lithology and where signs of contamination were observed e.g. fill, ash.

Sample depths were chosen to target potential sources of contamination identified in the CSM, or to delineate ash within AEC 2.



Table 9: Soil Sampling Rationale

AEC		Investigation Area	Min no sampling points (AS4482.1)	No of Sampling points / pattern	Test Pits	Investigation Depth (mbgl)	Rationale
1	Former Railway line	1,200m (linear)	NA	12 – along length of lines on a 1 per 100m basis	RW1 – RW12, refer to Drawing 4, Appendix A	Surface to minimum of 1m into natural soils (max depth 2.4mbgl)	Sampling density 1 sample per 100 linear m adopted. It is considered that any impact would be consistent along the length of the rail line and 12 samples provides a reasonable data set for determination.
2	Former Shelters Shed, platform and loading bank	0.3ha	9	11 – approximate grid	21 – 31, refer to Drawing 5, Appendix A	Surface to minimum of 1m into natural soils (max depth 1.4mbgl)	To meet requirements of AS4482.1
2a	Ash identified within AEC 2	0.3ha	9 (per above)	Additional 23	A1 – A23 refer to Drawing 10, Appendix A	Surface to average depth of 0.5m into natural soils underlying intercepted ash	To delineate ash detected within AEC2
3	Former Goods shed and platform	0.1ha	6	7 – approximate grid	17 -20 32 – 34, refer to Drawing 6, Appendix A	Surface to minimum of 0.5m into natural soils (max depth 2.2mbgl)	To meet requirements of AS4482.1
4	Former Tank, Ash Pit and Engine Shed	0.25ha	8	9 – approximate grid and targeted	35 – 43, refer to Drawing 7, Appendix A	Surface to minimum of 0.5m into natural soils (max depth 1.2mbgl)	To meet requirements of AS4482.1 and one targeted location in each footprint of the former tank, engine shed and ash pit



5	Former Quarters	0.02ha	6	3 - approximate grid	44 – 46, refer to Drawing 8, Appendix A	Surface to minimum of 1 m into natural soils (max depth 1.3mbgl)	Considered low risk AEC, only 3 locations adopted in footprint of building considered to be required
6	Cattle yards	0.2ha	7	16 – approximate grid	1 – 16, refer to Drawing 9, Appendix A	Surface to minimum of 0.5m into natural soils (max depth 1.3mbgl)	Increased density adopted with areas to include assessment of surrounding land between converging rail lines and possible cattle dip area. Grid density was determined to an approximate 20m minimum hotspot detection size to account for possible cattle dip Note test pit 1 was located in an area where some fencing wire had been observed at the surface
-	Background sampling	Remainder of Site (4.08)	50	7 - targeted	BG1 – BG7, refer to Drawing 4, Appendix A	Surface to minimum of 0.5m into natural soils (max depth 1.2mbgl)	The background locations were chosen to target down gradient locations and drainage channels (expected accumulation of contaminated soils/sediment). AEC 1 – 6 target fill areas on site, areas outside of the AEC are considered to have a low potential for contamination, hence a reduced and targeted sample density was adopted.



8.2.2. GROUNDWATER

Based on the CSM shallow (and potentially deeper) groundwater at the site is considered a receptor for any soil contamination as a result of impacted soils leaching and subsequent migration of Potential Contaminants of Concern (**PCOC**) (including PFAS) into the underlying groundwater table. Information from the nearby registered bores indicated the groundwater can be found between 15 – 24m bgl.

Despite no significant soil contamination being detected by the initial soil assessment, due to the sensitive groundwater setting (number of actual or proposed abstraction bores at and adjacent to the Site) a limited groundwater assessment was subsequently undertaken comprising installation of three groundwater monitoring bores:

- Drilling and installation of three groundwater bores to a target depth of 20m bgl (or prior refusal).
 - The bores were installed by an appropriately licensed and experienced driller (All Tech Drilling Services) in accordance with *Minimum Construction Requirements for Water Bores in Australia, Edition 3 (2012)*.
 - Constructed from Class 18 UPVC with factory slotted and installed with at least 3m of screening. The screening will be surrounded by a 2mm washed sand gravel pack and sealed with 0.5m bentonite seal (wetted during installation).
 - Finished with lockable monument covers.
 - The location of installed groundwater monitoring bores is presented in Image 8 below, with borehole logs and associated information presented in Appendix J (please note that the terms "Bore", "Monitoring Bore" and "MB" are interchangeable when referring to the three installed groundwater monitoring bores).



Image 8 Groundwater Bore Locations



- The latitude and longitude (decimal degrees) and top of casing height in Australian Height Datum (AHD) as provided by the surveyor for each bore are as follows:
 - Bore 1: latitude -28.072921°, longitude 152.238901°, 516.132m AHD
 - Bore 2: latitude -28.072947°, longitude 152.242015°, 515.253m AHD
 - Bore 3: latitude -28.073453°, longitude 152.242042°, 518.147m AHD
- No soil samples were collected during installation due to no evidence of ash, discolouration, odour or other indicators of soil impact.
- Following installation, the bores were developed and left to stabilise.
- Following 1 week, the bores were dipped and sampled using disposable bailers with steps taken to minimise cross contamination from any potential PFAS/other sources.
 - Note that one of the bores (Bore 1) was "dry" and unable to be sampled.
- Field parameters including pH, electrical conductivity, redox, temperature, total dissolved solids were measured during sampling.

8.3. ANALYTICAL RATIONALE

8.3.1. NOTE ON PFAS

The potential PFAS to be present on site is considered low. The site history, inspection and initial intrusive investigation did not identify any potential primary/point sources or secondary sources for PFAS at the site or in surrounding areas. Whilst fill was observed at the site, the fill material encountered (other than ash associated with AEC 2) was generally identified as either:

- Material won from site was a result of cut and fill works completed during construction of the railway in the early 1900s/rehabilitation of site following closure of railway in the 1960s/construction of cattle yard between 1981-1989, or
- Quarried material imported to form a geotechnically suitable basecourse for the construction of the rail line in the early 1900s.

Based on the assumed age of the fill, it is unlikely it was impacted with PFAS when imported to the site. However, we cannot rule out a more recent discrete historical use of PFAS containing materials at the Site, nor migration from a potential off-site source given the environmental persistence and mobility of PFAS. Subsequently, PFAS was included in the proposed analytical suite for the ash delineation and groundwater assessment.

8.3.2. ANALYTICAL RATIONALE

Samples selected for analysis were based on AEC type, sampling rationale and field observations. Samples were analysed for a range of PCOC as discussed within the SAQP and summarised in Table 10 below.

All primary and quality assurance samples were analysed by a NATA accredited laboratory. Analytical methods used are stated in the attached certificates of laboratory analysis (Appendix F).



Table 10: Analytical Rationale

AEC	Sample ID / depth	Geology encountered	Rationale	Metals, OC/OP pesticides, PAH, Phenols, TRH/BTEXN	PFAS	Metals, OC/OP pesticides	Metals	Asbestos	NEPM background screen
1. Railway Line	RW1/0-0.1	Fill	Assess any surface impact			x		x	
	RW1/0.4-0.5	Fill	Characterise fill				x		
	RW1/1.0-1.1	Natural	Assess any vertical migration			x			
	RW2/0-0.1	Fill	Assess any surface impact	x					
	RW2/0.1-0.15	Fill	Characterise fill	x				x	
	RW3/0-0.1	Topsoil	Assess any surface impact	x					
	RW4/0-0.05	Fill	Assess any surface impact			x			
	RW4/0.2-0.25	Fill	Characterise fill			x		x	
	RW4/0.5-0.6	Fill	Characterise fill			x			
	RW5/0-0.1	Fill	Assess any surface impact	x					
	RW5/0.4-0.5	Fill	Characterise fill			x			
	RW6/0-0.02	Fill	Assess any surface impact			x			
	RW6/0.05-0.1	Fill	Characterise fill				x		
	RW7/0-0.1	Fill	Assess any surface impact	x					
	RW8/0-0.1	Topsoil	Assess any surface impact			x			
	RW8/0.4-0.5	Fill	Characterise fill	x					
	RW8/1.0-1.2	Natural	Assess any vertical migration				x		
	RW9/0-0.1	Topsoil	Assess any surface impact				x		
	RW9/0.1-0.15	Fill	Characterise fill			x		x	
	RW9/0.4-0.6	Fill	Characterise fill			x			
	RW10/0-0.1	Fill	Assess any surface impact	x					
	RW10/0.2-0.3	Fill	Characterise fill				x	x	
	RW11/0-0.05	Topsoil	Assess any surface impact	x					
	RW11/0.6-0.7	Natural	Assess any vertical migration	x					
	RW12/0.5-0.6	Fill	Characterise fill			x			
2. Former Shelters Shed, platform and loading bank	TP24/0-0.05	Topsoil with Ash	Assess any surface impact and characterise ash	x					
	TP24/0.17-0.20	Ash	Assess any surface impact and characterise ash				x		
	TP24/0.2-0.23	Fill	Characterise fill	x					
	TP24/0.3-0.35	Natural	Assess any vertical migration				x		
	TP24/0.5-0.6	Natural	Assess any vertical migration				x		



AEC	Sample ID / depth	Geology encountered	Rationale	Metals, OC/OP pesticides, PAH, Phenols, TRH/BTEXN	PFAS	Metals, OC/OP pesticides	Metals	Asbestos	NEPM background screen
	TP24/0.9-1.0	Natural	Assess any vertical migration			x			
	TP25/0-0.25	Topsoil	Assess any surface impact					x	
	TP25/0.19-0.22	Topsoil	Assess any surface impact	x					
	TP25/0.3-0.35	Fill	Characterise fill				x		
	TP26/0-0.05	Topsoil with coal fragments	Assess any surface impact				x	x	
	TP26/0.25-0.3	Natural	Characterise fill				x		
	TP27/0.0-0.05	Topsoil	Assess any surface impact				x	x	
	TP28/0-0.05	Topsoil	Assess any surface impact				x		
	TP28/0.5-0.6	Natural	Assess any vertical migration	x					
	TP29/0-0.05	Topsoil	Assess any surface impact				x		
	TP30/0.0-0.05	Topsoil	Assess any surface impact				x	x	
	TP31/0-0.05	Topsoil with trace ash	Assess any surface impact	x				x	
	TP31/0.4-0.5	Fill with Ash	Characterise fill and Ash				x		
	TP31/1.3-1.4	Natural	Assess any vertical migration			x			
	A1-1/0.05-0.1	Ash	Delineate ash		x		x		
	A2-1/0-0.1	Ash	Delineate ash		x		x		
	A3-1/0.1-0.11	Ash	Delineate ash		x		x		
	A4-1/0.17-0.2	Ash	Delineate ash				x		
	A5-1/0.18-0.22	Ash	Delineate ash		x		x		
	A7-1/0-0.2	Ash	Delineate ash		x		x		
	A15-1/0-0.17	Ash	Delineate ash				x		
	A16-1/0-0.19	Ash	Delineate ash		x		x		
	A19-1/0-0.05	Ash	Delineate ash		x		x		
	A20-1/0-0.04	Ash	Delineate ash				x		
3 Former Goods shed and platform	17/0-0.025	Topsoil	Assess any surface impact				x		
	18/0-0.025	Topsoil	Assess any surface impact				x		
	19/0-0.05	Topsoil	Assess any surface impact				x		
	20/0.3-0.4	Fill	Characterise fill	x					
	TP32 0.25-0.30	Fill	Characterise fill	x					
	TP33 0.0-0.05	Topsoil	Assess any surface impact	x					
	TP34 0.0-0.05	Topsoil	Assess any surface impact	x					



AEC	Sample ID / depth	Geology encountered	Rationale	Metals, OC/OP pesticides, PAH, Phenols, TRH/BTEXN	PFAS	Metals, OC/OP pesticides	Metals	Asbestos	NEPM background screen
4 Former Tank, Ash Pit and Engine Shed	TP34 0.5-0.6	Natural	Assess any vertical migration	x					
	TP36 0.25-0.30	Natural	Assess any surface impact	x					
	TP37/0.-0.05	Natural	Assess any surface impact					x	
	TP38 0.0-0.05	Natural	Assess any surface impact	x				x	
	TP38 0.25-0.30	Topsoil	Assess any surface impact	x					
	TP39 0.0-0.05	Natural	Assess any surface impact	x					
	TP39 0.5-0.6	Natural	Assess any vertical migration	x					
	TP40 0.5-0.6	Natural	Assess any vertical migration	x					
	TP41 0.5-0.6	Topsoil	Assess any vertical migration	x					
	TP42/0-0.05	Fill	Assess any surface impact					x	
	TP42 0.25-0.3	Natural	Assess any vertical migration	x					
	TP43 0.25-0.30	Natural	Characterise fill	x					
5 Quarters	TP44 0.0-0.05	Natural	Assess any surface impact	x				x	
	TP45 0.25-0.30	Natural	Assess any vertical migration	x					
	TP46 0.5-0.6	Natural	Assess any vertical migration	x					
6 Cattle yard	1/0-0.05	Topsoil	Assess any surface impact			x			
	1/0.2-0.25	Natural	Assess any vertical migration				x		
	2/0-0.05	Fill	Assess any surface impact				x		
	3/0-0.05	Topsoil	Assess any surface impact			x			
	4/0-0.05	Topsoil	Assess any surface impact	x					
	5/0-0.05	Fill with Ash	Assess any surface impact and characterise Ash	x					
	5/0.2-0.3	Natural	Assess any vertical migration	x					
	5/0.4-0.5	Natural	Assess any vertical migration	x					
	6/0-0.05	Topsoil	Assess any surface impact					x	
	6/0.2-0.25	Fill	Characterise fill	x				x	
	6/0.35-0.4	Fill with Ash	Characterise fill				x		
	6/0.45-0.5	Fill	Characterise fill				x		
	7/0-0.05	Topsoil	Assess any surface impact			x			
	7/0.25-0.3	Topsoil	Assess any vertical migration				x		
	8/0.5-0.6	Natural	Assess any vertical migration				x		
	9/0-0.05	Topsoil	Assess any surface impact				x		



AEC	Sample ID / depth	Geology encountered	Rationale	Metals, OC/OP pesticides, PAH, Phenols, TRH/BTEXN	PFAS	Metals, OC/OP pesticides	Metals	Asbestos	NEPM background screen
	11/0-0.05	Topsoil	Assess any surface impact	x					
	13/0-0.05	Topsoil	Assess any surface impact			x		x	
	13/0.25-0.3	Natural	Assess any vertical migration	x					
	13/0.5-0.6	Natural	Assess any vertical migration				x		
	14/0-0.05	Topsoil	Assess any surface impact			x			
	16/0.15-0.2	Fill	Characterise fill				x		
Background Soil	BG1/0-0.1	Topsoil	Background topsoil sample	x					
	BG1/0.4-0.5	Natural	Background natural sample				x		
	BG2/0-0.2	Topsoil	Background topsoil sample	x					
	BG3/0-0.1	Natural	Background natural sample	x					
	BG4/0-0.1	Natural	Background natural sample			x			
	BG5/0-0.1	Topsoil	Background topsoil sample	x					x
	BG5/0.3-0.4	Natural	Background natural sample				x		
	BG6/0-0.1	Natural	Background natural sample			x		x	
	BG7/0-0.0.05	Topsoil	Background topsoil sample			x		x	
Groundwater	MB2-1	-	Groundwater – monitoring bore 2	x	x				
	MB3-1	-	Groundwater – monitoring bore 3	x	x				
QA/QC (note not all samples collected were analysed)	DUP1	-	Duplicate - soil			x			
	DUP2	-	Duplicate - soil	x					
	DUP3	-	Duplicate - soil	x					
	DUP4	-	Duplicate - soil	x					
	DUP5	-	Duplicate - soil	x					
	DUP9	-	Duplicate - soil	x					
	DUP11	-	Duplicate - soil	x					
	DUP101	-	Duplicate - soil			x			
	DUP102	-	Duplicate - soil		x	x	x		
	AD-1	-	Duplicate - soil		x		x		
	TB1	-	Trip blank – soil	Refer Appendix H (Section H1.6)					
	BL	-	Trip blank – water	x	x				
	16-1	-	Duplicate – groundwater (analysed at secondary laboratory)	x	x				



8.4. SOIL SAMPLE COLLECTION, HANDLING AND STORAGE

Soil samples were collected by a suitably qualified person with appropriate experience in contaminated land assessment and with reference to:

- Standards Australia (1999) Australian Standard, AS4482.2, Guide to the Investigation and Sampling of Potentially Contaminated soil, Part 2 Volatile Substances. Standards Australia, Sydney, NSW
- Standards Australia (2005) Australian Standard, AS4482.1, Guide to the Investigation and Sampling of Potentially Contaminated soil, Part 1: Non-Volatile and Semi-Volatile Compounds. Standards Australia, Sydney, NSW.

Sample collection methodology comprised:

- Positive location of underground services located adjacent to site boundaries (outside of site) by an underground service locator;
- Determination of each AEC boundary on site and marking out of test pit locations from plan and using site/offsite features as reference and a measuring wheel;
- Excavation of 65 test pits over the 19th, 20th and 21st August 2019, for visual and olfactory observation and sample collection within each AEC and background areas.
- Excavation of 23 test pits on the 25th March 2020, for visual and olfactory observation and sample collection associated with delineation of ash impact at AEC 2.
- Collection of soil samples from either the side of the test pit or from the bucket of the excavator using gloved hands. Nitrile gloves were changed for each sample collected.
- Samples were collected in laboratory prepared jars (or bags for asbestos samples) and immediately placed in chilled insulated containers for transport to the laboratory;
- Logging of each test pit noting lithology, sample depths, observations and signs of potential contamination, water ingress etc;
- Photographic lithological recording of each test pit. Photographs were geocoded and used to map final locations of the test pits (refer to Drawings, Appendix A).
- Sample containers were progressively dispatched to the laboratory during field work. Samples were received in the required holding time and in an appropriate condition as reported on the attached sample receipt notifications.

8.5. GROUNDWATER SAMPLE COLLECTION, HANDLING AND STORAGE

Groundwater was sampled at least one week following installation and development using the following procedure:

- Measurement of water level and any free product using an interface probe;
- Collection of groundwater using disposable bailers (QED balder pump and LDPE tubing was originally proposed, however, was not recommended at time of equipment hire due to the presence of likely PFAS containing components);



- Purging of groundwater and measurement of field parameters until stabilisation using a calibrated water quality meter and flow cell. Measurements were recorded on purging and sampling records presented in Appendix J;
- Purge water was collected in drums at each bore location, and disposed as appropriate after the results of laboratory analysis were reported;
- Once stabilised, samples were collected directly from the dedicated bailer to minimise potential for cross contamination;
- Metal samples were field filtered using a disposable syringe and single use 45µm filter;
- Samples were collected in adequately labelled and laboratory prepared sampling bottles with appropriate preservation for each analyte to be tested; and
- Samples were placed in a secure chilled container and transported to the laboratory (or laboratory agent in the case of EnviroLab) on the same day.

8.6. QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance and Quality Control (QA/QC) measures adopted are provided in Appendix H, and included:

- Using qualified and experienced personnel to conduct the field investigation,
- Compliance with the site-specific SAQP,
- Using NATA registered laboratories for sample analysis,
- Despatching samples using appropriate chain of custody procedures,
- Referring to procedures for soil sampling, water sampling, field testing and decontamination within:
 - NEPM,
 - AS4482.1 – 2005,
 - Module 6,
 - Heads of EPA Australia and New Zealand (HEPA) PFAS National Environmental Management Plan, 2018 (NEMP), and
 - *Monitoring and Sampling Manual: Environmental Protection (Water) Policy*, Department of Environment and Science, 2018.

The QA/QC assessment deemed the quality of the analytical data produced to be of an acceptable standard for interpretive use within this Report. Please note that the QA/QC assessment presented in Appendix H discusses the presence of target analytes within a blank sample, and further analysis of groundwater for TRH with silica gel clean-up, performed outside of the recommended sample holding time.



9. ASSESSMENT CRITERIA

9.1. SOIL

The Site Assessment Criteria (**SAC**) are sourced from the NEPM 2013 and include:

- Health Based Investigation Levels (**HIL**) for:
 - Residential A Site use (**HIL A**) including NEPM Health Screening Levels (**HSL**) for vapour intrusion for low-high density residential, 0m to <1m, to inform the contamination status of the Site and used as a trigger values to determine if the Site is suitable to be removed from the EMR or requires further assessment to determine suitability; and
 - Public Open Space Site use (**HIL C**) – to inform if the Site is suitable for the proposed redevelopment.
- Environmental Investigation and Screening Levels (**EIL/ESL**) for:
 - National parks and areas of high conservation value - used as trigger values to determine if the Site is suitable to be removed from the EMR or requires further assessment to determine suitability; and
 - Urban Residential/public open space setting use – to inform if the Site is suitable for these uses.
- Aesthetic considerations (NEPM provides guidance only)
 - No foreign material (scrap/waste) such as plastic, rubber, metals, timber, steel, brick/concrete (>100mm); and
 - No discoloured or malodorous soil or water.
- PFAS NEMP 2018:
 - Soil human health investigation values for Residential with garden/accessible soil (for objective of assessing EMR removal) and Public Open Space (to inform if the Site is suitable for the proposed redevelopment); and
 - Soil ecological guideline values – interim soil – ecological indirect exposure.
- Fine grained and clay criteria were adopted for ESL and HSL criteria based on field observations.
- Environmental Investigation Levels determined by using the NEPC Ecological Investigation Level Calculation Spreadsheet. Background concentrations were calculated using the average concentrations of each metal from topsoil/natural soil samples analysed, refer to Table B, Appendix I.
- Asbestos was initially assessed on an absence/presence basis, noting the following soil assessment criteria as sourced from the NEPM 2013:
 - 0.001% asbestos in soil on a weight for weight basis (w/w) for free fibre related materials including Fibrous Asbestos (**FA**) and Asbestos Fines (**AF**). The definition of AF includes small fragments of cement sheeting with a diameter less than 7mm (being the FA/QF criteria adopted for this assessment)
 - For Asbestos Containing Material (**ACM**) (bonded asbestos with a diameter greater than 7mm):
 - 0.01 % w/w asbestos for ACM – residential use, day care centres, preschools (being the ACM criteria adopted for this assessment)



- 0.02% w/w asbestos for ACM – parks, public open spaces, playing fields
- 0.04% w/w asbestos for ACM – residential, minimal soil access
- 0.05% w/w asbestos for ACM – commercial/industrial.

Other than for asbestos as described above, the SAC are provided in Table 11 below.

Table 11 Soil Assessment Criteria (mg/kg)

Analyte	EIL		ESL		HIL A	HSL HIL A	HIL C	HIL C
	Areas of ecological significance		Urban residential and public open space			0 m to <1 m		0 m to <1 m
Metals								
Arsenic	40	-	100	-	100	-	300	-
Cadmium	-	-	-	-	20	-	90	-
Chromium	270	-	780	-	100	-	300	-
Copper	95	-	250	-	6,000	-	17,000	-
Lead	470	-	1,100	-	300	-	600	-
Nickel	110	-	560	-	400	-	1,200	-
Zinc	210	-	750	-	7,400	-	30,000	-
Mercury	-	-	-	-	40	-	80	-
Organochlorine Pesticides (OC)								
alpha-BHC	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	-	-	-	-	10	-	10	-
beta-BHC	-	-	-	-	-	-	-	-
gamma-BHC	-	-	-	-	-	-	-	-
delta-BHC	-	-	-	-	-	-	-	-
Heptachlor	-	-	-	-	6	-	10	-
Aldrin	-	-	-	-	-	-	-	-
Heptachlor epoxide	-	-	-	-	-	-	-	-
Total Chlordane (sum)	-	-	-	-	50	-	70	-
trans-Chlordane	-	-	-	-	-	-	-	-
alpha-Endosulfan	-	-	-	-	-	-	-	-
cis-Chlordane	-	-	-	-	-	-	-	-
Dieldrin	-	-	-	-	-	-	-	-
4,4'-DDE	-	-	-	-	-	-	-	-
Endrin	-	-	-	-	10	-	20	-
Endosulfan (sum)	-	-	-	-	270	-	340	-
beta-Endosulfan	-	-	-	-	-	-	-	-
4,4'-DDD	-	-	-	-	-	-	-	-
Endrin aldehyde	-	-	-	-	-	-	-	-
Endosulfan sulfate	-	-	-	-	-	-	-	-
4,4'-DDT	3	-	180	-	-	-	-	-
Endrin ketone	-	-	-	-	-	-	-	-
Methoxychlor	-	-	-	-	300	-	400	-



Analyte	EIL	ESL	EIL	ESL	HIL A	HSL HIL A		HIL C	HIL C
	Areas of ecological significance		Urban residential and public open space			0 m to <1 m			0 m to <1 m
Sum of DDD + DDE + DDT	-	-	-	-	240	-		400	-
Sum of Aldrin + Dieldrin	-	-	-	-	6	-		10	-
Organophosphorus Pesticides (OP)									
Dichlorvos	-	-	-	-	-	-		-	-
Demeton-S-methyl	-	-	-	-	-	-		-	-
Monocrotophos	-	-	-	-	-	-		-	-
Dimethoate	-	-	-	-	-	-		-	-
Diazinon	-	-	-	-	-	-		-	-
Chlorpyrifos-methyl	-	-	-	-	-	-		-	-
Parathion-methyl	-	-	-	-	-	-		-	-
Malathion	-	-	-	-	-	-		-	-
Fenthion	-	-	-	-	-	-		-	-
Chlorpyrifos	-	-	-	-	160	-		250	-
Parathion	-	-	-	-	-	-		-	-
Pirimphos-ethyl	-	-	-	-	-	-		-	-
Chlorfenvinphos	-	-	-	-	-	-		-	-
Bromophos-ethyl	-	-	-	-	-	-		-	-
Fenamiphos	-	-	-	-	-	-		-	-
Prothiofos	-	-	-	-	-	-		-	-
Ethion	-	-	-	-	-	-		-	-
Carbophenothion	-	-	-	-	-	-		-	-
Azinphos Methyl	-	-	-	-	-	-		-	-
Polycyclic Aromatic Hydrocarbons									
Naphthalene	10	-	170	-	-	-		-	-
Acenaphthylene	-	-	-	-	-	-		-	-
Acenaphthene	-	-	-	-	-	-		-	-
Fluorene	-	-	-	-	-	-		-	-
Phenanthrene	-	-	-	-	-	-		-	-
Anthracene	-	-	-	-	-	-		-	-
Fluoranthene	-	-	-	-	-	-		-	-
Pyrene	-	-	-	-	-	-		-	-
Benz(a)anthracene	-	-	-	-	-	-		-	-
Chrysene	-	-	-	-	-	-		-	-
Benzo(b+j)fluoranthene	-	-	-	-	-	-		-	-
Benzo(k)fluoranthene	-	-	-	-	-	-		-	-
Benzo(a)pyrene	-	0.7	-	0.7	-	-		-	-
Indeno(1,2,3,cd)pyrene	-	-	-	-	-	-		-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-		-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-		-	-
Sum of PAH	-	-	-	-	300	-		300	-



Analyte	EIL	ESL	EIL	ESL	HIL A	HSL HIL A		HIL C	HIL C
	Areas of ecological significance		Urban residential and public open space			0 m to <1 m			0 m to <1 m
Benzo(a)pyrene TEQ	-	-	-	-	3	-	-	3	-
TRH									
C6 - C10 Fraction	-	-	-	-	-	-	-	-	-
C6 - C10 Fraction minus BTEX (F1)	-	125	-	180	-	50	-	-	NL
>C10 - C16 Fraction	-	25	-	120	-	-	-	-	-
>C16 - C34 Fraction	-	-	-	1,300	-	-	-	-	-
>C34 - C40 Fraction	-	-	-	5,600	-	-	-	-	-
>C10 - C16 Fraction minus Naphthalene (F2)	-	-	-	-	-	280	-	-	NL
BTEXN									
Benzene	-	10	-	65	-	0.7	-	-	NL
Toluene	-	65	-	105	-	480	-	-	NL
Ethylbenzene	-	40	-	125	-	NL	-	-	NL
meta- & para-Xylene	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-
Total Xylenes	-	1.6	-	45	-	110	-	-	NL
Sum of BTEX	-	-	-	-	-	-	-	-	-
Naphthalene	10	-	170	-	-	5	-	-	NL
Phenols	-	-	-	-	3,000	-	-	40,000	-
per- and poly-fluoroalkyl substances (PFAS)#									
PFOS+PFHxS	-	-	-	-	0.009	-	-	1	-
PFOS	0.01^	-	-	-	-	-	-	-	-
PFOA	-	-	-	-	0.1	-	-	10	-

^ NEMP Interim soil - ecological indirect exposure for residential.

Where no criteria exist or are defined, the screening level adopted is the laboratory level of reporting. If detectable concentrations are recorded, then further assessment of the recorded concentrations would be completed.

9.2. GROUNDWATER

QLD Globe mapping shows the Site is mapped as a potential groundwater dependant ecosystem (moderate confidence) defined as *Ecosystems intermittently connected to aquifers with fresh salinity in geologically stratified permeable rock (basalt) in high rainfall areas*. Approximately 50m to the north of the Site a potential groundwater dependant ecosystem (high confidence) defined as *Ecosystems intermittently connected to aquifers with fresh salinity and neutral pH in unconsolidated Quaternary alluvia supported by groundwater flow from geologically stratified, fractured basalt aquifers in high rainfall areas, is mapped*. Approximately 25 registered groundwater bores are located within a 500m radius of the Site.

The Site is located within the Condamine River Basin which is managed under DES 2019, *Healthy Waters Management Plan: Condamine River basin*. As detailed in Section 4.8 of CLIR, Environmental



Values for the following five water resources are associated with the Site for the purposes of setting investigation criteria at this stage of the groundwater assessment:

- Surface waters in each sub-catchment within the Condamine River basin;
- Alluvial aquifer zones within the groundwaters of Condamine River basin;
- Fractured Rock aquifer zones within the groundwaters of Condamine River basin;
- Lower GAB aquifer zones within the groundwaters of Condamine River basin; and
- Basal GAB aquifer zones within the groundwaters of Condamine River basin.

All of the below values (with the exception of Secondary recreation) are identified as environmental values for the Site:



	Aquatic ecosystem • The intrinsic value of aquatic ecosystems, habitat and wildlife in waterways, waterholes and riparian areas, for example, biodiversity, ecological interactions, plants, animals, key species (such as turtles, yellowbelly, cod and yabbies) and their habitat, food and drinking water.
	Irrigation • Suitability of water supply for irrigation, for example, irrigation of crops, pastures, parks, gardens and recreational areas.
	Farm water supply/use • Suitability of domestic farm water supply, other than drinking water. For example, water used for laundry and produce preparation.
	Stock watering • Suitability of water supply for production of healthy livestock.
	Aquaculture • Health of aquaculture species and humans consuming aquatic foods (such as fish and prawns) from commercial ventures.
	Human consumers of aquatic foods • Health of humans consuming aquatic foods, such as fish and prawns, from natural waterways.
	Primary recreation • Health of humans during recreation which involves direct contact and a high probability of water being swallowed, for example, swimming, diving and water-skiing.
	Secondary recreation • Health of humans during recreation which involves indirect contact and a low probability of water being swallowed, for example, wading, boating, rowing and fishing.
	Visual recreation • Amenity of waterways for recreation which does not involve contact with water. For example, walking and picnicking adjacent to a waterway.
	Drinking water supply • Suitability of raw drinking water supply. This assumes minimal treatment of water is required, for example, coarse screening and/or disinfection.
	Industrial use • Suitability of water supply for industrial use, for example, food, beverage, paper, petroleum and power industries, mining and minerals refining/processing. Industries usually treat water supplies to meet their needs.
	Cultural, spiritual and ceremonial values • Cultural, spiritual and ceremonial values of water means its aesthetic, historical, scientific, social or other significance, to the past, present or future generations.



Table 12 Groundwater Assessment Criteria (ug/L)

Compound	Units	Fresh Water GIL [*]	Drinking Water G/L [*]	Groundwater HSL ^C	HWMP WQTV ^D	PFAS NEMP ^E
Arsenic	ug/L	24 as As(III) 13 as As(V)	10	-	1 ^{D7} 100 ^{D5}	-
Cadmium	ug/L	0.2	2	-	0.06 ^{D7} 10 ^{D5 & D6}	-
Chromium (III)	ug/L	-	-	-	100 ^{D5}	-
Chromium (VI)	ug/L	1 ^A	50	-	0.06 ^{D7}	-
Copper	ug/L	1.4	2000	-	1 ^{D7} 15 ^{D1} 10 ^{D2} 10 ^{D3} 8 ^{D4}	-
Lead	ug/L	3.4	10	-	1 ^{D7} 100 ^{D6}	-
Mercury	ug/L	0.06 ^B	1	-	0.06 ^{D7 & B} 2 ^{D5 & D6}	-
Nickel	ug/L	11	20	-	8 ^{D7} 200 ^{D5}	-
Zinc	ug/L	8 ^A	-	-	2.4 ^{D7} 5 ^{D1} 20 ^{D2} 10 ^{D3} 20 ^{D4}	-
TRH C ₆ -C ₁₀	ug/L	-	-	1,000	-	-
TRH C ₁₀ -C ₁₆	ug/L	-	-	1,000	-	-
TRH C ₁₆ -C ₃₄	ug/L	-	-	-	-	-
TRH C ₃₄ -C ₄₀	ug/L	-	-	-	-	-
Benzene	ug/L	950	1	800	600 ^{D7}	-
Toluene	ug/L	-	800	-	-	-
Ethylbenzene	ug/L	-	300	-	-	-
Xylenes	ug/L	350 (as o-xylene) 200 (as p-xylene)	600	-	200 ^{D7} (as o-xylene) 140 ^{D7} (as p-xylene)	-
Naphthalene	ug/L	16	-	-	2.5 ^{D7}	-
Benzo a Pyrene	ug/L	-	0.01	-	-	-
PFOS	ug/L			-	-	0.00023#
PFOA	ug/L			-	-	19



Compound	Units	Fresh Water GIL [*]	Drinking Water GIL [*]	Groundwater HSL ^C	HWMP WQTV ^D	PFAS NEMP ^E
OC/OP pesticides	ug/L	* Refer GIL's	* Refer GIL's	-	Refer ^{D7}	-
<i>Heptachlor</i>	ug/L	0.01 ^F	-	-	0.01	-
<i>Aldrin + Dieldrin</i>	ug/L	-	0.3	-	-	-
<i>Heptachlor epoxide</i>	ug/L	-	0.3	-	-	-
<i>Chlordane</i>	ug/L	0.03 ^F	2	-	0.03	-
<i>Endosulfan</i>	ug/L	0.03 ^F	20	-	0.03	-
<i>Endrin</i>	ug/L	0.01 ^F	-	-	0.01	-
<i>DDT</i>	ug/L	0.006 ^F	9	-	0.006	-
<i>Dichlorvos</i>	ug/L	-	5	-	-	-
<i>Dimethoate</i>	ug/L	0.15	7	-	-	-
<i>Diazinon</i>	ug/L	0.01	4	-	0.00003	-
<i>Chlorpyrifos</i>	ug/L	0.01 ^F	10	-	0.00004	-
<i>Parathion</i>	ug/L	0.004 ^A	20	-	0.0007	-
<i>Chlorfenvinphos</i>	ug/L	-	2	-	-	-
<i>Ethion</i>	ug/L	-	4	-	-	-
<i>Azinphos Methyl</i>	ug/L	-	30	-	0.01	-
Phenol	ug/L	320	* Refer GIL's	-	85 ^{D7}	-

Notes:

- * Selected analytes as required to compare against other listed criteria sources – the full list of NEPM GIL's are presented in Appendix J and are to be applied as required to the results of the groundwater assessment.
- ^A Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.
- ^B Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance.
- ^C NEPM Groundwater Health Screening Levels for vapour intrusion 2m to <4m, sand (conservative)
- ^D DES 2019, Healthy Waters Management Plan: Condamine River basin (lowest Water Quality Target Values used, where published, for the five distinct water resources discussed at the start of this Section). Note that the HWMP (for groundwater resources) requires that ANZECC default trigger values that apply to 99% protection for slightly-moderately disturbed systems must not be exceeded for pesticides, heavy metals and other toxic contaminants.
- ^{D1} Table 31 - Southern Condamine – WQTV aquatic ecosystem for alluvial groundwater – 50th percentile
- ^{D2} Table 32 - Upper Condamine Basalts – WQTV aquatic ecosystem for fractured rock aquifer – 50th percentile
- ^{D3} Table 36 – South East Walloons – WQTV aquatic ecosystem for lower GAB aquifer – 50th percentile
- ^{D4} Table 37 – South Eastern Evergreen – WQTV aquatic ecosystem for basal GAB aquifer – 50th percentile
- ^{D5} Table 48 – Long-term trigger value in irrigation water (most conservative)
- ^{D6} Table 51 – Trigger values for suitability of water supply for stock watering



- ^{D7} ANZECC & ARMCANZ (2000) Table 3.4.1 default trigger values for freshwater 99% protection for slightly-moderately disturbed systems as noted in Note D above for groundwater resources.
- ^E PFAS NEMP January 2018, freshwater, 99% species protection – high conservation value systems.
- [#] This is near the best level of detection for the laboratory (ALS) PFAS Super Ultra Trace Full Suite (28 Analytes) with a Limit of Reporting of 0.0002-0.002ug/L.
- ^F Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance



10. RESULTS

10.1. FIELDWORK OBSERVATIONS

The majority of the Site was underlain by topsoil and silty clay, refer to Test Pit Logs provided in Appendix G. Basalt gravels, and cobbles were encountered across the Site which correlated with regional geology mapping.

Basalt was encountered near the surface (around 2mbgl) at the location of groundwater monitoring bore MB1, which was drilled to refusal at a total depth of 13.7mbgl and subsequently found to not be in connectivity with groundwater. The remaining monitoring bores MB2 and MB3 encountered basalt rock from 16mbgl to 18mbgl and intercepted groundwater around 11.5 to 12mbgl with one round of samples collected from these two bores. All bores were surveyed to AHD by Gary Hayes & Partners Consulting Surveyors.

Fill was encountered in various locations across the Site with base of fill depths ranging from 0.05m below ground level (mbgl) up to 1.2mbgl. The fill was generally homogeneous in nature and appears to comprise:

- Material which appeared to have been won from Site as part of cut and fill ie construction of earthen platforms, levelling for rail lines etc or rehabilitation following removal of rail line in locations;
- Light pink/pink and orange silty clay assumed to be the former rail line basecourse (as observed in Image 1); and
- Grey Ash assumed to be sourced from steam locomotives.

The general lithologies for each AEC are summarised in the tables below.

Table 13: General Lithology

AEC	Description	Depths Between	Contamination Potential*	Sampled and analysed**
1. Railway Line (RW1-RW12)	Topsoil - red brown silty clay topsoil with some rootlets	0-0.2mbgl	Moderate	Yes
	Fill – light red/ red brown/orange brown/light brown silty clay	0-1.2mbgl	Moderate	Yes
	Fill – light pink silty clay	0.02-0.4mbgl	Moderate	Yes
	Silty clay – dark red brown silty clay	0.1->1.2mbgl	Low	Yes
2. Former Shelters Shed, platform and loading bank (earthen platforms) (21 – 31)	Topsoil - red brown silty clay topsoil with some rootlets	0-0.4mbgl	Moderate	Yes
	Ash – grey ash (Test Pits 5,6, 24, 31 and A1 though A23)	0.0-0.21mbgl	High	Yes
	Fill – orange and pink/light pink silty clay	0.19-0.23	Moderate	Yes
	Fill - dark red brown silty clay fill with some sandstone gravels and ash (Test Pit 31 only)	0.2-0.7mbgl	Moderate	Yes
	Silty clay – dark red brown silty clay	0.22-1.4mbgl	Low	Yes



3. Former Goods shed and platform (earthen) (17 -20, 32 – 34)	Topsoil - red brown silty clay topsoil with some rootlets	0-0.32mbgl	Moderate	Yes
	Fill – pink and orange silty clay and gravels	0.05-0.5mbgl	Moderate	Yes
	Fill – light brown silty clay fill with some basalt gravels and cobbles	0.1-1.2mbgl	Moderate	Yes
	Silty clay – dark red brown silty clay	0.3->2.2mbgl	Low	Yes
4. Former Tank, Ash Pit and Engine Shed (35 – 43)	Topsoil – red brown silty clay topsoil with some rootlets	0-0.6mbgl	Moderate	Yes
	Fill – pink and orange silty clay and gravels (Test Pit 43 only)	0.2-0.35mbgl	Moderate	Yes
	Silty Clay – dark red brown/orange brown silty clay with some basalt gravels	0-1.2mbgl	Low	Yes
5. Quarters (44 – 46)	Silty Clay – dark red brown silty clay topsoil with some rootlets and tree roots	0->1.3mbgl	Low-Moderate	Yes
6. Cattle Yard (1 - 16)	Topsoil - red brown silty clay topsoil with some rootlets	0-0.25mbgl	Moderate	Yes
	Fill – weathered basalts gravel and cobbles (Test Pit 2 only)	0-0.05	Moderate	Yes
	Fill – dark grey silty clay fill (Test pit 6 only)	0.2-0.35	Moderate	Yes
	Ash – grey ash (Test pits 5, 6 only)	0-0.05 (Test Pit 5) 0.35-0.45 (Test Pit 6)	High	Yes
	Fill – orange and pink/light pink silty clay (Test Pit 16 only)	0.1-0.2mbgl	Moderate	Yes
	Silty clay/weathered Rock – red brown silty clay	0.05->1.3mbgl	Low	Yes
Background locations	Topsoil – red brown silty clay topsoil with some rootlets	0-0.2mbgl	Low	Yes
	Silty Clay – dark red brown silty clay	0->1.2mbgl	Low	Yes

* based on CSM, Potential for contamination and PCOC identified for the Site.

** Refer to Table 10: Analytical Rationale.

10.2. GROUNDWATER ANALYTICAL RESULTS

Certificates of laboratory analysis are presented in Appendix F with associated groundwater data presented in Appendix J. Two samples of groundwater were analysed, being sample MB2-1 from monitoring bore 2 (MB2) and sample MB3-1 from monitoring bore 3 (MB3).



PFAS

PFAS was not detected by the Super Ultra Trace Full Suite analysis performed by the primary laboratory, ALS. Due to matrix interferences, the samples required dilution prior to extraction, which raised the Limit of Reporting (LOR) from the expected 0.0002ug/L that was required to directly evaluate with the SAC for PFOS (0.00023ug/L) but remaining below the SAC for PFOA.

OC/OP PESTICIDES, PAH AND PHENOLS

All compounds were reported at concentrations less than the laboratory LOR.

HEAVY METALS AND PETROLEUM HYDROCARBONS

Heavy metals and petroleum hydrocarbons analytical results are presented below:

Table 14 Groundwater Sample Analysis Summary

Compound	Units	LOR	Criteria ^A	Sample MB2-1	Sample MB3-1
Arsenic	µg/L	1	1	<1	<1
Cadmium	µg/L	0.1	0.06	<0.1	<0.1
Chromium (VI) ^B	µg/L	1	0.06 ^C	<1	1
Copper	µg/L	1	1	<1	<1
Lead	µg/L	1	1	<1	<1
Mercury	µg/L	0.1	0.06	<0.1	<0.1
Nickel	µg/L	1	8	1	<1
Zinc	µg/L	5	2.4	<5	<5
TRH C ₆ -C ₁₀	µg/L	20	1,000	<20	60
TRH C ₁₀ -C ₁₆	µg/L	100	1,000	<100	170
TRH C ₁₆ -C ₃₄	µg/L	100	-	<100	<100
TRH C ₃₄ -C ₄₀	µg/L	100	-	<100	<100
TRH C ₁₀ -C ₁₆ silica gel clean-up ^D	µg/L	100	1,000	-	<100
TRH C ₁₆ -C ₃₄ silica gel clean-up ^D	µg/L	100	-	-	<100
TRH C ₃₄ -C ₄₀ silica gel clean-up ^D	µg/L	100	-	-	<100
Naphthalene	µg/L	1.0	2.5	<1.0	<1.0
Benzo a Pyrene	µg/L	0.5	0.01	<0.5	<0.5
PFOS	µg/L	0.0002	0.00023	<0.0002	<0.0002
PFOA	µg/L	0.0005	19	<0.0005	<0.0005
Heptachlor	µg/L	0.5	0.01	<0.5	<0.5
Aldrin + Dieldrin	µg/L	0.5	0.3	<0.5	<0.5
Heptachlor epoxide	µg/L	0.5	0.3	<0.5	<0.5
Chlordane	µg/L	0.5	0.03	<0.5	<0.5
Endosulfan	µg/L	0.5	0.03	<0.5	<0.5
Endrin	µg/L	0.5	0.01	<0.5	<0.5
DDT	µg/L	2.0	0.006	<2.0	<2.0
Dichlorvos	µg/L	0.5	5	<0.5	<0.5
Dimethoate	µg/L	0.5	0.15	<0.5	<0.5
Diazinon	µg/L	0.5	0.00003	<0.5	<0.5
Chlorpyrifos	µg/L	0.5	0.00004	<0.5	<0.5



Compound	Units	LOR	Criteria ^A	Sample MB2-1	Sample MB3-1
Parathion	µg/L	2.0	0.0007	<2.0	<2.0
Chlorfenvinphos	µg/L	0.5	2	<0.5	<0.5
Ethion	µg/L	0.5	4	<0.5	<0.5
Azinphos Methyl	µg/L	0.5	0.01	<0.5	<0.5
Phenol	µg/L	1.0	85	<1.0	<1.0

Notes:

^A Most conservative criteria selected as presented in Section 9.2 Table 12

^B Total Chromium result (III plus VI)

^C Chromium V1 criteria (Chromium III is 100µg/L)

^D Note silica gel analysis was performed outside of recommended holding times.

Chromium was detected in MB3-1 at 1ug/L, which just exceeded the WQTV of 0.06ug/L for Chromium VI but met the GIL's. No Chromium VI source was identified at the Site, and as it is likely that this result reflects Chromium III concentrations the result is under SAC.

Nickel was detected in MB2-1 at 1ug/L and meets SAC.

Total petroleum hydrocarbons (C₆-C₁₀ and C₁₀-C₁₆) were detected in Sample MB3-1 below SAC. Silica gel clean-up of this sample resulted in the C₁₀-C₁₆ fraction not being detected, supporting the hypothesis that the source is naturally occurring.

10.3. SOIL ANALYTICAL RESULTS

METALS

Most metals results were below the SAC, refer to Appendix F Certificates of Laboratory Analysis and summary tables presented in Appendix I.

The ash delineation recorded two SAC exceedances. Ash sample A1-1 contained copper at 100mg/kg (exceeding the EIL for areas of ecological significance of 95mg/kg but under the EIL for urban residential and public open space of 250mg/kg). Ash sample A19-1 contained lead at 598mg/kg that exceeded the HIL-A of 300mg/kg and also the EIL of 470mg/kg for areas of ecological significance, but was under the EIL for urban residential and public open space of 1,100mg/kg.

OC/OP PESTICIDES, PHENOLS, BTEXN, PFAS AND ASBESTOS

No OC/OP pesticides, phenols, BTEXN or asbestos was detected above the laboratory LOR in any of the samples analysed. Ash samples collected and analysed in accordance with the SAQP did not detect the presence of PFAS.

TRH

TRH Fraction >C₁₆ - C₃₄ was detected at a minor concentration of 130mg/kg (LOR=100mg/kg) in one sample, DUP9 (replicate sample of TP39/0-0.05 that had no TRH detected). This concentration is well below the ESL (1,300mg/kg). TP39 was targeting the AEC of the Former Tank, Ash Pit and Engine



Shed, however, no surface staining or any other signs of hydrocarbon contamination were observed in the AEC, the primary sample and the deeper sample did not record any TRH detections and it is considered the minor detection is possibly a result of some organic material present in the topsoil and not an indicator of contamination. No silica gel clean-up was requested due to sample reaching holding time limits.

PAH

PAH were detected in three samples as detailed in Table 15 below, with two samples (BG3/0-0.1 and TP33 0.0-0.05) exceeding the benzo(a)pyrene environmental (ESL) criteria of 0.7mg/kg but below the human health (HIL-A) criteria:

- Sample BG3/0-0.1 with the highest recorded BaP concentration of 1.8mg/kg was collected from natural silty clay (0-0.8mbgl) located within a drainage channel, and
- Sample TP33 0-0.05 was sampled from topsoil material (0-0.05) overlying pink and orange silty clay fill in the former Goods Shed AEC.

All other detections were below the SAC.



Table 15: PAH's detection, mg/kg

	EIL	ESL	EIL	ESL	HIL A	HIL C	BG3/0-0.1	TP31/0-0.05	TP33 0.0-0.05
	Areas of ecological significance		Urban residential and public open space						
Naphthalene	10	-	170	-	-	-	<0.5	<0.5	<0.5
Acenaphthylene	-	-	-	-	-	-	0.6	<0.5	<0.5
Acenaphthene	-	-	-	-	-	-	<0.5	<0.5	<0.5
Fluorene	-	-	-	-	-	-	<0.5	<0.5	<0.5
Phenanthrene	-	-	-	-	-	-	4.3	0.9	1.9
Anthracene	-	-	-	-	-	-	1.1	<0.5	0.5
Fluoranthene	-	-	-	-	-	-	6.0	1.9	3.5
Pyrene	-	-	-	-	-	-	5.3	1.8	3.2
Benz(a)anthracene	-	-	-	-	-	-	2.4	0.6	1.6
Chrysene	-	-	-	-	-	-	2.1	0.7	1.2
Benzo(b+j)fluoranthene	-	-	-	-	-	-	2.1	0.9	1.3
Benzo(k)fluoranthene	-	-	-	-	-	-	1.0	<0.5	0.7
Benzo(a)pyrene	-	0.7	-	0.7	-	-	1.8	0.6	1.3
Indeno(1.2.3.cd)pyrene	-	-	-	-	-	-	1.0	<0.5	0.8
Dibenz(a,h)anthracene	-	-	-	-	-	-	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	-	-	-	-	-	-	1.2	0.5	0.9
Total PAH	-	-	-	-	300	300	28.9	7.9	16.9
Benzo(a)pyrene TEQ	-	-	-	-	3	3	2.5	0.8	1.8

11. DISCUSSION

The Site history investigation and Site walkover confirms the Site had been used as a railway station and yards, which was constructed circa 1909. A rail line traversed the Site and platforms, shelters and sheds were constructed in various locations at the Site. The presence of these were observed in historic photographs as well as during Site walkover and intrusive investigations with basecourse layers, filled platform areas and old scales are evident on Site. Following closure of the rail line in 1960, infrastructure was removed (excepting the scale), and the Site was relatively vacant until a windmill and timber cattle yard was constructed between 1989 and 1993 (based on aerial photographs review) that remains on Site.

Seven Areas of Environmental Concern were observed at the Site, five as a result of the former railway usage and an additional one associated with cattle yards, plus potential for groundwater impact:

- Former rail lines and surrounding area,
- Former shelters shed, platform and loading bank,
- Former goods shed and platform,
- Former tank, ash pit and engine shed,
- Former quarters (house),
- The cattle yards currently located on Site, and
- Potential for groundwater impact.

The sampling and analysis plan was designed to target potential soil contamination at each of the AEC as well as assess background soil and groundwater conditions at the Site. The results of the intrusive investigation indicated that shallow filling, including some areas of ash fill, predominately comprising a majority element of reworked natural materials is present however no soil contamination was detected in most samples analysed. The two identified contamination impact issues, being minor exceedances of Benzo(a)pyrene and presence of ash (with minor exceedances of heavy metals) are further discussed below.

11.1. BENZO(A)PYRENE

No ash or any other signs of potential contamination were observed at either location where elevated BaP was detected, with a third location having detectable concentrations of PAH's including BaP but below SAC. The remaining 45 samples analysed for PAH, including within fill, ashy fill and various AEC did not have detectable PAH.

SAMPLE TP31/0-0.05

Sample TP31/0-0.5 is a surface sample near the middle of AEC 2 (former shelters shed, platform and loading bank) and located close to former railway lines. A total of eleven test pits (21 through 31) were excavated within this AEC. Sample TP31/0-0.05 was from topsoil with trace ash, with a BaP result of 0.6mg/kg that was under SAC. Samples collected and analysed for PAH within this AEC were:

- TP24/0-0.05 – topsoil (with ash) – no PAH detected
- TP24/0.2-0.23 – fill (light orange clay with gravel) – no PAH detected
- TP25/0.19-0.22 – topsoil (red brown silty clay) – no PAH detected

- TP28/0.5-0.6 – natural soil (brown silty clay) – no PAH detected
- TP31/0-0.05 – topsoil (with trace ash) – PAH detected below SAC.

The 95% Chebyshev UCL for all 5 samples is 0.643mg/kg, below the SAC of 0.7mg/kg. Whilst this was the method recommended by the US EPA ProUCL software, the small data set reduces statistical confidence, which is exacerbated further if removing non-surface samples from the data set from this AEC.

SAMPLE TP33/0-0.05

Sample TP33/0-0.5 is a surface sample to the south of AEC 3 (former goods shed and platform) located adjacent to a former rail line. A total of seven test pits (17, 18, 19, 20, 32, 33 and 34) were excavated within this AEC. Sample TP33/0-0.05 was from topsoil (with underlying clay fill with gravels) with a BaP result of 1.3mg/kg that exceeded the SAC of 0.7mg/kg. Samples collected and analysed for PAH within this AEC were:

- TP20/0.3-0.4 – fill (light brown clay with gravel) – no PAH detected
- TP32/0.25-0.3 – fill (orange silty clay with gravel) - no PAH detected
- TP33/0-0.05 – topsoil (brown silty clay) (overlying orange silty clay and gravel fill) – BaP 1.3mg/kg
- TP34/0-0.05 – topsoil – (brown silty clay) (overlying orange silty clay and gravel fill) - no PAH detected
- TP34/0.5-0.6 – natural silty clay with some gravel– no PAH detected.

The 95% Chebyshev UCL for all 5 samples is 1.393mg/kg, above the SAC of 0.7mg/kg. Whilst this was the method recommended by the US EPA ProUCL software, the small data set reduces statistical confidence. Key discussion points include:

- There was no ash detected at this AEC.
- A layer of fill comprising orange silty clay with gravel, and underlying natural material, did not detect PAH including BaP.
- The BaP exceedance was at the surface within topsoil and near a former rail line. A nearby sample within this AEC (TP34/0-0.05) did not detect PAH but was otherwise similar in terms of material sampled, field observations, nature of underlying fill, and proximity to the former rail line.

SAMPLE BG3/0-0.1

Sample BG3/0-0.1 is a surface sample and part of nine surface or near-surface background samples collected outside of AEC but biased to provide good site coverage and targeted within drainage pathways where potential contaminants may have concentrated. This sample was not collected from a drainage pathway, but from adjacent a former rail line.

No ash or other evidence of potential contamination was identified. Of the four surface samples collected from locations BG1, BG2, BG3 and BG5 and analysed for PAH, only sample BG3/0-01 detected PAH with a BaP result of 1.8mg/kg that exceeded the SAC of 0.7mg/kg.

In isolation and cognisant of the very low statistical confidence, these four data points provide a recommended 95% UCL for BaP of 2.412mg/kg.

REVIEW AND BROADER UCL ANALYSIS

Based upon field observations and laboratory data, all detected BaP above LOR were:

- At the surface, with none in underlying fill, natural soils or within sampled drainage pathways.
- Near a former rail line, and
- Other than trace ash within sample TP31/0-0.5, were not associated with ash or other field observations of potential contamination.

It is extrapolated that with respect to BaP there are two populations of interest:

- Population 1 - surface samples across the site, to a maximum depth of 0.1m bgl (comprising 20 samples RW2/0-0.1, RW3/0-0.1, RW5/0-0.1, RW7/0-0.1, RW10/0-0.1, RW11/0-0.05, TP24/0-0.05, TP31/0-0.05, TP33 0.0-0.05, TP34 0.0-0.05, TP38 0.0-0.05, TP39 0.0-0.05, TP44 0.0-0.05, 4/0-0.05, 5/0-0.05, 11/0-0.05, BG1/0-0.1, BG2/0-0.2, BG3/0-0.1 and BG5/0-0.1), and
- Population 2 - sub-set of surface samples located on or immediately adjacent former rail lines (comprising 14 samples RW2/0-0.1, RW3/0-0.1, RW5/0-0.1, RW7/0-0.1, RW10/0-0.1, RW11/0-0.05, TP31/0-0.05, TP33 0.0-0.05, TP34 0.0-0.05, TP38 0.0-0.05, TP39 0.0-0.05, 4/0-0.05, 5/0-0.05 and BG3/0-0.1).

For Population 1, the 95% UCL recommended by US EPA ProUCL software for non-parametric data is the Chebyshev UCL, which was calculated at 0.665mg/kg. For Population 2, calculated using the same recommended method, the 95% UCL was 0.935mg/kg. It should be noted that the recommended methods are conservative, due to the relatively small data set and irregular distribution. Other 95% UCL calculation methods were below 0.7mg/kg, being the BaP SAC.

The presence of isolated surficial BaP may be associated with treated timber used as railway sleepers, or historical coal storage and use within the steam trains, noting that BaP was not directly associated with ash deposits and there was limited evidence of any residual coal at the site. Whilst considered to be of a limited volume and distribution, the surficial nature of the BaP is of concern due to accessibility by future users of the site and, importantly, ecological issues. The assessment is however supportive of discounting the detected BaP as a significant risk to human or environmental health, due to:

- The primary sources of BaP are historical and expected to reduce over time,
- No evidence of detectable BaP within drainage channels or soils directly underlying the locations of detected BaP,
- Application of the 95% UCL for Population 1 is considered appropriate, given the intended future use of the Site as a whole (the former railway lines are no longer present and largely not discernible) and absence of any sensitive environmental receptors at the surface of the site.
- On this basis, the 95% UCL is below the SAC, with the two exceedances of the ESL for BaP above environmental but below human health SAC not considered significant or warrant further investigation as returned results are less than 250% the SAC and the majority of all the other results from similar strata/depth were below the LOR.

11.2. ASH FILL

Ash fill, predominately reworked with natural materials, was originally identified at the following four locations:

- Former shelters shed, platform and loading bank – TP24 0-0.05 and 0.17-0.2mbgl analysed for heavy metals, OC/OP pesticides, PAH, Phenols and TRH/BTEXN.
- Former shelters shed, platform and loading bank – TP31 0.2-0.7mbgl analysed for heavy metals and asbestos.
- Cattle Yard – TP5 0-0.05mbgl - analysed for heavy metals, OC/OP pesticides, PAH, Phenols and TRH/BTEXN.
- Cattle Yard – TP6 0.35-0.45 – analysed for heavy metals.

These four locations, as well as additional test pit locations A1 through A23 and relevant adjacent test pits are presented in Image 9 below. The inferred area of ash is noted in purple highlight.

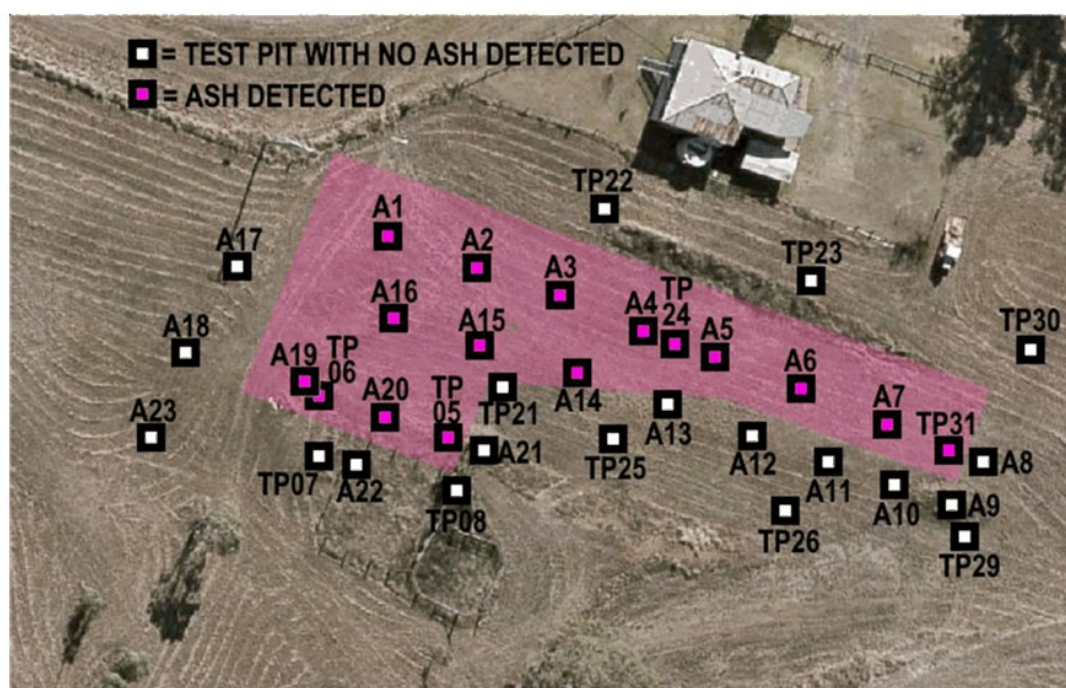


Image 9 Zone of ash fill and related test pits

As detailed within the test pit logs, the depth of identified ash ranges from superficial to 0.45m bgl (at this depth the identified thickness was around 10cm with overlying non-ash material).

With respect to aesthetic considerations, the ash meets SAC in that there was no identified foreign material (scrap/waste) such as plastic, rubber, metals, timber, steel, brick/concrete (>100mm) and there was no discoloured or malodorous soil or water.

The ash present at the north-western edge of the Cattle Yard is associated with the Former shelters shed, platform and loading bank AEC, and may be associated with locomotives de-ashing and reloading of coal, with some minor coal inclusions noted in one area. The ash may also have been placed as an aid for trafficability during wet weather.

A transect approximately 20m long was excavated from TP21 to TP24, as noted in Photographs 5 and 6 below.



**Photograph 5 – transect commencing at TP21
(at bottom of image)**



Photograph 6 – typical ash occurrence

The grey ash was generally discontinuous and often mixed with the natural and other materials present. Photograph 6 shows the typical visual observation of ash at the Site, which is present in discontinuous layers within a portion of the Former shelters shed, platform and loading bank AEC 2. This ash is not associated with formal ash waste burial activities and is considered to be residual ash from areas of the site where ash was removed from steam locomotives.

As previously discussed, there was limited evidence of chemical impact above SAC, with most results below the laboratory limit of reporting, however, as discussed in Section 10.3, there was an exceedance of copper and lead above SAC recorded in ash samples analysed. To determine the significance of these samples, statistical analysis of the ash population associated with AEC 2 was undertaken as detailed within Appendix K and summarised below.

COPPER

A total of 15 ash samples were analysed for copper. The maximum of 598mg/kg was less than 250% of the most conservative SAC of 300mg/kg, with the standard deviation being <50% of this SAC, allowing further comparison with the 95%UCL. US EPA ProUCL software (using the recommended non-parametric method) resulted in a 95%UCL of 241mg/kg, which was under SAC and indicative of lead concentration within the ash not being significant with respect to an unacceptable increased risk to environmental health.

To provide further assurances, ASLP leachate analysis for copper was performed on the highest copper total concentration result (ash sample A1-1) with the result being <0.1mg/L.

LEAD

A total of 15 ash samples were analysed for lead. The maximum of 100mg/kg was less than 250% of the most conservative SAC of 95mg/kg, with the standard deviation being <50% of this SAC, allowing further comparison with the 95%UCL. US EPA ProUCL software (using the recommended Gamma method)

resulted in a 95%UCL of 42mg/kg, which was under SAC and indicative of copper concentration within the ash not being significant with respect to an unacceptable increased risk to human health.

To provide further assurances, ASLP leachate analysis for lead was performed on the highest lead total concentration result (ash sample A19-1) with the result being <0.1mg/L.

11.3. POTENTIAL FOR PFAS ON SITE

The potential for Per- and polyfluoroalkyl substances (PFAS) to be present on site is considered low. The site history, site walk over and intrusive investigation did not identify any potential primary/point sources or secondary sources for PFAS at the site or in surrounding areas. Whilst fill was observed at the site, the fill material encountered (other than ash) was generally identified as either:

- Material won from site was a result of cut and fill works completed during construction of the railway in the early 1900s/rehabilitation of site following closure of railway in the 1960s/construction of cattle yard between 1981-1989; or
- Quarried material imported to form a geotechnically suitable basecourse for the construction of the rail line in the early 1900s.

Based on the assumed age of the fill, it is unlikely it was impacted with PFAS when imported to the site. Additionally, no evidence of any other imported fill material was observed in the historic aerials or during testing pitting.

However, we could not rule out a discrete historical use of PFAS containing materials at the site, nor migration from a potential off-site source given the environmental persistence and mobility of PFAS.

Consequently, selected ash and groundwater samples were analysed for PFAS, which was not detected.

11.4. GROUNDWATER

Based on the CSM, groundwater at the site is considered a receptor for any soil contamination because of impacted soils possibly leaching and subsequent migration of PCOC (including PFAS) into the underlying groundwater table.

Chromium was detected in groundwater sample MB3-1 at 1ug/L, which just exceeded the WQTV of 0.06ug/L for Chromium VI but met the GIL's. No Chromium VI source was identified at the Site, and it is likely that this result reflects Chromium III concentrations and therefore meets SAC.

Nickel was detected in MB2-1 at 1ug/L and meets SAC.

Total petroleum hydrocarbons (C₆-C₁₀ and C₁₀-C₁₆) were detected in Sample MB3-1 below SAC. Silica gel clean-up of this sample resulted in the C₁₀-C₁₆ fraction not being detected, supporting the hypothesis that the source is naturally occurring and not the result of residual impact to groundwater from AEC 4. The interface probe did not detect any free phase liquids associated with groundwater.

As Bore 1 did not connect with groundwater, we were unable to calculate groundwater flow direction, which is expected to be northerly towards Millar Vale Creek. Groundwater levels recorded in Bores 2 and 3 support a northerly flow (and likely detection within Bore 2 of any historical point source detected by Bore 3) as follows:

- Bore 2 standpipe top of casing – 515.253mAHD, depth to groundwater was 12.73mbgl – groundwater level of 502.52mAHD.

- Bore 3 standpipe top of casing – 518.147m AHD, depth to groundwater was 12.33mbgl – groundwater level of 505.817m AHD.

We note that the *DES 2019, Healthy Waters Management Plan (HWMP): Condamine River Basin Water Quality Target Values (WQTV's)* form a large portion of the groundwater SAC implemented by this assessment, with relatively low criteria values often below the laboratory LOR achieved.

Most of the primary laboratory LOR's for OC/OP pesticides are 0.5ug/L (or otherwise 2ug/L) that exceed many of the Fresh Water GIL's and WQTV's. This means that it is possible for pesticides and some heavy metals to be present above some individual criteria, but not detected due to the higher laboratory LOR. The analysis undertaken was "standard level", however, even the "ultra-trace" and "super-trace" analysis methods offered by the primary laboratory (ALS) with an LOR down to 0.001ug/L would be insufficient to allow comparison with some of the WQTV's (based on ANZECC 2000 Table 3.4.1) such as for Diazinon (0.00003ug/L), Chlorpyrifos (0.00004ug/L) and Parathion (0.0007ug/L).

The WQTV values are stated to have been developed (HWMP Section 10.2.6) based on identification of aquifer types, which are based on the clustering of zones of similar water chemistry. Sub-aquifer chemistry zones were further defined within each aquifer to allow development of water quality targets representative of local groundwater conditions. In this regard, it is noted that these aquifers are believed to be either deeper or outside of the spatial extent of the Maryvale Site and assessed surficial aquifer, with registered abstraction bores adjacent to the Site sourcing groundwater from greater depths than the installed monitoring bores.

The HWMP states that ANZECC Guidelines recommend that the highest level of protection should be provided to underground aquatic ecosystems, given their high conservation value. The stated management intent for groundwater is to maintain the existing water quality distribution....trigger values for freshwater for pesticides, heavy metals and other toxic contaminants that protect 99% of species must not be exceeded. In response to the gap between certain LOR's and SAC, we note the results of the groundwater assessment are considered acceptable given:

- The absence of any identified significant soil contamination at the Site that may leach to surficial or discontinuous groundwater and then attenuate vertically or laterally to more significant aquifers named within the HWMP,
- No areas of ecological significance on or adjacent to the Site,
- Majority of analytes other than petroleum hydrocarbons and certain heavy metals were not detected within groundwater samples, with respect to applied LOR's, and
- All groundwater results are well under drinking water SAC.

11.5. NOTIFIABLE ACTIVITIES

With regards to the EMR listing of the Site for cattle dips/spray race, neither site history investigation, walkover or intrusive sampling provided any indication of a cattle dip or spray race being located on Site. Additionally, targeted sampling around the current cattle yard did not detect any contamination associated with a cattle dip or spray race. It is considered likely that the listing of the Site on the EMR for a cattle dip/spray race was completed in error and is not applicable for the Site, however, the land has been used for the notifiable activity of railway yards.

In order to remove the Site from the EMR however, the Site must be deemed suitable for any use, and, in addition to chemical contamination, aesthetic issues also need to be considered. The presence of shallow ash fill observed in four locations at the Site is not considered an aesthetic issue due to

predominately having been mixed with other soil materials and lack of any widespread or gross inclusions, and therefore not a limitation in removing the Site from the EMR.

11.6. REVISED CSM AND ASSESSMENT OF SITE CONTAMINATION RELATED RISK

Based upon the assessment findings, the CSM originally presented in Section 7 has been revised and is presented in Image 10 below.

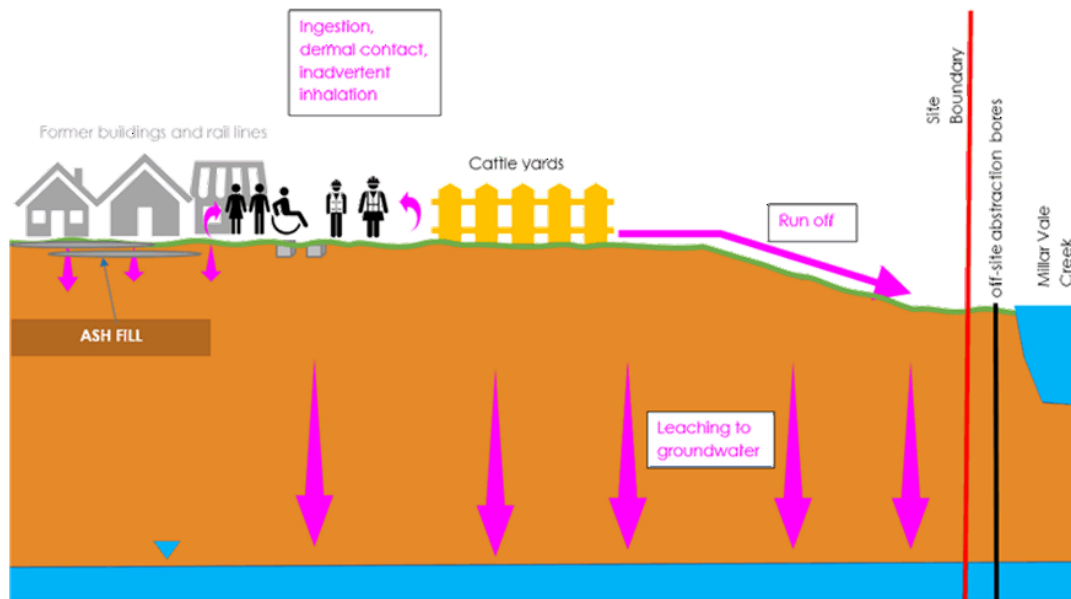


Image 10 Revised Conceptual Site Model

As outlined in Section 2.1 for this assessment the Site Contamination Risk Equation (Risk Equation) is used:

$$\text{Source} \times \text{Pathway} \times \text{Receptor} = \text{Risk}$$

Each variable can have the following values:

1 = Exists

0 = Does not exist

If any of the variables have a value of 0 then the Risk is also 0 or low risk

The Risk Equation simply determines if a risk is present and not the magnitude of the risk (in terms of consequence or likelihood). In practical terms it is not possible to assess source related hazards to a level where they can be stated as being non-existent and some residual hazard that may result in a risk may remain. Non-existent is intended to mean low risk.

The following potential risk sources (AEC, refer to Table 6) were investigated and their condition at the completion of the investigation is summarised below.

Table 16 Risk Equation Summary

AEC	Potential Hazardous Contaminant Source	Source Value	Complete Pathway	Pathway Value	Receptors	Receptor Value	Resultant Risk
1 Former rail lines	No residual soil contamination at concentrations above SAC	0	All pathways	1	All human and ecological	1	Low
2 Former Shelters Shed, platform and loading bank	Some residual contamination above SAC in ash but not statistically significant and meets aesthetic SAC	0	All pathways	1	All human and ecological	1	Low
3 Former Goods shed and platform	No residual soil contamination at concentrations above SAC	0	All pathways	1	All human and ecological	1	Low
4 Former Tank, Ash Pit and Engine Shed	No residual soil contamination at concentrations above SAC	0	All pathways	1	All human and ecological	1	Low
5 Former Quarters	No residual soil contamination at concentrations above SAC	0	All pathways	1	All human and ecological	1	Low
6 Cattle yards	No residual soil contamination at concentrations above SAC	0	All pathways	1	All human and ecological	1	Low
7 Groundwater	No groundwater impact detected at levels considered to be of concern	0	All pathways	1	All human and ecological	1	Low

Based on the performed assessment and results of the sampling and analysis, the Site is considered suitable for any use.

12. CONCLUSIONS AND RECOMMENDATIONS

Southern Downs Regional Council engaged Environmental Advisors Pty Ltd to undertake a contaminated land investigation of soil and groundwater for the Maryvale Rail Reserve (Lot 68 CP900445) with the objective of removing the Site from the Environmental Management Register (EMR). The investigation has been reported herein, comprising a Contaminated Land Investigation Document as defined by the *Environmental Protection Act 1994*.

The Site has an area of around 5.2 hectares and is listed on the EMR due to two historical Notifiable Activities, being *Railway Yards* and *Livestock Dip or Spray Race*.

The investigation found no confirmatory evidence that a Livestock Dip or Spray Race was present, with EMR listing based on advice from the Queensland Railways Workshops Rail Museum that such a dip or spray race was often associated with similar Railway Yards.

The Site was used as the Maryvale Railway Station that commenced construction in 1909 and operated from 1911 to around 1964, with most infrastructure removed by the late 1960's except for the railway scale that remains located within the footprint of the former Goods Shed. At the time of inspection, the Site was vegetated with grass and contained, in addition to the scale, the post-railway structures of an abandoned windmill and a cattle yard constructed between 1989 and 1993 (based on aerial photographs review).

The general location of the former railway line is discernible in the central and eastern part of the Site, as well as the earthen (cut and filled) platforms in the areas of the former shelter sheds, good sheds and the railway line footprint over the western part of the Site.

Surrounding the Site is the rural town and locality of Maryvale, with Millar Vale Creek located approximately 500m to the north and running east to west. Whilst no registered bores or known abstraction is directly associated with the Site, approximately 25 registered groundwater bores are located within a 500m radius associated with residential land use and may be used for agricultural or potable purposes. There were no significant sources of off-site contamination that would be expected to impact the Site, although it is noted that the Council sewage treatment plant is located approximately 600m south.

With respect to potential on-site sources of contamination, seven Areas of Environmental Concern (AEC) were identified, five of these as a result of the former railway usage, an additional one associated with cattle yards, plus potential for groundwater impact:

1. Former rail lines and surrounding area,
2. Former shelters shed, platform and loading bank (with ash fill),
3. Former goods shed and platform,
4. Former above-round tank, possible ash pit (not identified) and engine shed,
5. Former quarters (house),
6. The cattle yards currently located on Site (potential for a cattle dip or spray race), and
7. Potential for groundwater impact from the above sources leaching contamination into the soil and underlying groundwater resources.

A sampling and analysis plan was designed to target potential soil contamination at each of the AEC as well as assess background soil and groundwater conditions via installation of three groundwater monitoring bores and one round of sampling from two of the wells (the third was "dry"). The soil

assessment involving excavation of 88 test pits, 23 of which were used to delineate the area of surficial ash detected at AEC 2.

Most of the Site has topsoil overlying silty clay with basalt gravels and cobbles. Basalt was encountered two metres (m) below ground level at the location of groundwater monitoring bore MB1, which was drilled to refusal at a total depth of 13.7m below ground level (bgl) and subsequently found to not be in connectivity with groundwater. The remaining monitoring bores MB2 and MB3 encountered basalt rock from 16mbgl to 18mbgl and intercepted groundwater around 11.5 to 12mbgl.

Fill was encountered in some locations across the Site with base of fill depths ranging from 0.05 to 1.2mbgl. The fill was generally homogeneous in nature and appeared to comprise:

- Material won as part of cut and fill such as for construction of earthen platforms, levelling for rail lines or rehabilitation following removal of rail line in some locations,
- Light pink/pink and orange silty clay likely to be the former rail line basecourse, and
- Grey ash likely sourced from steam locomotives, identified in discontinuous layers from the surface to 0.45mbgl associated with AEC 2 and containing some minor coal inclusions but with no other foreign material, discolouration or odour.

Laboratory analysis of selected samples was undertaken for a range of potential contaminants of concern, namely Heavy Metals, Organochloride and Organophosphorus Pesticides, Polycyclic Aromatic Hydrocarbons, Phenols, Total Recoverable Hydrocarbons, Per and Poly Fluoroalkyl Substances, Asbestos, Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene.

The majority of laboratory results for soil and groundwater samples were either below site assessment criteria or the laboratory limit of reporting. Associated with ash, there were two exceedances of heavy metals above criteria, the first for copper and the second for lead. An additional two samples associated with topsoil and silty clay exceeded benzo(a)pyrene criteria. Based upon a review, these results were not considered statistically significant such as to warrant further investigation.

Based on the performed investigation the Site is not prescribed contaminated land, is considered suitable for any use from a contaminated land perspective, and is recommended to be removed from the EMR.

13. SITE SUITABILITY STATEMENT

The land described as Lot 68 on CP900445 is not contaminated land and is suitable for any use, including Land Use A (residential with garden/accessible soil; childcare centres, preschools, and primary schools with access to soil) and all sensitive land uses listed in Schedule 24 of the Planning Regulation 2017, on the basis that this contaminated land investigation document has established that:

1. the land is not being used for a notifiable activity, and
2. the land is not affected by a hazardous contaminant, and
3. the land is not prescribed contaminated land, and
4. an appropriate assessment of site contamination has been conducted in accordance with Schedule A, B1, B2, B3, B5a/b/c and B6 of the contaminated land NEPM, having regard to relevant provisions of the EP Act, the Environmental Protection (Water) Policy 2009, and DES's *Guideline: Listing and removing land on the land registers (ESR/2016/2044)*.

14. LIMITATIONS

This report has been prepared by Environmental Advisors Pty Ltd for Southern Downs Regional Council (Client) and may only be used and relied on for the purpose agreed between Environmental Advisors Pty Ltd and the Client. The services undertaken by Environmental Advisors Pty Ltd in preparing this report were limited to those specifically detailed herein and are subject to the agreed scope and the stated limitations.

Third-party information contained within this report remains the responsibility of the third-party and not Environmental Advisors Pty Ltd. We do not accept liability for errors or omissions in third-party information, and disclaim liability arising from use of third-party information and any assumptions being incorrect in connection with the conclusions, recommendations and opinions of the report.

Subject only to any contrary nonexcludable obligations we are not responsible to any party requesting the report, including any consequences of its use or application (whether in part or whole) and do not provide any assurance or warranty as to the accuracy or suitability of the report for any particular purpose or application.

Report conclusions, recommendations and opinions are based on observed conditions at limited Site locations and sample points, at the time of works. Conditions at other parts of the Site may be significantly different from those observed, and may change over time, including those observed at the time of works. In addition, Site conditions may pose constraints such as the nature and location of buildings, services and vegetation. As a result, not all relevant Site features and conditions may have been identified by the report.

Environmental Advisors has no obligation or responsibility to update this report to account for Site constraints, sampling limitations, events or changes occurring subsequent to the date that the report was prepared.

Where the stated purpose of the original commission included preparation of the report for statutory audit it may be used and relied upon by the Auditor and the Queensland Department of Environment and Science for the purpose of fulfilling their duties under the Queensland Environmental Protection Act 1994. Where no such express purpose formed part of the commission, Environmental Advisors Pty Ltd does not warrant that the report is suitable for statutory audit and is not responsible for any additional works that may be recommended or otherwise result from review by an Auditor, Regulator or other third-party.

The assessment undertaken by Environmental Advisors Pty Ltd and its agents is by necessity based on limited observations and assessment of discrete surface and subsurface Site locations. Despite reasonable care and diligence, observed ground conditions and concentrations of contaminants measured may not be representative of conditions between the testing locations. In addition, observed Site conditions may change at any time due to chemical reactions, natural environmental processes or other man-made or natural events.

Due to the inherent uncertainties in subsurface evaluations, changes or unanticipated Site conditions may occur that could materially affect the validity of this report or any subsequent project costs or execution that relies upon the report. Environmental Advisors Pty Ltd does not accept responsibility due to or arising from any changes from observed Site conditions, including updating this report.

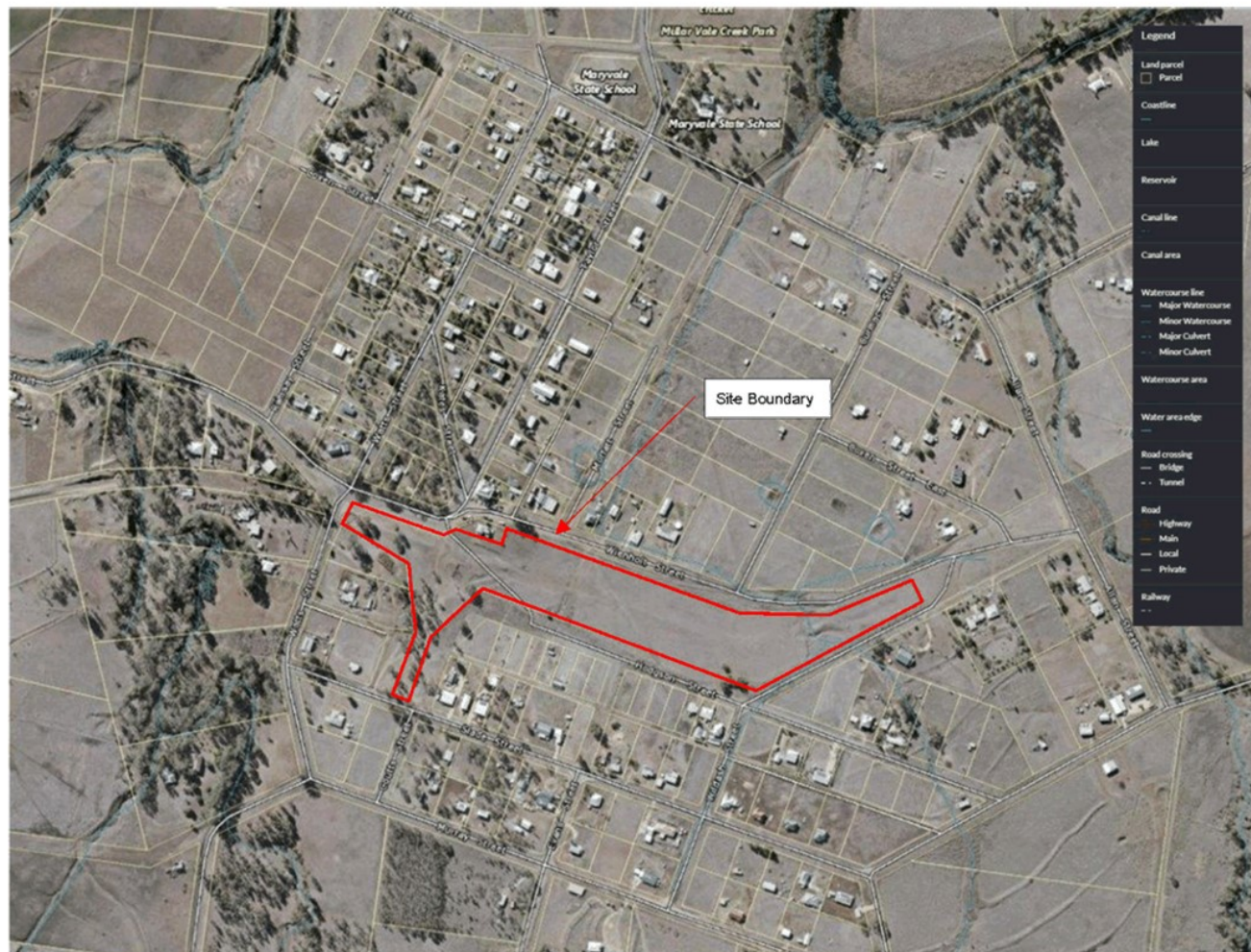
15. REFERENCES

- Australian and New Zealand Environment and Conservation Council (ANZECC) 2000, Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
- National Environment Protection Council (NEPC), 1999, as amended 2013. National Environment Protection (Assessment of Site Contamination) Measure (NEPM).
- Queensland Government. Environmental Protection Act, 1994.
- DES, 2019. Healthy Waters Management Plan: Condamine River basin. Brisbane: Department of Environment and Science, Queensland Government.

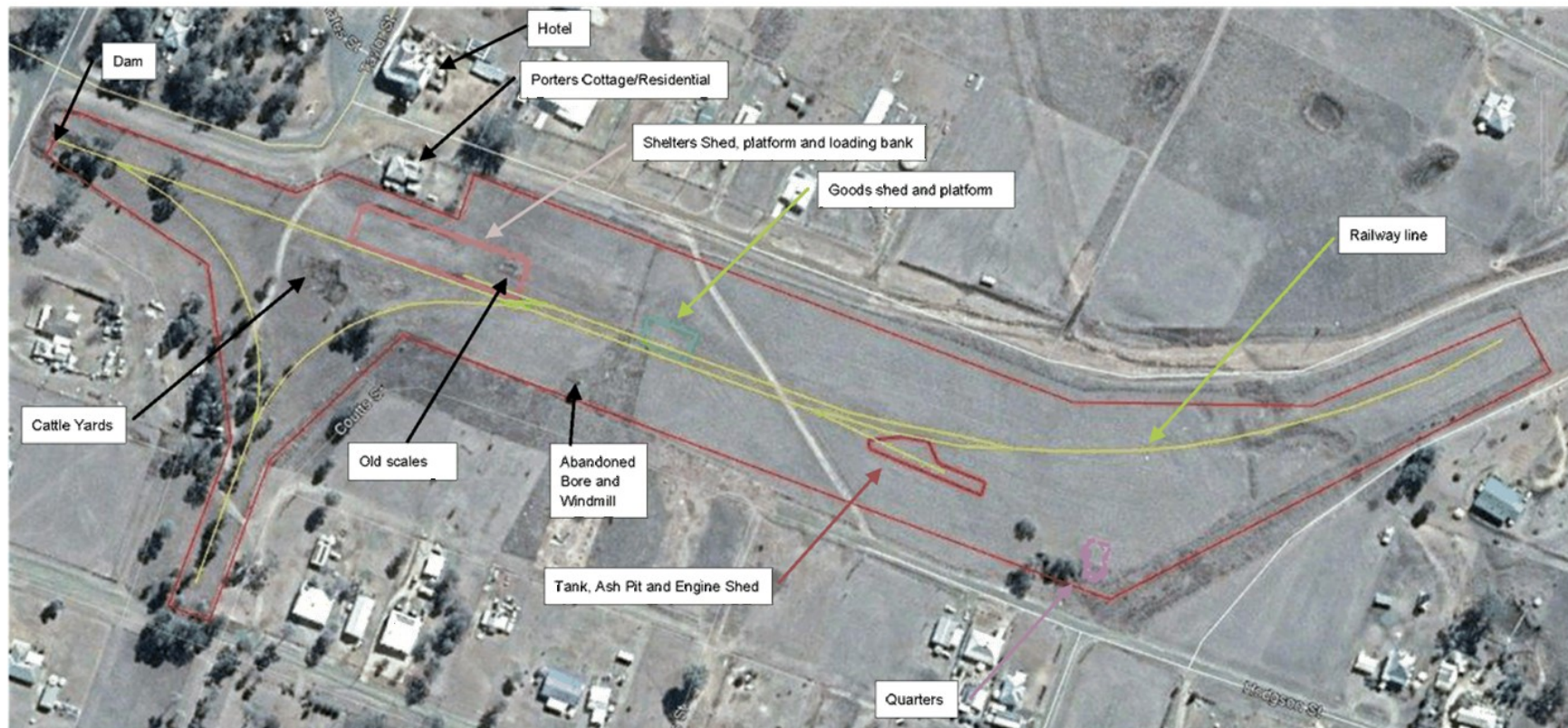
Further specific references are provided either by footnote or in the Report text.

Appendix A

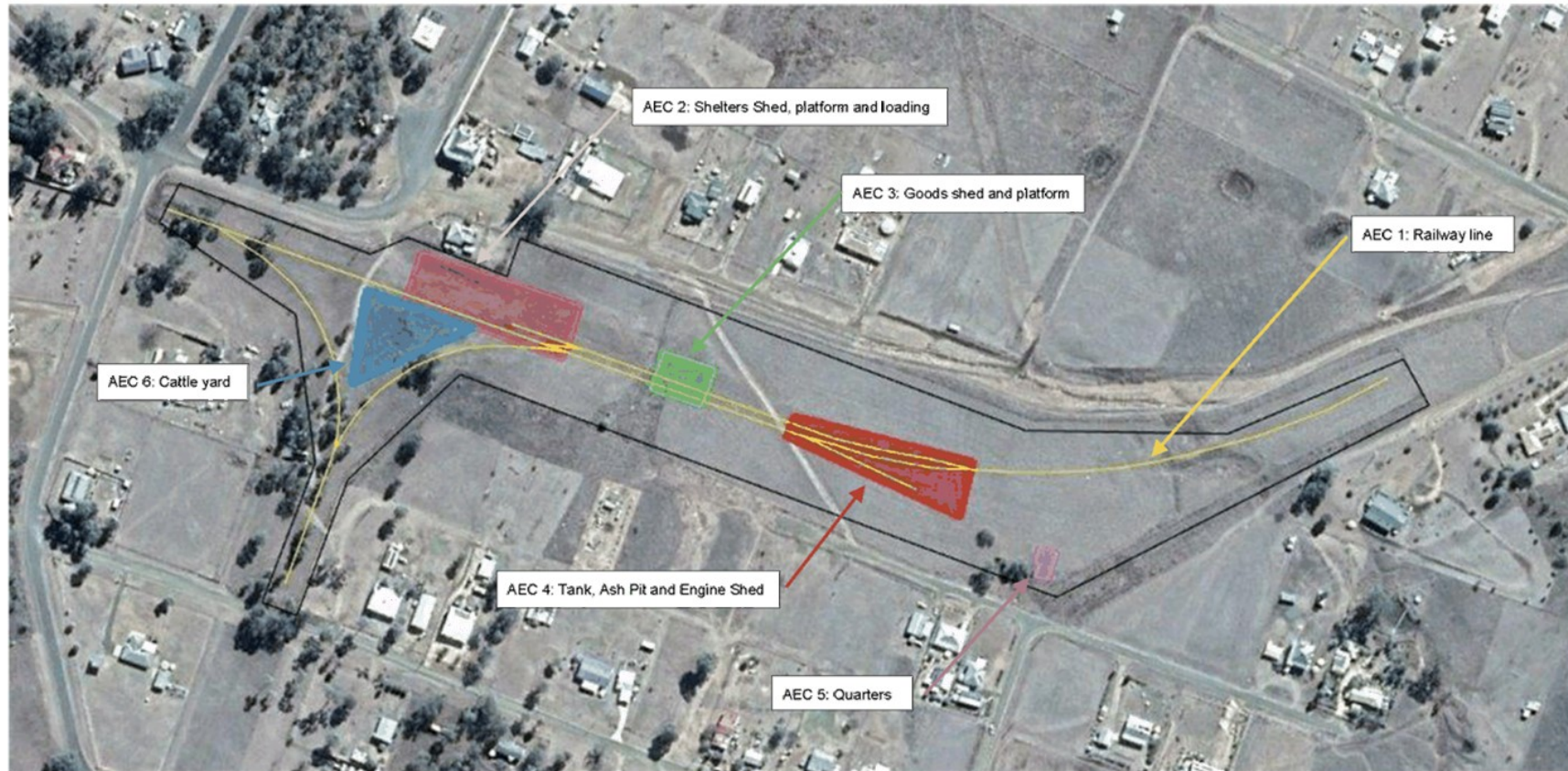
Drawings



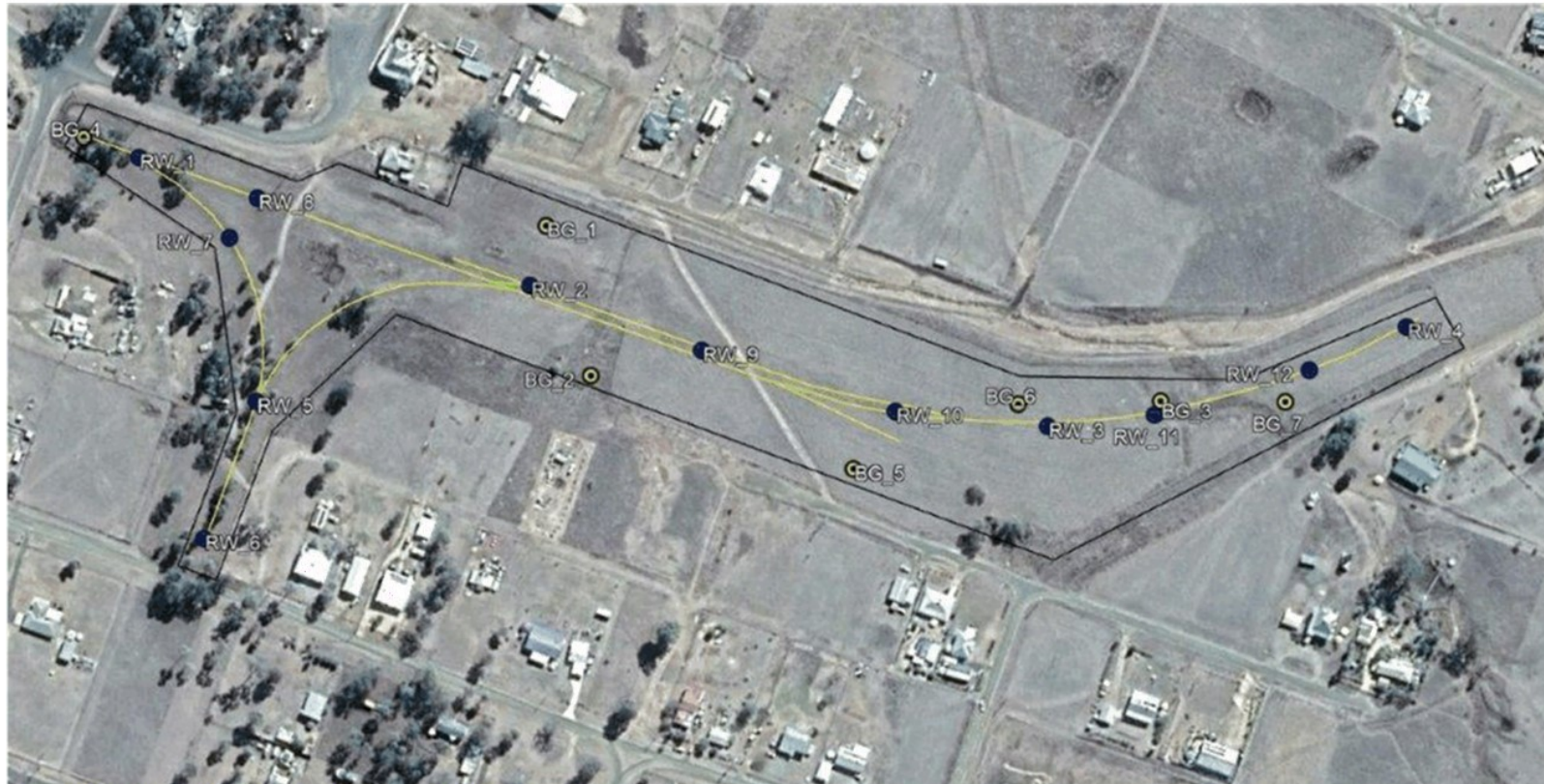
Drawing 1: Site and Surrounds



Drawing 2: Locations of former Railway line and Station Buildings



Drawing 3: AEC Locations



Drawing 4: AEC 1: Former Railway Line and Background Test Pit Locations



Drawing 5: AEC 2: Former Shelters Shed, platform and loading bank Test Pit Locations



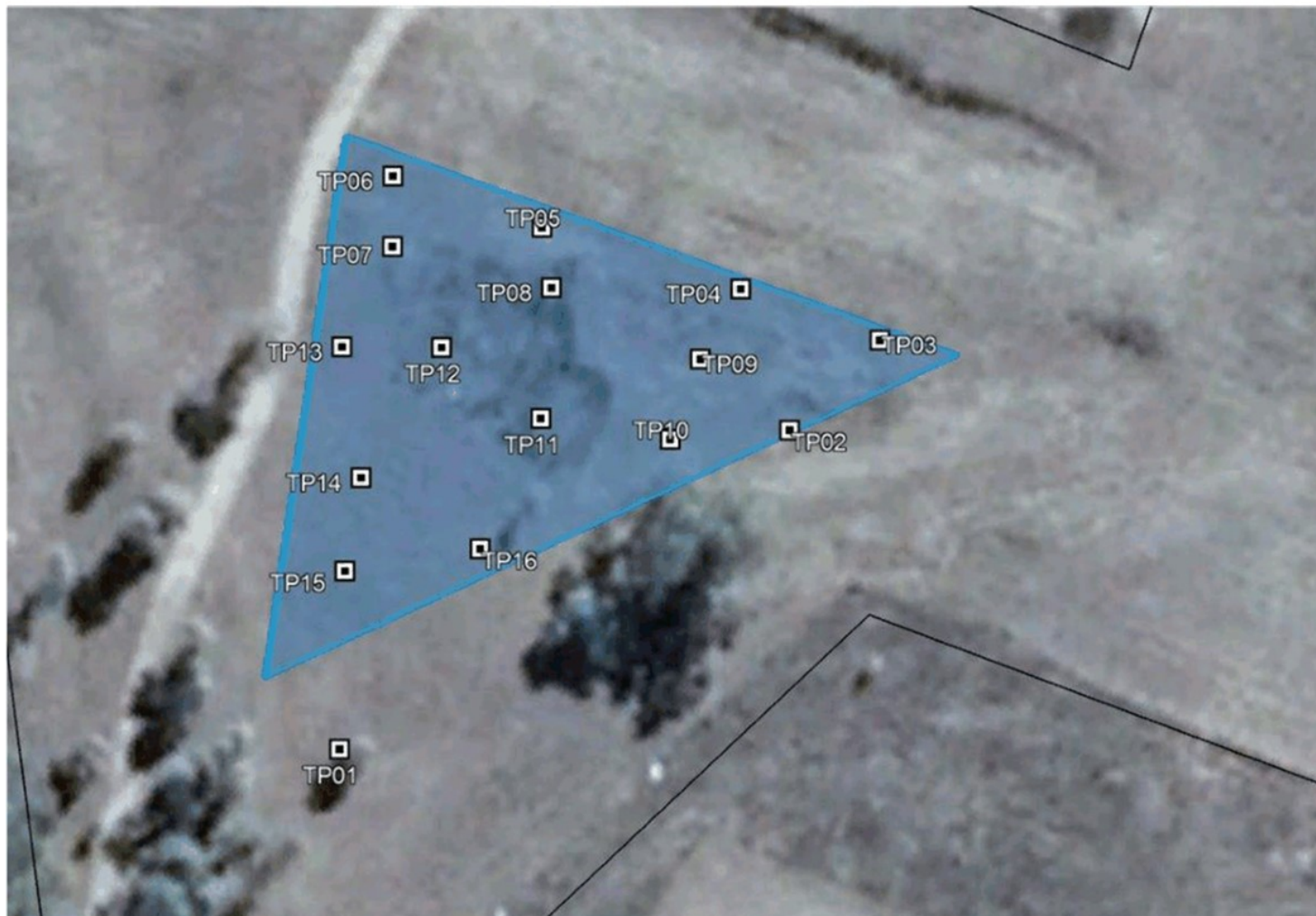
Drawing 6: AEC 3: Former Goods shed and platform Test Pit Locations



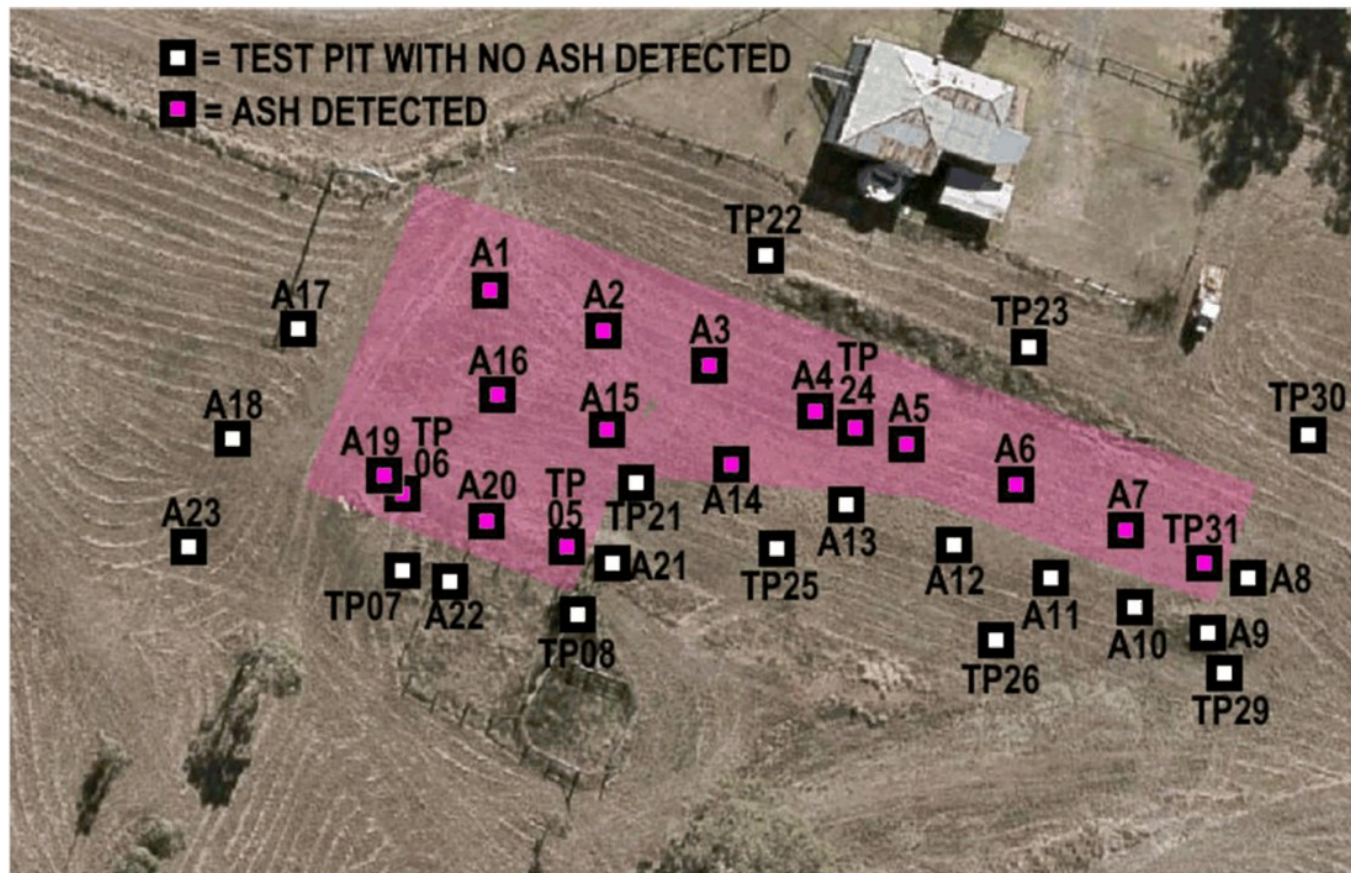
Drawing 7: AEC 4: Former Tank, Ash Pit and Engine Shed Test Pit Locations



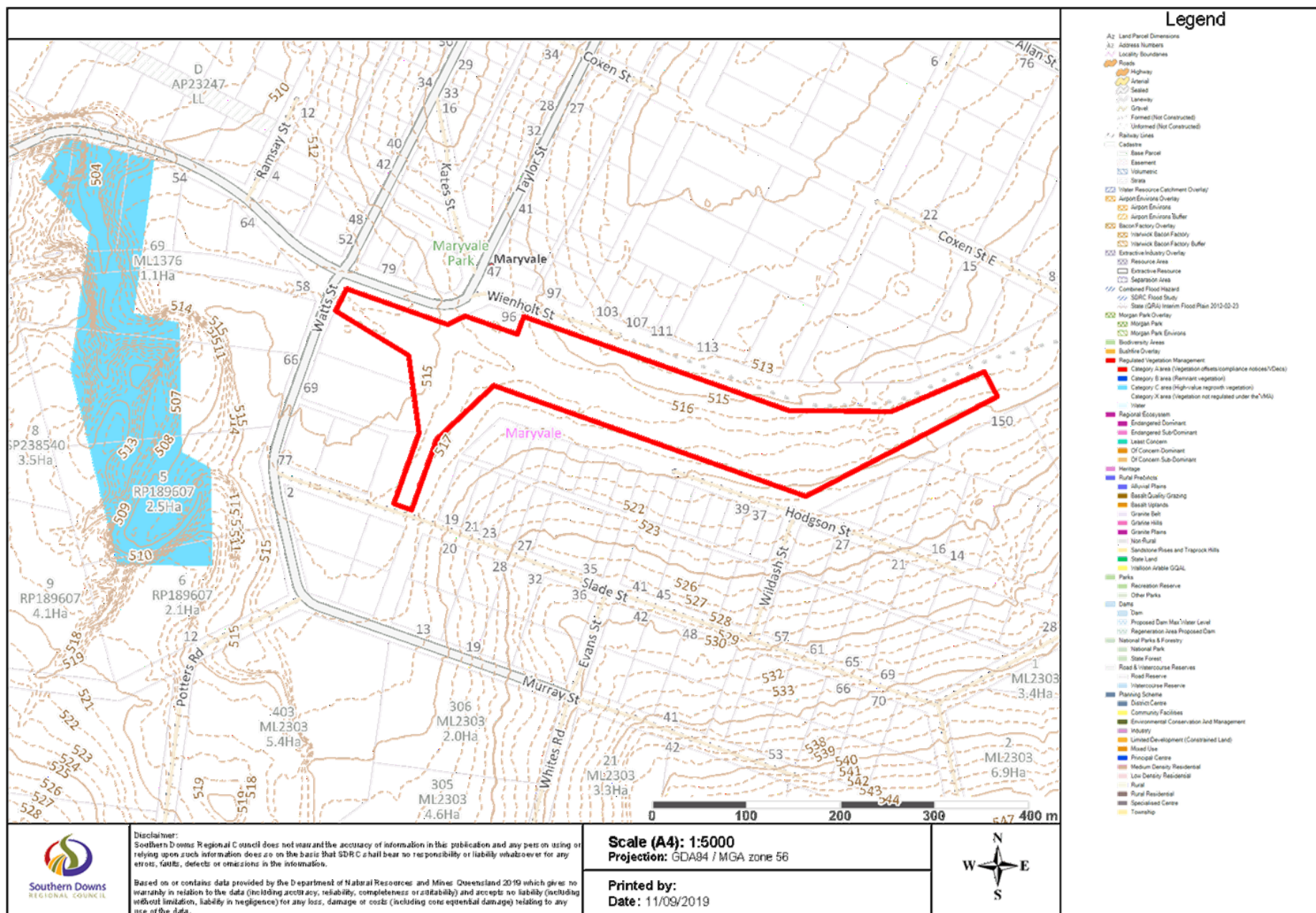
Drawing 8: AEC 5: Former Quarters Test Pit Locations

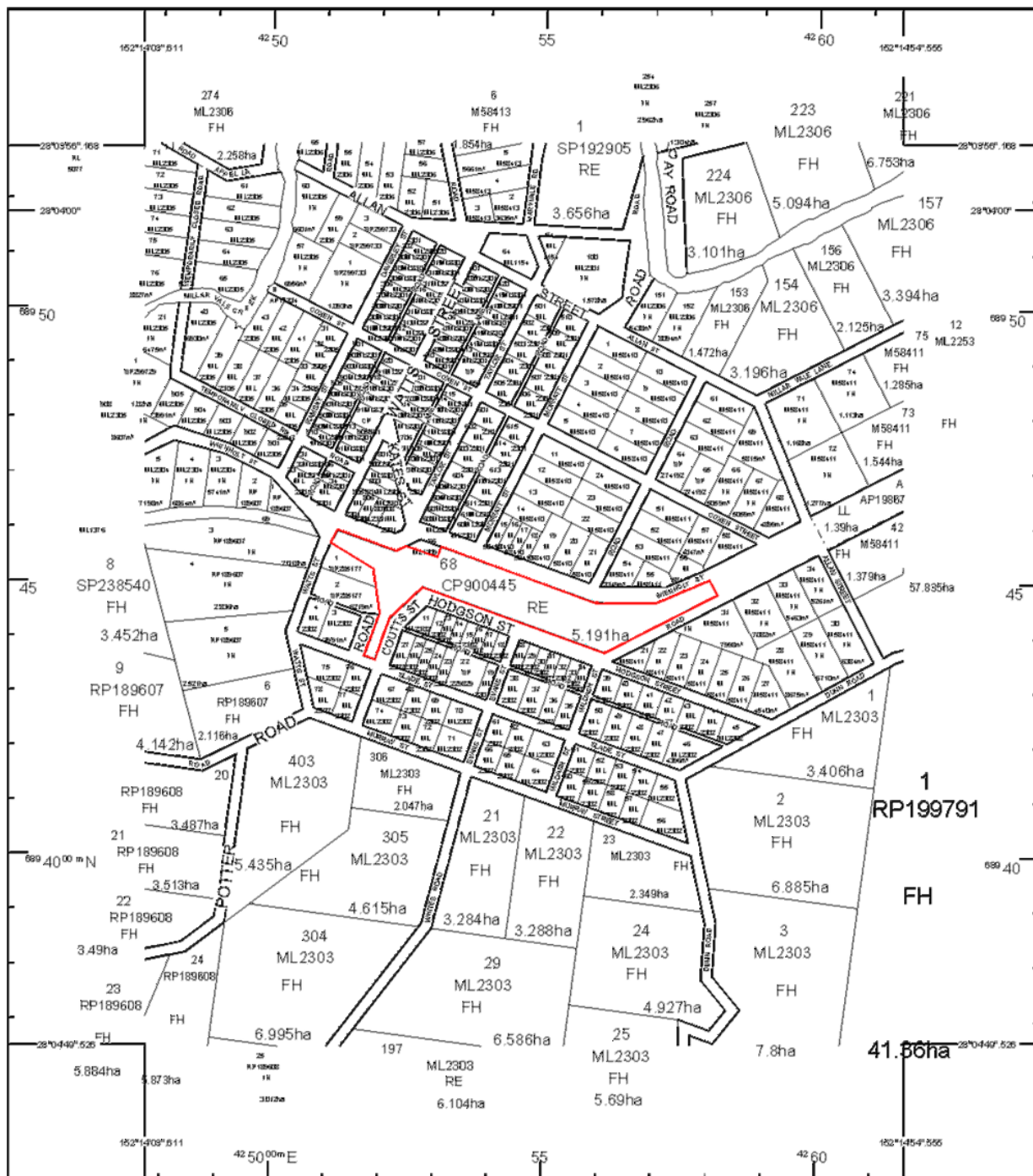


Drawing 9: AEC 6: Cattle yards Test Pit Locations



Drawing 10: Ash Delineation (Test Pits A1 to A23) with other selected previous Test Pits as part of ash delineation assessment





STANDARD MAP NUMBER
9341-41211

MAP WIND OVE POSITION &
NEAREST LOCATION



SUBJECT PARCEL DESCRIPTION

DCDB
LofPlan
Area/Vol/line
Tenure
Local Government
Locality
Segment/Parcel
08/C P000445
5.191ha
RESERVE
SOUTHERN DOWNS REGIONAL
MARYVALE
10900207

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 11/09/2019

DCDB 1009/2019

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Digital Cadastral Data Base



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Natural Resources,
Mines and Energy) 2019.



Appendix B

Current and Historic Titles



ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Report

Address: - Wiseholt Street, Maryvale, Qld

Description: - Lot 68 CP 900445

The title information prior to Volume 7594 Folio 119 will need to be obtained from any Regional Office of DNR

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) & Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
07.01.1964 (1964 to 1976)	George Peter Wilkinson (Special Lease for the purpose of Manufacturing, Industrial, Residential or Business Purposes – Special Lease No. 28061)	Vol 7594 Fol 119
15.01.1976 (1976 to 1983?)	Kevin Harold Servin Mary Gwen Servin (Married Woman)	Vol 7594 Fol 119
08.05.1983? (1983 to 1996?)	Kevin Harold Servin	Vol 7594 Fol 119
19.01.1996 (1996 to date)	# Southern Downs Regional Council (Reserve for Sport and Recreation)	Gazette Now 49100245

Denotes current registered proprietor

Leases and Easements: - NIL

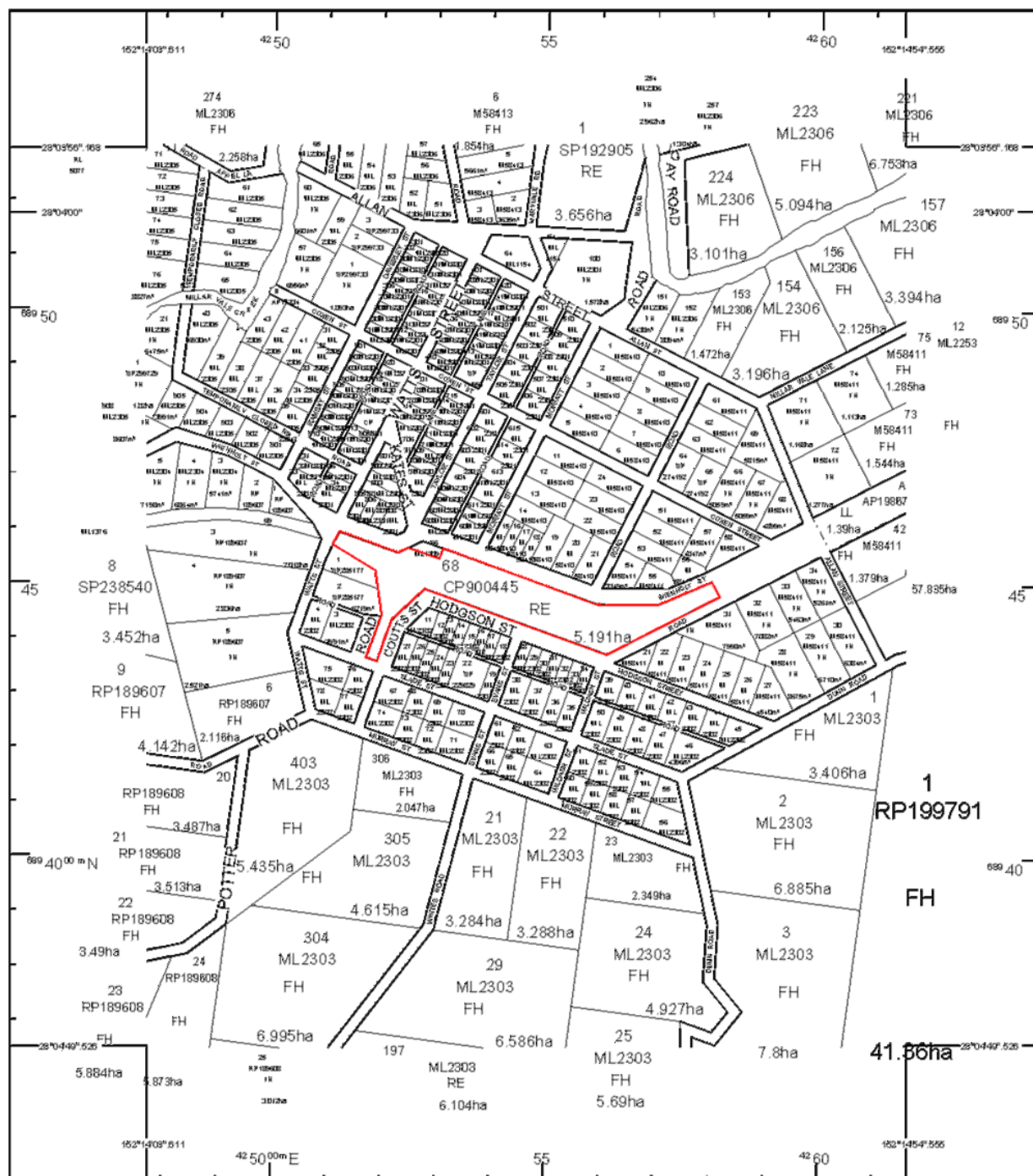
Trustee Permit: -

- 14.12.2004 (2004 to 2007) to Geoffrey Allan Grant & Sonya Violetta Grant
- 01.11.2007 (2007 to 2010) to Carle Edney

Yours Sincerely,
Mark Groll
21 November 2019

Email: mark.groll@infotrack.com.au

1

STANDARD MAP NUMBER
9341-41211

MAP WINDOW POSITION & NEAREST LOCATION



SUBJECT PARCEL DESCRIPTION

CLIENT SERVICE STANDARDS

DCDB	
LoPPlan	08/C P000445
Area/Voltime	5.191ha
Tenure	RESERVE
Local Government	SOUTHERN DOWNS REGION
Locality	MARYVALE
Segment/Parcel	10000/007

PRINTED (dd/mm/yyyy) 11/09/2019

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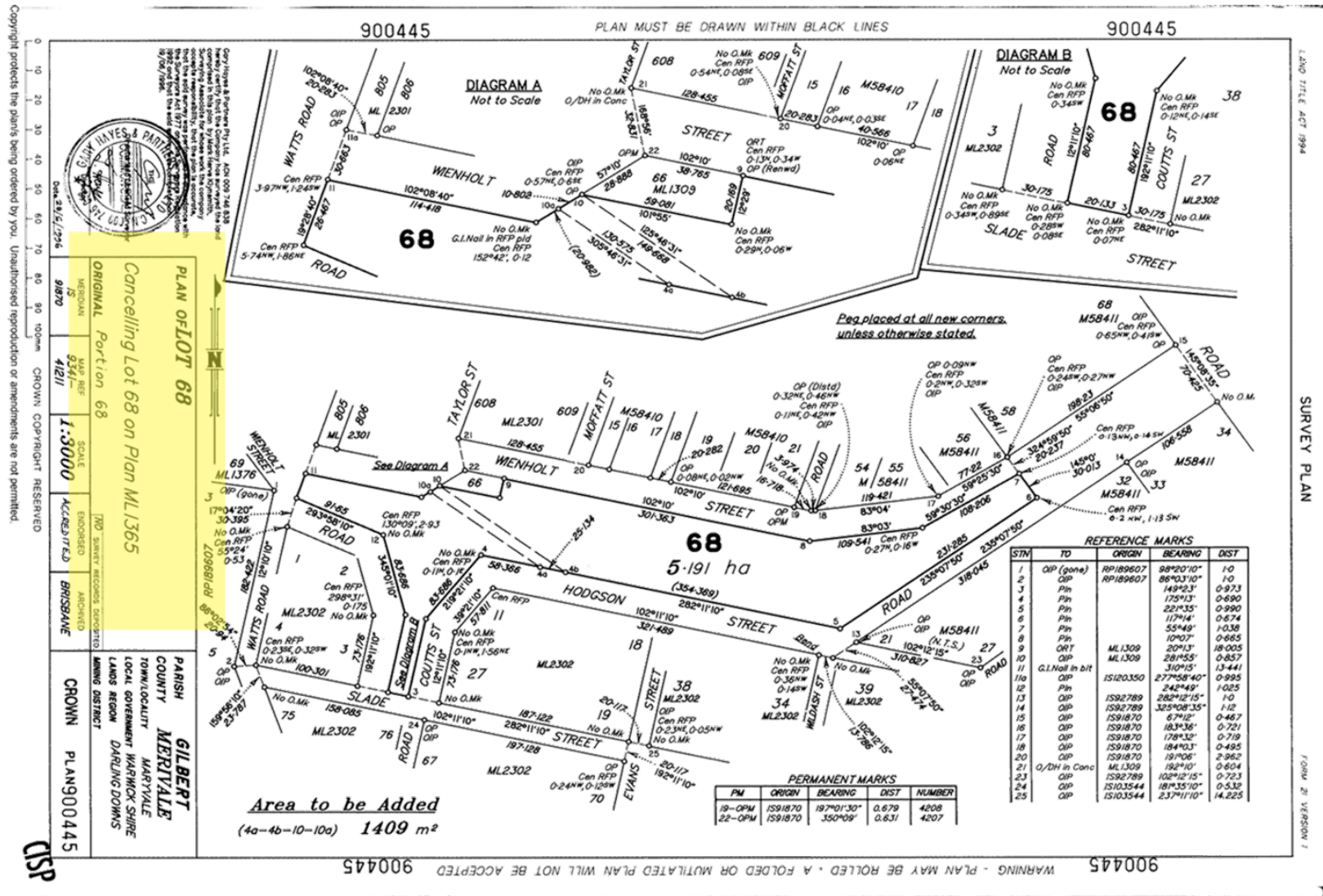
SmartMap

An External Product of
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Based upon an extraction from the
Digital Cadastral Data Base



**Queensland
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(Department of
Natural Resources,
Mines and Energy) 2019.



WARNING - PLAN MAY BE ROLLED - A FOLDED OR MUTILATED PLAN WILL NOT BE ACCEPTED

<p style="text-align: center;">(Dealing No.)</p>	<p>Lodged by</p> <p>(Include address, phone number and reference)</p> <p>Particulars entered in the Register on the Titles listed below,</p>													
<p>I/We</p> <p>(Names in full)</p> <p>* As Registered Owner of this land * As Lessee/s of Miners Homestead agree to this Plan, # and dedicate the Public Use Land as shown hereon in accordance with Section 50 of the Land Title Act 1994.</p> <p>Signature of * Owner/s * Lessee/s</p> <p>* Rule out whichever is inapplicable # NOTE: A Lessee of a Miners Homestead is unable to dedicate Public Use Land.</p> <p>* certifies that all the requirements of this Council, the Local Government Act 1993, the Local Government (Planning and Environment) Act 1990 and all Local Laws, # and the City of Brisbane Act 1924 and all Ordinances thereunder, have been complied with and approves this plan of Subdivision, SUBJECT TO</p> <p>Dated this day of 19 </p> <p style="text-align: right;">Mayor # Appointed Officer Chief Executive Officer</p> <p>* Insert the name of the Local Government # Delete for Local Governments other than the City of Brisbane</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Title Reference</th> <th style="width: 50%;">Description</th> </tr> <tr> <td colspan="2" style="height: 300px;"></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: fit-content;"> <p>For Additional Plan & Document Notings Refer to CISP</p> </div>	Title Reference	Description											
Title Reference	Description													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%;">SURVEY EXAMINATION</th> <th style="width: 25%;">ORIGINAL GRANT</th> <th style="width: 25%;">CHARTING</th> <th style="width: 25%;">LODGEMENT FEES</th> <th style="width: 20%;">REFERENCES</th> </tr> <tr> <td>Exam. Fee \$ 115.00 Receipt No. 912082 Date 22/07/1996 Deposited 22/07/1996 Examined 28/6/96 Passed 28/6/96</td> <td></td> <td>Charted</td> <td>Survey Exam \$ Lodg. Exam & Ass \$ New Titles \$ Photocopy \$ Postage \$ TOTAL \$</td> <td>Lands File TC 95/14259 Local Government Reference Surveyors Reference W 2526</td> </tr> </table>	SURVEY EXAMINATION	ORIGINAL GRANT	CHARTING	LODGEMENT FEES	REFERENCES	Exam. Fee \$ 115.00 Receipt No. 912082 Date 22/07/1996 Deposited 22/07/1996 Examined 28/6/96 Passed 28/6/96		Charted	Survey Exam \$ Lodg. Exam & Ass \$ New Titles \$ Photocopy \$ Postage \$ TOTAL \$	Lands File TC 95/14259 Local Government Reference Surveyors Reference W 2526	<p>CROWN PLAN 900445</p>			
SURVEY EXAMINATION	ORIGINAL GRANT	CHARTING	LODGEMENT FEES	REFERENCES										
Exam. Fee \$ 115.00 Receipt No. 912082 Date 22/07/1996 Deposited 22/07/1996 Examined 28/6/96 Passed 28/6/96		Charted	Survey Exam \$ Lodg. Exam & Ass \$ New Titles \$ Photocopy \$ Postage \$ TOTAL \$	Lands File TC 95/14259 Local Government Reference Surveyors Reference W 2526										

17594119 V0 See ATS for Status Page 1 of 4

7594/119

64/991

VOL. 7594 FOL. 119

Special Lease No. 28061

VOL. S 7594 FOL. 119



QUEENSLAND



17594119

Lease for Special Purposes, under Section 198-1(a) of
"The Land Acts, 1962 to 1963"

Elizabeth the Second, by the Grace of God, of
the United Kingdom, Australia, and Her
other Realms and Territories, Queen, Head
of the Commonwealth, Defender of the Faith:—

To All to whom these Presents shall come, Greeting:

Whereas GEORGE PETER WILKINSON

has made application for a lease under the provisions of Section 198-1(a) of "The Land Acts, 1962 to 1963" (hereinafter referred to as "the said Acts") of the Land hereinafter described: AND WHEREAS the Governor of Our State of Queensland, with the advice of the Executive Council thereof, has granted such application, and has agreed to issue a Lease of the said Land in Our name for the term, at the rent, and upon, and subject to the conditions hereinafter mentioned: NOW KNOW YE that in consideration of the premises, and of the rent, reservations, and conditions hereinafter reserved and contained, WE, in pursuance of the said Acts,

DO HEREBY for Us, Our Heirs and Successors, Demise and Lease unto the said GEORGE PETER WILKINSON

(hereinafter with his Successors in title

designated "the Lessee"), and his lawful Assigns, for Manufacturing, Industrial,

Residential or Business Purposes

ALL that parcel of Land particularly described in the First Schedule endorsed on these Presents TO HOLD

the same unto the Lessee and his lawful Assigns for and during the term of thirty

years, to be computed from the seventh day of January, One thousand

nine hundred and sixty-four with, under, and subject to the terms, conditions, provisions,

exceptions, reservations, provisos, penalties, and forfeitures hereinafter particularly mentioned or referred to, or contained in or prescribed by the said Acts, and to the conditions, reservations, and provisos in "The Mining on Private Land Acts, 1909 to 1956," and "The Petroleum Acts, 1923 to 1962," or any Regulations made or which may hereafter be made under the aforesaid Acts, or any of them: YIELDING AND PAYING unto Us, Our Heirs and Successors, subject to the provisions of the said Acts during the said term the

yearly rent of Twenty-one pounds:

such rent to be paid at the Office in Brisbane of the Department of Lands, or at any District Land Office, in Our said State, or at such other place as may from time to time be appointed by the Governor of Our said State in Council, on or before the First day of January in each and every year of the said term: AND IT IS HEREBY EXPRESSLY DECLARED AND AGREED that the Lessee shall not in any way assign or sublet the said Land, or any part thereof, or grant to any person the right of occupation or tenancy to, over, or upon the said land, or any part thereof, or of any structure or building erected thereon, without the consent in writing of the Minister for Lands for the time being of Our said State first had and obtained: AND IT IS ALSO DECLARED AND AGREED and these Presents are upon the express condition, that the Lease hereby granted shall be subject to the conditions set forth in the Second Schedule endorsed hereon: AND that if the Lessee make default in payment of the rent hereby reserved, or any part thereof, at the times and in the manner herein prescribed, or fail to observe and perform the terms, stipulations, agreements, and conditions herein and in the Second Schedule contained or referred to, or any of them, then, and in such case, this Lease shall be liable to be forfeited. AND IT IS FURTHER DECLARED AND AGREED that the term hereby created may at any time be determined upon six months' previous notice in writing being given by or on behalf of the said Minister for Lands to the Lessee, or his lawful Assigns, and that in such case the Lessee shall be entitled to receive the value of any permanent improvements made

DWS:pts £30.0.0

22/6

JUN-10-64

83461 DISC

DUTY STAMP

1500 ADJUT 120000.0.0

CHIEF CLERK, DEPT. OF LANDS

7594/119

upon the said Land by him AND WE DO HEREBY RESERVE unto Us, Our Heirs and Successors, all such parts and so much of the said Land as may hereafter be required for making Public Ways, Canals, or Railroads in, over, and through the same: AND ALSO the full and free right to take and remove any Indigenous Timber growing thereon, and all other Materials being the natural products of the said Land, or being within, upon, or under the same, which may at any time hereafter be required for the construction or repair of any Public Works: AND ALSO, the right of full and free ingress, egress, and regress, into, upon, over, and out of the said Land for the several purposes aforesaid: PROVIDED ALWAYS AND WE DO HEREBY RESERVE unto us, Our Heirs and Successors, all Gold and Minerals (the term "Minerals" to have the same meaning as in "The Mining on Private Land Acts, 1909 to 1956") on and below the surface of the said Land, and all Mines of Gold and Minerals on and below the surface of the said Land: AND WE DO HEREBY ALSO RESERVE unto Us, Our Heirs and Successors, and to such persons as shall from time to time be duly authorised by Us in that behalf, during the term of the said Lease, the free right and privilege of access, including ingress, egress, and regress, into, upon, over, and out of the said Land, for the purpose of searching for or working Gold and Minerals, or any of them, or Mines of Gold and Minerals, or any of them, in any part of the said Land: AND WE DO HEREBY ALSO RESERVE unto Us, Our Heirs and Successors, all Petroleum (the term "Petroleum" to have the same meaning as in "The Petroleum Acts, 1923 to 1962"), on or below the surface of the said Land: AND ALSO all rights of access for the purpose of searching for and for the operations of obtaining Petroleum in any part of the said Land: AND ALSO all rights of way for access and for pipe lines and other purposes requisite for obtaining and conveying Petroleum in the event of Petroleum being obtained in any part of the said Land: AND WE DO HEREBY ALSO RESERVE unto Us, Our Heirs and Successors, all Helium found in association with Petroleum in any part of the said Land: AND WE DO FURTHER RESERVE the right of any person duly authorised in that behalf by the Governor of Our said State in Council at all times to go upon the said Land, or any part thereof, for any purpose whatsoever, or to make any survey, inspection, or examination of the same.

IN TESTIMONY WHEREOF, We have caused this Our Lease to be Sealed with the Seal of Our said State.

Witness Our Trusty and Well-beloved the Right Honourable Sir ALAN JAMES MANNING, Knight, Commander of Our Most Distinguished Order of Saint Michael and Saint George, Knight Governor of Our State of Queensland, acting as Governor for and on behalf of

WITNESS-Our Trusty and Well-beloved SIR HENRY ABEL SMITH, Colonel on the Retired List of the Corps of Household Cavalry, Knight Commander of Our Most Distinguished Order of Saint Michael and Saint George, Knight Commander of Our Royal Victorian Order, Companion of Our Distinguished Service Order, Governor in and over Our State of Queensland and its Dependencies, in the Commonwealth of Australia, at Government House, Brisbane, in Queensland aforesaid, this Twenty-eighth day of May, in the thirteenth year of Our Reign and in the year of Our Lord One thousand nine hundred and sixty-four

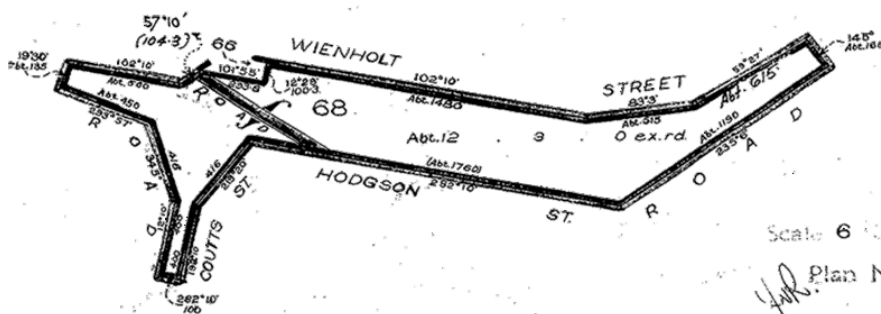
Handwritten signature

FIRST SCHEDULE

SPECIAL LEASE No. 28061 DISTRICT: Toowoomba
COUNTY: Merivale PARISH: Gilbert
PORTION: Sixty-eight

AREA: About twelve acres three rods.

Lot 68 on Plan ML 1365



Scale 6 inches to an Inch

Plan No. ML 1365

7594/119

SECOND SCHEDULE

(Conditions)

The right of resuming the whole or any part of the leased land at any time, on giving six months' notice and compensating for improvements only, shall be reserved to the Crown.

No compensation for improvements or developmental works shall be payable by the Crown at the expiration of the term of the lease, but the Lessee shall have the right to remove moveable improvements within a period of three months, provided all moneys due by the Lessee to the Crown on any account whatsoever have been paid.

The Lessee shall not at any time destroy any tree upon the leased land without the prior permit in writing of the Land Commissioner or contrary to any of the terms and conditions of such permit.

The Lessee shall not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of "The Mining Acts, 1898 to 1955") or other material upon the leased land without the permission of the Minister except under the authority of and in compliance in every respect with the requirements of a permit, license, agreement or contract granted or made under "The Forestry Acts ^{1959 to 1964} ~~1959~~".

The Lessee shall allow any person authorised under "The Forestry Acts ^{1959 to 1964} ~~1959~~" access to the leased land for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the leased land.

The lessee shall maintain the leased land free from noxious plants.

Employees of the Commonwealth Government shall at all times have the right of free and unrestricted access to, from and across the leased land for the purpose of maintaining and/or repairing the telephone line crossing the leased land.

Reel The lessee shall pay the cost of any required survey.

7594/119

Transfers, Mortgages, Etc., Registered

Mortgage No. 161618 George
Peter Wilkinson REGISTERED
The National Bank of Australasia Limited
securing advances as therein set forth.
Registered: 20 MAY 1970
Registrar of Dealing

TRANSFER of the Lessee's Interest in the
within-described holding to KEVIN HAROLD
SERVIN and MARY GWEN SERVIN his wife
as joint tenants
Registered: 5 JAN 1976
Registrar of Dealing

In terms of Metric Conversion Act 1972 the
area of the within-described holding is con-
verted to 5.16 ha

Registrar of Dealing

TRANSFER of the Lessee's Interest in the
within described holding to
KEVIN HAROLD SERVIN
Registered: 6 MAY 1987
Registrar of Dealing

IN terms of Regulation 41A (1) of
the Land Regulations, the description
of the Land comprised in the within
lease is amended to lot 68
on plan ML1365
Registrar of Dealing

Stamp
Original

HISTORICAL RESERVE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32653195

Search Date: 21/11/2019 11:16

Title Reference: 49100245

Date GAZETTED: 29/01/1996

PAGE: 1205-1207

Creating Dealing: 701739599

Opening Ref: S.L. 42/28061

Purpose: SPORT AND RECREATION

Sub-Purpose:

Local Name:

Address:

File Ref: RES

TRUSTEES

SOUTHERN DOWNS REGIONAL COUNCIL Gazetted on 29/01/1996

Page 1205-1207

PO BOX 26, WARWICK, QLD 4370

LAND DESCRIPTION

LOT 68 CROWN PLAN 900445 Gazetted on 29/01/1996 Page 1205-1207

Local Government: SOUTHERN DOWNS

Area: 5.191000 Ha. (SURVEYED)

EASEMENTS AND ENCUMBRANCES

1. CORRECTION No 714128189
to remove
TRUSTEE PERMIT NO 711207002
Lodged at 14:29 on 25/10/2011
2. TRUSTEE PERMIT No 711207002 CANCELLED BY 714128189
CARLE EDNEY
OF THE WHOLE OF THE LAND
TERM: 01/11/2007 TO 31/10/2010 OPTION NIL
Lodged at 16:27 on 22/11/2007
3. TRUSTEE PERMIT No 708291928 CANCELLED BY 711207002
to
GEOFFREY ALLAN GRANT
SONYA VIOLETTA GRANT JOINT TENANTS
Lodged at 11:37 on 14/12/2004
4. TRUSTEE PERMIT No 711194253 REMOVED
Lodged at 15:39 on 19/11/2007
5. TRUSTEE LEASE No 708020375 REJECTED ON 09/11/2004
Lodged at 13:27 on 01/09/2004

HISTORICAL RESERVE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32653195

Search Date: 21/11/2019 11:16

Title Reference: 49100245

Date GAZETTED: 29/01/1996

PAGE: 1205-1207

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL



Caution - Charges do not necessarily appear in order of priority

** End of Historical Reserve Search **

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Requested By: D-ENQ INFOTRACK PTY LIMITED

701739599 V0 REGISTERED Recorded Date 06/01/1997 11:44 Page 1 of 2

Land Act 1994		DEPARTMENTAL DEALING		QUEENSLAND LAND REGISTRY
		701739599		
BE 930 RESERVES/ATS		NO FEE 06/01/1997 11:44		
<div>1. CREATION OF RESERVE</div> <div>Lodger Name, address & phone number LODGER CODE U DEPARTMENT OF NATURAL RESOURCES METROPOLITAN DISTRICT 1ST FLOOR ANZAC SQUARE BUILDING BRISBANE</div>				
2. Description of Lot		County	Parish	Title Reference
Lot 68 on CP900445 Area: 5.191 HA Local Government: WARWICK		MERIVALE	GILBERT	49100245
<div>3. Registered Proprietor/Crown Lessee</div> <div>COUNCIL OF THE SHIRE OF WARWICK as Trustee</div>				
<div>4. Interest</div> <div>Reserve for SPORT AND RECREATION.</div>				
<div>5. Applicant</div> <div>SOUTH Region, WARWICK Land Office District, Department of Natural Resources</div>				
<div>6. Request</div> <div>I hereby request that: The Reserve be created in accordance with Government Gazette dated 29/11/1996, No.72, Page 1205-1207, File Reference S.L. 42/28061.</div>				
7. Execution by Applicant		Execution Date	Applicant's or Solicitor's Signature	
		20/12/96	 Land Officer, Titling Group	

REGISTERED
-6 JAN 1997
EXAM. INITS. X

Purpose

9.2 Reserve for Park and Recreation.

Trustee

9.3 Under the control of the Council of the City of Cairns, as trustee.

Reference

9.4 CNS/014379

SCHEDULE 10

Description

10.1 North Region, Far North District, Cairns Office, Title Ref. 49100222, being Lot 995 on RP 887085 registered in the Department of Natural Resources, area 3055 m2, county of Nares, parish of Smithfield.

Purpose

10.2 Reserve for Park and Recreation.

Trustee

10.3 Under the control of the Council of the City of Cairns, as trustee.

Reference

10.4 CNS/011988

SCHEDULE 11

Description

11.1 North Region, Far North District, Cairns Office, Title Ref. 49100249, being Lot 52 on CP 825784 registered in the Department of Natural Resources, area 9 m2, county of Torres, parish of Muralug.

Purpose

11.2 Reserve for Cemetery.

Trustee

11.3 Under the control of the Council of the Shire of Torres, as trustee.

Reference

11.4 CNS/7307

SCHEDULE 12

Description

12.1 South Region, Border District, Warwick Office, Title Ref. 49100245, being Lot 68 on CP 900445 registered in the Department of Natural Resources, area 5.191 ha, county of Merivale, parish of Gilbert.

Purpose

12.2 Reserve for Sport and Recreation.

Trustee

12.3 Under the control of the Council of the Shire of Warwick, as trustee.

Reference

12.4 S.L. 42/28061

SCHEDULE 13

Description

13.1 South East Region, Moreton District, Ipswich Office, Title Ref. 49100238, being Lots 778 and 779 on RP 227141 registered in the Department of Natural Resources, area 4.475 ha, county of Stanley, parish of Woogaroo.

Purpose

13.2 Reserve for Sport and Recreation.

Trustee

13.3 Under the control of the Council of the City of Ipswich, as trustee.

Reference

13.4 IPS/001176

SCHEDULE 14

Description

14.1 South East Region, North Coast District, Gympie Office, Title Ref. 49100215, being Lot 9 on plan MPH34757 registered in the Department of Natural Resources, area 884 m2, county of Lennox, parish of Woonga.

Purpose

14.2 Reserve for Park and Recreation.

Trustee

14.3 Under the control of the Council of the Shire of Cooloola, as trustee.

Reference

14.4 GYM 48

SCHEDULE 15

Description

15.1 South East Region, North Coast District, Maryborough Office, Title Ref. 49100247, being Lot 11 on RP 901344 registered in the Department of Natural Resources, area 936 m2, county of March, parish of Young.

Purpose

15.2 Reserve for Drainage.

Trustee

15.3 Under the control of the Council of the City of Maryborough, as trustee.

Reference

15.4 Mar. 142

SCHEDULE 16

Description

16.1 West Region, Cloncurry District, Cloncurry Office, Title Ref. 49100095, being Lot 23 on CP 892035 registered in the Department of Natural Resources, area 1.678 ha, county of Wonomo, parish of Camooweal.

Purpose

16.2 Reserve for Local Government (Sewerage) purposes.

Trustee

16.3 Under the control of the Council of the City of Mount Isa, as trustee.

Reference

16.4 Res. 15058

SCHEDULE 17

Description

17.1 West Region, Cloncurry District, Cloncurry Office, Title Ref. 49100096, being Lot 24 on CP 892035 registered in the Department of Natural Resources, area 213 m2, county of Wonomo, parish of Camooweal.

Purpose

17.2 Reserve for Local Government (Pump Station) purposes.

Trustee

17.3 Under the control of the Council of the City of Mount Isa, as trustee.

Reference

17.4 Res. 15058

ENDNOTES

1. Made by the Minister on 26 November 1996.
2. Published in the Gazette on 29 November 1996.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of Natural Resources.

RGH

CURRENT RESERVE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32653137

Search Date: 21/11/2019 11:14

Title Reference: 49100245

Date GAZETTED: 29/01/1996

PAGE: 1205-1207

Opening Ref: S.L. 42/28061

Purpose: SPORT AND RECREATION

Sub-Purpose:

Local Name:

Address:

File Ref: RES

TRUSTEES

SOUTHERN DOWNS REGIONAL COUNCIL Gazetted on 29/01/1996

Page 1205-1207

PO BOX 26, WARWICK, QLD 4370

LAND DESCRIPTION

LOT 68 CROWN PLAN 900445 Gazetted on 29/01/1996 Page 1205-1207
Local Government: SOUTHERN DOWNS

Area: 5.191000 Ha. (SURVEYED)

EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Reserve Search **

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Requested By: D-ENQ INFOTRACK PTY LIMITED



Appendix C

EMR Search Result



Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454, Brisbane QLD 4001, AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Southern Downs Regional Council
PO Box 26
WARWICK QLD 4370

Transaction ID: 50489535 EMR Site Id: 99199 11 October 2018
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 68 Plan: CP900445

EMR RESULT

The above site IS included on the Environmental Management Register.

Lot: 68 Plan: CP900445
Address: WIENHOLT STREET
MARYVALE 4370

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
LIVESTOCK DIP OR SPRAY RACE - operating a livestock dip or spray race facility.

For the majority of rural properties only a small area may be affected by the chemicals used in livestock dips and spray races. The Department of Environment and Science may hold further information relating to the location of the dip site within this property.

RAILWAY YARDS - operating a railway yard including goods-handling yards, workshops and maintenance areas. Qld Rail museum has advised council that they cannot locate the plans for these, however the suspect that a cattle dip may have been part of the yards. Also, rail sleepers treated with arsenic or creosote may have been stored in the yards.

It is recommended that the site be retained for recreational use/open park, and no exclusive lease be granted, and no soil disturbance be permitted on site.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Administering Authority



Appendix D

Background Data



Our Ref: PG:PG

Please address all
communications to:

6 October 2011

The Chief Executive Officer
Southern Downs
Regional Council
PO Box 26
Warwick Qld 4370

Contaminated Land Unit
Department of Environment and Resource Management
Level 8, 400 George Street
GPO Box 2454
Brisbane Qld 4001

mail@southerndowns.qld.gov.au
www.southerndowns.qld.gov.au

Dear Sir/Madam

abn 59 786 792 651

Please find enclosed forms in relation to the potential contamination of land
known as Lot 68 on CP900445.

If you have any questions please phone 4661 0321.

Warwick Office

54 Fitzroy Street
Warwick Qld 4370
T 07 4661 0300
F 07 4661 0333

Yours faithfully

Stanthorpe Office

51 Marsh Street
Stanthorpe Qld 4380
T 07 4681 5500
F 07 4681 5540


Peter Gribbin
Risk & Property Coordinator



Department of Environment
and Resource Management

Application Form

Part A

General details for all applications

OFFICIAL USE ONLY

DATE RECEIVED

FILE REF

PROJECT REF

COMPLETE FORM

☐

ENTERED BY (SIGNATURE)

DATE

RECEIPTING DETAILS ONLY

DATE RECEIVED

RECEIPT NUMBER

AMOUNT RECEIVED

\$

PROCESSED BY (INITIALS AND NAME)

GUIDE

1. The applicant is the person intending to carry out the activity and in whose name the relevant permits or licences are to be issued.

The registered address is legally required for the serving of notices. It is the address of a person and cannot be a post office box.

If more than one applicant as part of a partnership, complete the "Joint applicant details" form and attach to this PART A form.

Important information for applicants

This form asks for general applicant details and a description of the proposed project and any associated activities. The completed form must be submitted together with relevant activity specific (Part B) forms.

Specific details must accompany this form to enable your application to be processed. The guide provided will help you complete your application correctly. If you have any difficulties completing the form, contact Permit and Licence Management on 1300 130 372. Please number all attachments alphabetically (e.g. 'Attachment A').

(Commercial and confidential information must be marked clearly. If subsequent activities are added to the project, you will be required to resubmit this application with details of the additional activity).

Tick relevant boxes below if the applicant(s) are:

- ☐ an individual or sole trader
☐ individuals in a partnership
☐ individual(s) acting on behalf of an unincorporated organisation

→ **Go to Section 1**

- ☐ an incorporated company
☐ an incorporated association

☒ a statutory authority

☐ a body politic

→ **Go to Section 2**

1. Individual applicant(s) details⁽¹⁾

APPLICANT'S FULL NAME		TITLE	DATE OF BIRTH
REGISTERED ADDRESS		POST CODE	
TELEPHONE	FACSIMILE	E-MAIL	
POSTAL ADDRESS (WRITE "AS ABOVE" IF THE SAME AS REGISTERED ADDRESS)		POST CODE	

Application form – Part A
General details for all applications

Guardian details (if applicable)

A parent or legal guardian must complete the following details if an applicant is under 18 years of age.

GUARDIAN'S FULL NAME	DATE OF BIRTH	
GUARDIAN'S REGISTERED ADDRESS		POST CODE
GUARDIAN'S SIGNATURE		DATE

→ Go to Section 3

2. Applicant details

2. The applicant is the registered legal entity (not a business trading name) intending to carry out the activity and in whose name the relevant permits or licences are to be issued.

The registered address is legally required for the serving of notices. It is the registered business address of the company making the application and cannot be a post office box.

Enter the Australian Business Number (ABN); or the Australian Company Number (ACN) of the incorporated company; or the Association Number (AN) of the incorporated association; or the title and section of the legislation that gives the statutory corporation its legal status.

REGISTERED LEGAL ENTITY NAME Southern Downs Regional Council		
TRADING NAME (IF APPLICABLE)		
REGISTERED ADDRESS 64 Fitzroy Street Warwick Qld		POST CODE 4370
TELEPHONE (07) 4661 0300	FACSIMILE (07) 466 0333	E-MAIL/WEBSITE mail@southerndowns.qld.gov.au
POSTAL ADDRESS (WRITE "AS ABOVE" IF THE SAME AS REGISTERED ADDRESS) PO Box 26 Warwick Qld		POST CODE 4370
ABN/ACN/AN OR TITLE AND SECTION OF LEGISLATION 59 786 792 651		

Application form – Part A
General details for all applications

Principal contact or person in charge details

PRINCIPAL CONTACT/PERSON IN CHARGE FULL NAME Peter Gerard Gribbin		TITLE Mr
POSITION IN CORPORATION Risk & Property Coordinator		
TELEPHONE (07) 4661 0321	FACSIMILE (07) 4661 0333	E-MAIL/WEBSITE mail@southerndowns.qld.gov.au
POSTAL ADDRESS (WRITE 'AS ABOVE' IF THE SAME AS REGISTERED ADDRESS) "As Above"		POST CODE

Authorised signatory

The authorised signatory is the person authorised to sign an application on behalf of a corporation and in doing so declares that the corporation will be bound by the conditions associated with the granting of the licence or permit.

AUTHORIZED SIGNATORY FULL NAME Andrew Darryl Ireland	TITLE Mr
POSITION IN CORPORATION Acting Chief Executive Officer	

3. Project details

Pre-lodgement

Have you previously attended a pre-lodgement meeting or submitted a pre-lodgement form for this project?

☒ NO ☐ YES

PROJECT NUMBER (IF APPLICABLE)

Project description

Briefly describe the proposed activities, works, development or management. Attach a separate sheet if there is insufficient space below.

DESCRIPTION Reporting of 'notifiable activities' as per section 372.d2 of the Land Act.
--

Application form – Part A
General details for all applications

Approvals required

Please list all Part B application forms you are attaching to this form.

APPLICATION FORMS

Project site

Where will the activities be conducted? Provide the street address, real property description(s) of the land(s) in which the project is located and local government area. If you require more space, attach a separate sheet.

This information should at least provide enough details to allow a Department of Environment and Resource Management officer to locate the site of the proposal.

STREET ADDRESS

Wienholt Street, Maryvale Qld

LOT
68

PLAN
CP900445

LOCAL GOVERNMENT AREA

Southern Downs Regional Council

If possible, provide a specific location within a protected area, a property name or an attached map with the project area clearly delineated. Also include the map name/details.

Give as much information as possible to accurately locate your activity, for example maps with contextual or boundary lines on plan or GPS boundary co-ordinates.

SPECIFIC LOCATION/PROPERTY NAME

PROTECTED AREA

GEOGRAPHICAL CO-ORDINATES

Geographical co-ordinates can include northing/easting, longitude/latitude.

Attachments

List all attached documents, including maps containing information supporting this application in the space below. If there are no attachments mark "N/A."

Label all attachments alphabetically (e.g. 'Attachment A')

ATTACHMENTS (LABEL ALL ATTACHMENTS ALPHABETICALLY – E.G. "ATTACHMENT A")

"Attachment A" - Map of relevant Lot

Application form – Part A
General details for all applications

4. Applicant's certification

Note: If you have not told the truth in this application you may be liable for prosecution under the relevant Acts or Regulations.

- I do solemnly and sincerely declare that the information provided is true and correct to the best of my knowledge.
- I understand that information supplied on or with this application form may be disclosed publicly in accordance with the *Right to Information Act 2009* and the *Evidence Act 1977*.

APPLICANT(1) SIGNATURE

Andrew Ireland

Joint applicant signatures (if applicable)

APPLICANT(2) SIGNATURE

APPLICANT(3) SIGNATURE

APPLICANT(4) SIGNATURE

APPLICANT(5) SIGNATURE

DATE

4 October 2011

Complete the following checklist.

- ☒ Application form(s) signed and completed
- ☐ Permit fees paid or enclosed (if applicable)
- ☒ Supporting information attached (e.g. maps)

Please return your completed application to:

Permit and Licence Management
Implementation Support Unit
Department of Environment and Resource Management
GPO Box 2454
Brisbane Queensland 4001
Enquiries: 1300 130 372
Facsimile: (07) 3896 3342
Email: palm@derm.qld.gov.au

Department of Environment
and Resource Management

Form

Contaminated land

Notification of land

This form should be used by people providing notification to the administering authority of contaminated land or land use for a notifiable activity in accordance with schedule 3 of the Environmental Protection Act 1994. This form relates specifically to sections 371 and 372 of the Environmental Protection Act 1994.

NOTE: You must complete all questions below and use a separate form for each lot.

1. Person making notification

NAME Peter Gribbin	TELEPHONE (07) 4661 0321
COMPANY/ORGANISATION Southern Downs Regional Council	
POSTAL ADDRESS PO Box 26 Warwick Qld 4370	
EMAIL mail@southerndowns.qld.gov.au	FACSIMILE (07) 4661 0333

2. Site details

2.1. Name by which the property is known locally?

Maryvale Recreation Reserve

2.2. Please provide details of the Lot on Plan to which the notification applies

Please note that a separate notification form must be used for each Lot on Plan.

FULL STREET ADDRESS OF THE SITE Wienholt Street Maryvale	
LOT(S) 68	PLAN(S) CP900445
LOCAL GOVERNMENT AUTHORITY Southern Downs Regional Council	

2.3. Area of land parcel in square metres? 51910 m²

Notification of Land

- 2.4. Describe the notifiable activity/ies for which the land is or has been used and the source/s of the suspected contamination. List all notifiable activities that the land has been used for and provide details.**

If you require additional space attach the information on a separate sheet and make reference to that sheet here.

This reserve is a former Railway Yard. Qld Rail museum has advised Council that they cannot locate the plans for these, however they suspect that a Cattle Dip may have been part of the yards. Also, rail sleepers treated with arsenic or creosote may have been stored in the yards.

- 2.5. Has a map or locality plan been attached to this notification?**

The processing of this information is greatly assisted by the inclusion of a map or locality plan that shows the respective Lot.

☐ NO

☒ YES


3. Details of land owner

NAME State of QLD-Southern Downs Regional Council as Trustee	TELEPHONE (07) 4661 0200
POSTAL ADDRESS PO Box 2 Warwick Qld 4370	
EMAIL	FACSIMILE

4. Declaration

Please read the certification below before signing.

- I understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Right to Information Act 2009* and the *Evidence Act 1977*.

NOTIFYING PERSON'S SIGNATURE 	DATE 04/10/2011
---	--------------------

You may apply for exemption from disclosing information contained in a document submitted, or proposed to be submitted with this notification (see section 564 of the *Environmental Protection Act 1994*)

5. Applicant checklist

- ☒ Notifying person's details correct.
- ☒ Notification form completed and signed.
- ☒ Supporting information attached.

Please return the completed notification to:

Contaminated Land Unit
Department of Environment and Resource Management
Level 8, 400 George Street
GPO Box 2454
Brisbane Queensland 4001

Enquiries: (07) 3330 5685
Facsimile: (07) 3330 5754



Maryvale recreation reserve - Lot 68 CP900445



About this Document

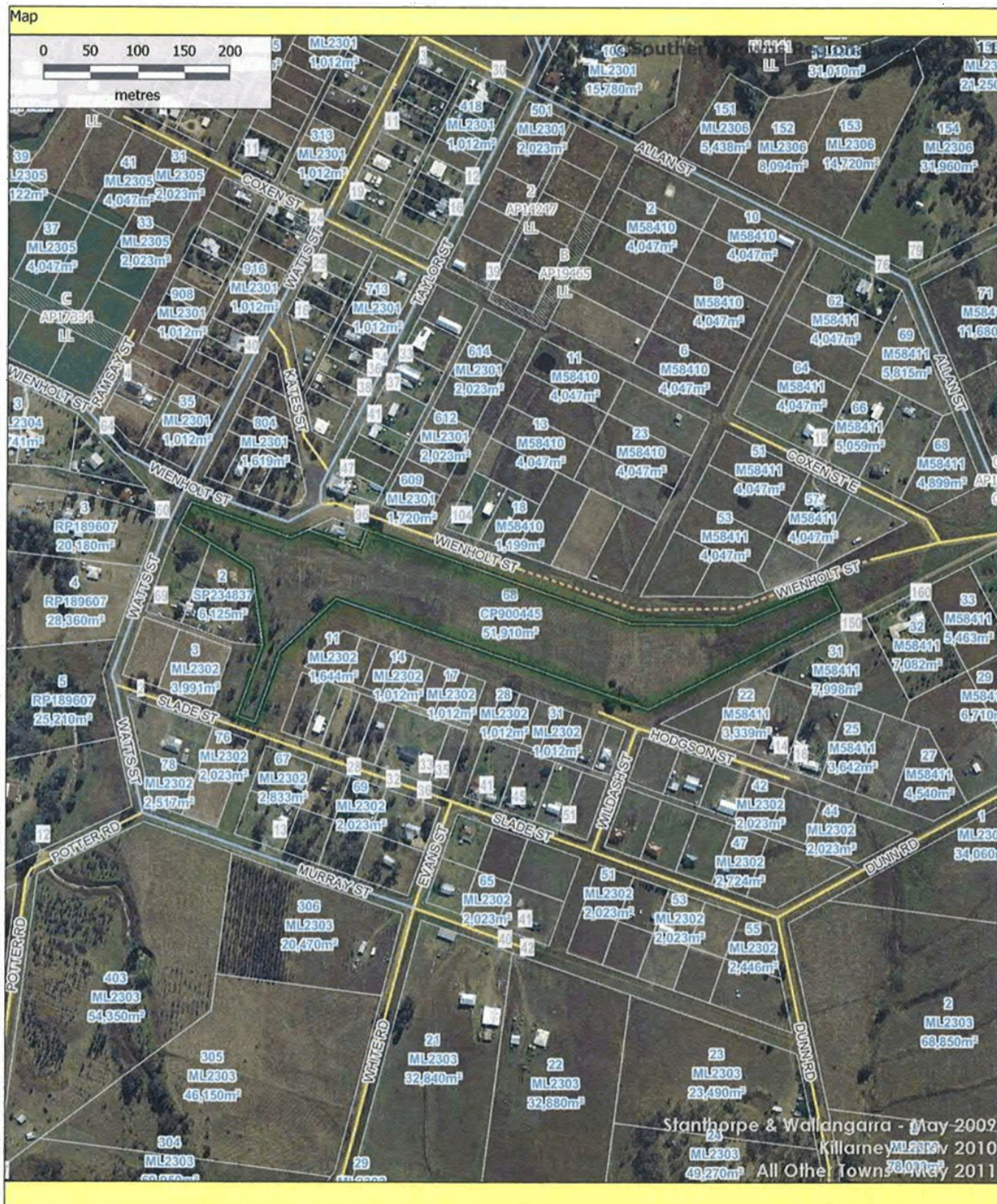
This map has been created for the purpose of showing basic locality information over the Southern Downs Regional Council Area. Property boundary line network data is supplied by State Government. Any error should be reported to the GIS Section, Southern Downs Regional Council.

Disclaimer

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Maryvale recreation reserve - Lot 68 CP900445



About this Document

This map has been created for the purpose of showing basic locality information over the Southern Downs Regional Council Area. Property boundary line network data is supplied by State Government. Any error should be reported to the GIS Section, Southern Downs Regional Council.

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Level 7 400 George St Brisbane, Queensland GPO Box 2454
Brisbane QLD 4001 AUSTRALIA
Telephone (07) 3330 5685, Facsimile (07) 3330 5754
http://www.derm.qld.gov.au/environmental_management/land/contaminated_land/

12 March 2012

Site ID: 99199
File Number:
Enquiries to: contaminated.land@derm.qld.gov.au

ATTN: SENIOR LAND OFFICER

LAND SERVICES
DERM
PO BOX 2
WARWICK QLD 4370

NOTICE OF CONSIDERATION OF LISTING LAND ON THE ENVIRONMENTAL
MANAGEMENT REGISTER

In accordance with section 373 of the *Environmental Protection Act 1994 (EP Act)* notice is given that the parcel of land described below is being considered for inclusion on the Environmental Management Register (EMR).

Lot: 68 Plan: CP900445
Southern Downs Regional Council

WIENHOLT STREET
MARYVALE QLD 4370

The Department of Environment and Resource Management (DERM) has been notified that the parcel of land has been used for the following notifiable activities or affected by the following hazardous contaminants pursuant to section 373 of the *EP Act*. Notifiable activities are mainly industrial/commercial activities that have been known to cause contamination of land and refer to both past and current activities.

LIVESTOCK DIP OR SPRAY RACE - operating a livestock dip or spray race facility.

For the majority of rural properties only a small area may be affected by the chemicals used in livestock dips and spray races. The Department of Environment and Resource Management may hold further information relating to the location of the dip site within this property.

RAILWAY YARDS - operating a railway yard including goods-handling yards, workshops and maintenance areas.

QLD RAIL MUSEUM HAS ADVISED COUNCIL THAT THEY CANNOT LOCATE THE PLANS FOR THESE, HOWEVER THE SUSPECT THAT A CATTLE DIP MAY HAVE BEEN PART OF THE YARDS. ALSO, RAIL SLEEPERS TREATED WITH ARSENIC OR CREOSOTE MAY HAVE BEEN STORED IN THE YARDS.

You may make a submission relating to this notice about whether or not the land has been, or is being used, for a notifiable activity or is contaminated land. Submissions must be accompanied by a statutory declaration by the owner, declaring that the owner:

- (i) has not knowingly included any false or misleading information in the submission;

and

(ii) has given all relevant information to the administering authority.

Submissions should be lodged with the DERM within 22 business days after receipt of this notice. Your submission must be received no later than Monday, 16 April 2012.

After this date, if no submission has been received from the owner, the land will be entered on the EMR, in accordance with section 374 of the *EP Act*. The enclosed leaflet explains the EMR and how potentially contaminated land in Queensland is managed.

Please note that the listing of a site on the EMR does not mean that the DERM requires that the land be investigated and remediated, or that it is unsuitable for its current use, nor does it imply that you are in breach of any conditions set out in any existing Development Approval issued for this site. In the event that the site is redeveloped, the DERM may require that remediation of any contamination be conducted to protect public health and the environment. Remediation would be needed if there were evidence that the site presented an unacceptable health or environmental risk for its current use.

It should also be noted that, with the issuing of this notice under section 373, the following requirement applies under section 421 of the *EP Act*:

If the owner proposes to dispose of the land to someone else, the owner must, before agreeing to dispose of the land, give written notice to the buyer that the owner has been given notice under section 373 and the particulars about the notice.

Further information about contaminated land matters may be obtained by visiting our website at: http://www.derm.qld.gov.au/environmental_management/land/contaminated_land/.



FOR

Kelli Ready
A/Director - Enforcement Services
BRISBANE

Delegate of Administering Authority
Environmental Protection Act 1994

Author: Julie Douglas
File / Ref number :49100245
Your ref: Site ID 99199
Ph: 4661 0218

COPY



Department of
Environment and Resource
Management

15 March 2012

A/Director – Enforcement Services
Department of Environment and Resource Management
GPO Box 2454
Brisbane QLD 4000

Dear Sir/Madam

Notice of consideration of listing land on the EMR – Lot 68 CP900445

I refer to your letter dated 12 March 2012 and advise that a search of our departmental files has revealed no evidence that the land historically contained either a cattle dip or was used to store treated rail sleepers or creosote.

Yours faithfully

A handwritten signature in black ink, appearing to read "Julie Douglas".

**Julie Douglas
A/Senior Land Officer
Land Services**

Environment and
Resource Management
Cnr Guy & Fitzroy Streets
PO Box 2
WARWICK QLD 4370
Telephone (07) 4661 0200
Facsimile (07) 4661 5215
Website www.derm.qld.gov.au

Oaths Act 1867

Statutory Declaration

QUEENSLAND
TO WIT

I, Peter Gerard Gribbin

of 64 Weewondilla Road, Warwick

in the State of Queensland

do solemnly and sincerely declare that

In relation to Notice of Consideration of Listing Land on the Environmental Management Register - Lot 38 on CP900445, I have not knowingly included false or misleading information in the submission and I have provided all the relevant information available to the Southern Downs Regional Council.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1867.

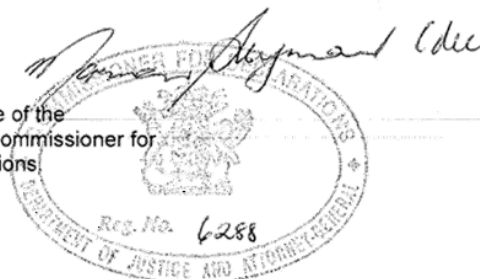


Signature of declarant/deponent

Taken and declared before me at Warwick

this 25th day of May 2012

A Justice of the
Peace/Commissioner for
Declarations





Our Ref: PG: PG

21 May 2012

Please address all
communications to:
The Chief Executive Officer
Southern Downs
Regional Council
PO Box 26
Warwick Qld 4370

mail@southerndowns.qld.gov.au
www.southerndowns.qld.gov.au

abn 59 786 792 651

Warwick Office

64 Fitzroy Street
Warwick Qld 4370
t 07 4661 0300
f 07 4661 0333

Stanthorpe Office

61 Marsh Street
Stanthorpe Qld 4380
t 07 4681 5500
f 07 4681 5540

Julie Douglas
Department of Environment & Resource Management
PO Box 2
Warwick Qld 4370

Dear Julie

RE: Notice of notification of listing land on the EMR – Lot 68 CP900445

I refer to your email dated 28 March 2012 requesting a submission from Council in relation to Lot 68 on CP900445 and wish to advise the following:

Council is the Trustee of a recreation reserve at Maryvale known as lot 68 CP900445. The reserve has an area of 5.191ha. The former Warwick Shire Council, resolved on 23 August 1995, to proceed with the setting aside of this crown land as a Reserve for Sport and Recreation, under Council's control as Trustee. Council was endorsed as Trustee on the 'Title' on 29 January 1996.

During the term of the Trusteeship, Council has periodically leased the reserve for horse grazing purposes, with the most recent lease expiring 31 October 2010.

Council received correspondence on 26 November 2010, from members of the Maryvale Community requesting Council consideration of a lease over the Recreation Reserve located at Weinholt Street, Maryvale, Lot 68 CP900445. The intention is for the community to develop the reserve as parkland. Concern was also expressed in this correspondence regarding the potential contamination of this land due to the prior existence of railway yards. This contamination could be in the form of railway sleepers treated with either arsenic or creosote.

Searches conducted with the Department of Environment and Resource Management (DERM) has revealed that the land is not registered on the Contaminated Lands Register (CLR) or the Environmental Management Register (EMR). The fact that the land does not appear on either the CLR or EMR does not mean that the land is not contaminated. The Registers were generally compiled from information the State already had, this being predominantly based on advice from Councils.

This process of registration was only as good as the information the Councils had available. Therefore, unless Council's had either comprehensive records or staff with excellent memories at the time of compilation of the Registers, many sites that had ceased operation years before and are contaminated, will not be on the Registers. In regard to the Reserve at Maryvale, the former Glengallan Shire Council may have left the reporting of this State owned site to the relevant Government Department and Queensland Rail may not have had any systems in place in the 1960's for reporting contaminated sites.

Further correspondence was received at Council on 6 June 2011, from the Maryvale Progress Association Inc advising they are now wishing to lease the recreation reserve on behalf of the Maryvale Community. The Association wishes to use the land for recreation and the promotion of a healthy lifestyle for the betterment of the community.

Following receipt of the leasing request from the now incorporated body, information was sought from the Curator of Queensland Railways workshops rail museum at North Ipswich. This museum holds Station Yard Plans for former railway stations throughout Queensland. Unfortunately the plan for Maryvale is one of the few that cannot be located. The Curator did advise that the Maryvale Station was closed circa 1964. The Curator also raised the possibility of a cattle dip being utilised at the site as was the case with many railway stations in the early to mid 1900's. Therefore, details of what actually did exist at the Maryvale Station Yards (e.g. cattle dip etc) are unknown.

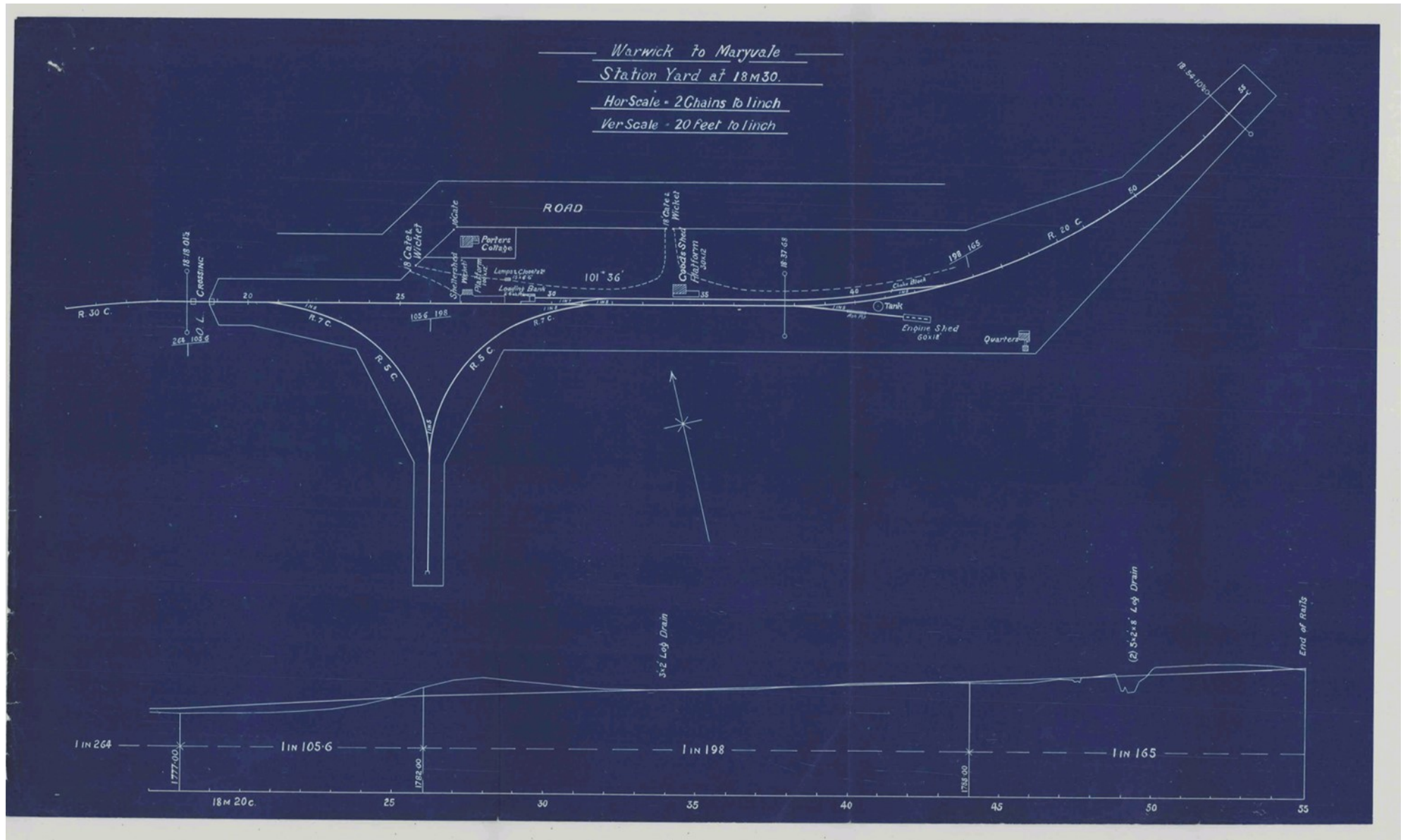
Accordingly the Southern Downs Regional Council cannot declare that this land is contaminated. The land is definitely not being used for a notifiable activity.

Please contact the writer if you require further information.

Yours faithfully



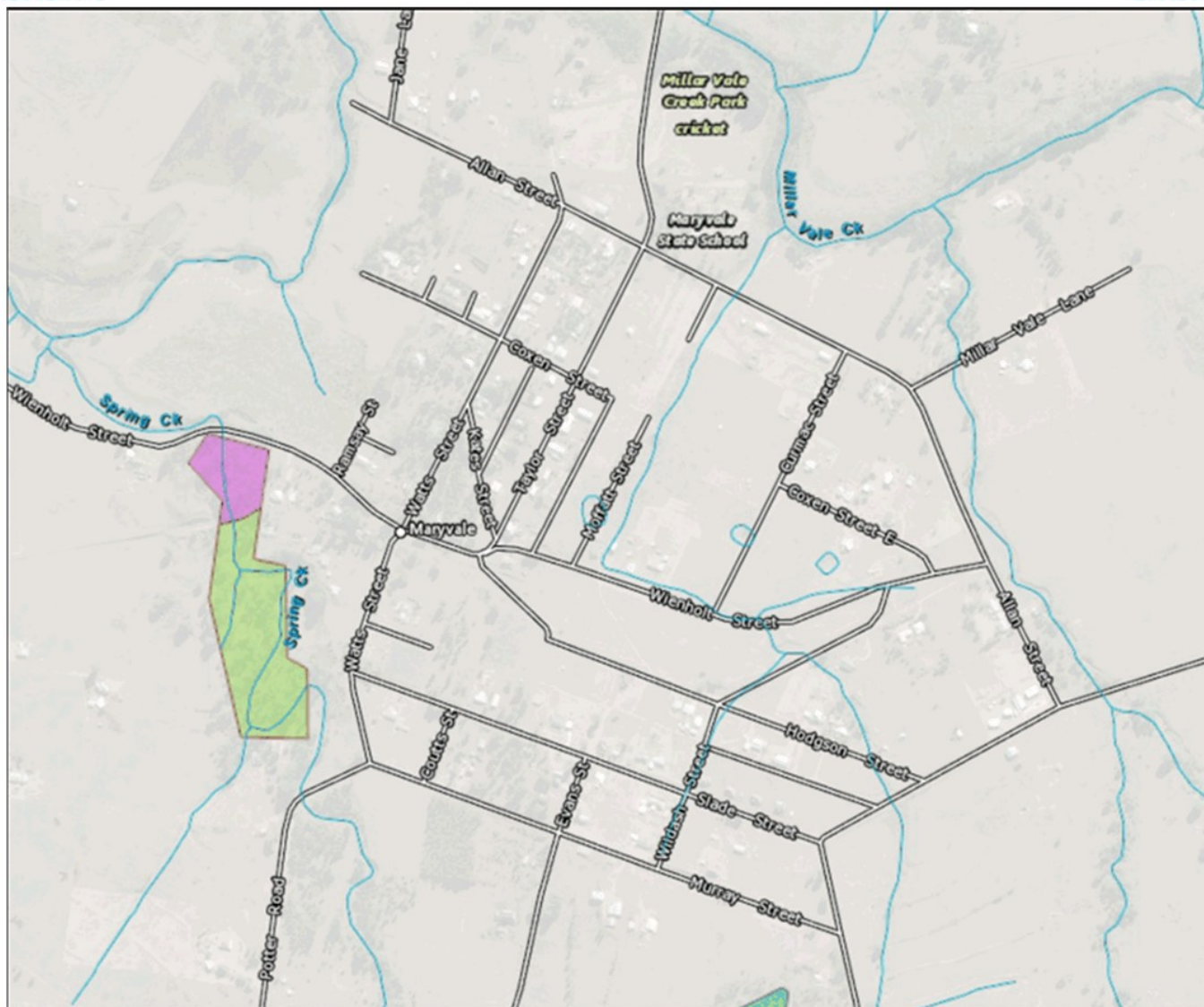
Peter Gribbin
Risk & Property Coordinator



Ecosystems Map

28°3'52"S 152°15'54"E

28°3'52"S 152°15'1"E



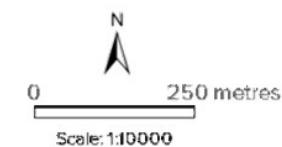
28°4'41"S 152°13'54"E

28°4'41"S 152°15'1"E

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 **Queensland Globe**



Legend located on next page



Printed at: A4
Print date: 16/9/2019
Datum: Geocentric Datum of Australia 1994
Projection: Web Mercator EPSG 102100
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Department of Natural Resources, Mines and Energy

Ecosystems Map

Legend

Category A or B area
containing endangered
regional ecosystems



Category A or B area
containing of concern
regional ecosystems



Category A or B area that is
least concern regional
ecosystems



Category A or B area
containing endangered and
is S20AH



Category A or B area
containing of concern and is
S20AH



Category A or B area that is
least concern and S20AH



Category X area

Coastline



Lake

Reservoir

Canal line



Canal area

Watercourse line

Major Watercourse

Minor Watercourse

Major Culvert

Minor Culvert

Watercourse area

Water area edge

Road crossing

Bridge

Tunnel

Road

Highway

Main

Local

Private

Railway



Cities and Towns



Attribution

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Category C or R area
containing endangered
regional ecosystems



Category C or R area
containing of concern
regional ecosystems



Category C or R area that is
of least concern regional
ecosystems



Water

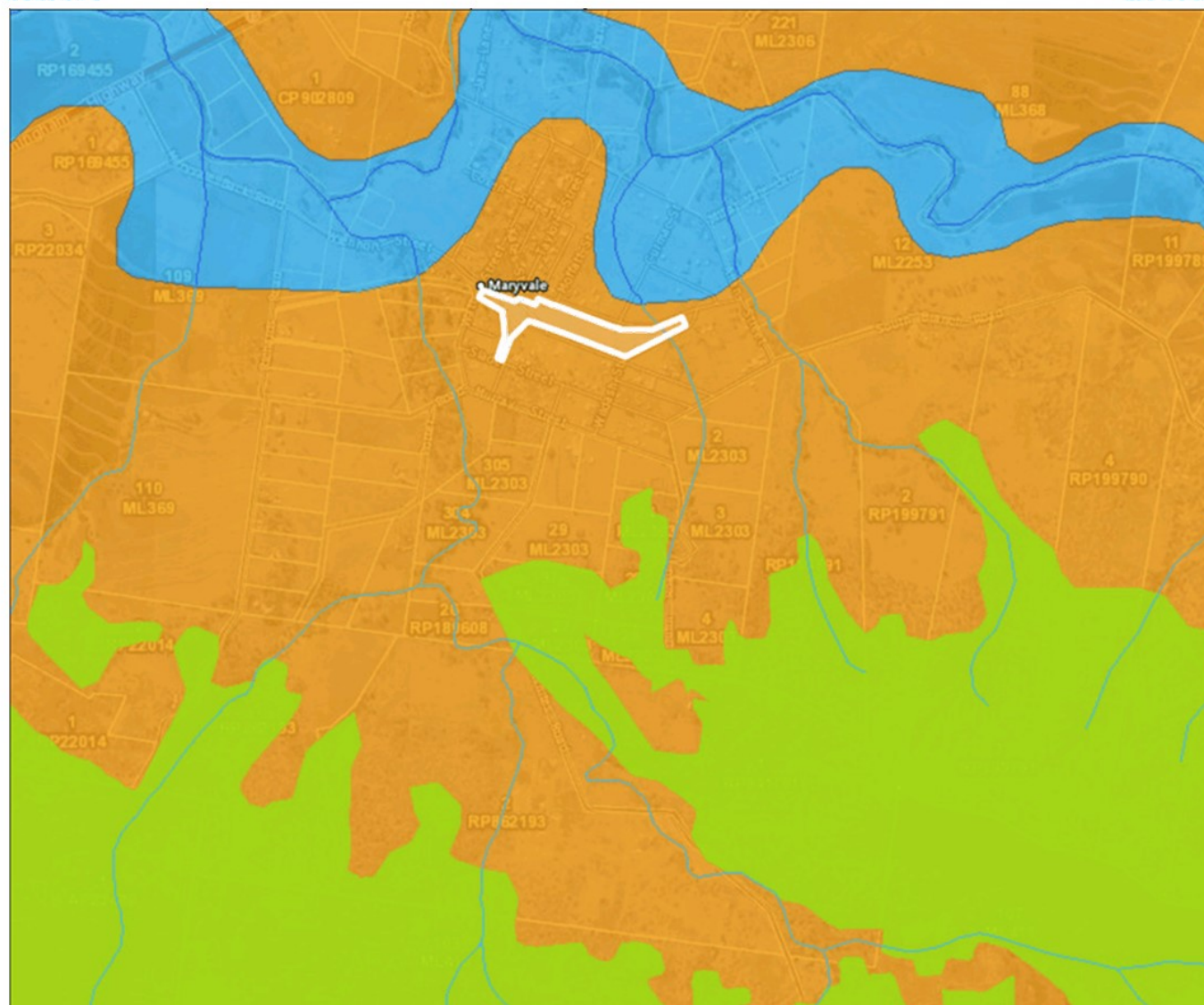


Groundwater Dependent Ecosystems (GDE)

source: Qld Globe

28°3'48"S 152°13'17"E

28°3'49"S 152°15'48"E



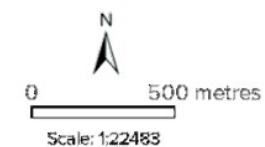
28°5'38"S 152°13'17"E

28°5'38"S 152°15'48"E

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Legend located on next page



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Department of Natural Resources, Mines and Energy

Groundwater Dependent Ecosystems (GDE)

source: Qld Globe

Legend

Surface GDE points [spring ecosystems]

- ◆ Known GDE
- ◆ Derived GDE - moderate confidence

Surface GDE lines

- Known GDE
- Derived GDE - high confidence
- Derived GDE - moderate confidence
- Derived GDE - low confidence

Surface GDE areas

- 81-100% Known GDE
- 81-100% Derived GDE - high confidence
- 81-100% Derived GDE - moderate confidence
- 81-100% Derived GDE - low confidence
- 01-80% Derived GDE - high confidence
- 01-80% Derived GDE - moderate confidence
- 01-80% Derived GDE - low confidence

Terrestrial GDE areas

- 81-100% Known GDE
- 81-100% Derived GDE - high confidence
- 81-100% Derived GDE - moderate confidence
- 81-100% Derived GDE - low confidence
- 01-80% Derived GDE - high confidence
- 01-80% Derived GDE - moderate confidence
- 01-80% Derived GDE - low confidence

Subterranean GDE areas [cave ecosystems]

- Known GDE
- Derived GDE - high confidence
- Derived GDE - moderate confidence
- Derived GDE - low confidence
- Derived GDE - unknown confidence

Land parcel label - gt 1 ha

Potential GDE aquifers

- Unconsolidated sedimentary aquifers
- Consolidated sedimentary aquifers
- Igneous rock aquifers
- Metamorphic rock aquifers
- Mixture of consolidated sedimentary, igneous and/or metamorphic aquifers
- No identified aquifers

Road

- Highway
- Main
- Local
- Private

Cities and Towns

-

Attribution

Maxar

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Land parcel - 961116

railway



Queensland Government
Groundwater Information
Bore Report

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GWDB8250

Report Date: 16/09/2019 11:54

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
61924	Sub-Artesian Facility	Existing	20/01/1981	Warwick	6660 - SOUTHERN DOWNS REGIONAL

Details			Location		
Description	A8 SEC6 (TOWN OF MARYVALE)		Latitude	28-04-18	Basin 4223
Parish	1988 - GILBERT		Longitude	152-14-23	Sub-area
Original Name			GIS Latitude	-28.071834912	Lot 608
			GIS Longitude	152.239584205	Plan ML2301
			Easting	425283	
Driller Name			Northing	6894607	Map Scale 40C - 40 Chain
Drill Company			Zone	56	Map Series N - New Series
Const Method	ROTARY RIG DRILLER S REYNOLDS		Accuracy		Map No 5955
Bore Line			GPS Accuracy		Map Name
D/O File No	W1217	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No	L51693B	RN of Bore Replaced			
Log Received Date		Data Owner			
Roles					

Casing 3 records for RN 61924

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	20/01/1981	1	0.00	41.00	Plastic Casing	6.350	WT - Wall Thickness	127
A	20/01/1981	2	17.00	21.00	Perforated or Slotted Casing		AP - Aperture Size	
A	20/01/1981	3	41.00	51.00	Open Hole			120

Strata Logs 12 records for RN 61924

Queensland Government
Groundwater Information
Bore Report

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GWDB8250

Report Date: 16/09/2019 11:54

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	10.00	DECOMPOSED BASALT
2	10.00	17.00	BASALT
3	17.00	20.00	DECOMPOSED BASALT AND WATER SWL 16MET
4	20.00	30.00	RED CLAY
5	30.00	34.00	BROWN CLAY
6	34.00	38.00	YELLOW CLAY
7	38.00	41.00	BROWN CLAY
8	41.00	51.00	BASALT BORE CASED SURFACE TO 41METRES
9			WITH 127MM PVC TUBING SLOTTED 17 TO21
10			METRES
902			20/01/1981 SWL -16.00 M TMP NUL C
910	17.00	21.00	QUALITY DESCRIPT/CONDUCT: 915

Stratigraphies

1 records for RN 61924

Source	Rec	Top (m)	Bottom (m)	Strata Description
DNR	1			MAIN RANGE VOLCANICS

Aquifers

1 records for RN 61924

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	17.00	21.00	BSLT - Basic Volcanic							WZ	MAIN RANGE VOLCANICS

Pump Tests Part 1

0 records for RN 61924

Pump Tests Part 2

0 records for RN 61924

Bore Conditions

0 records for RN 61924

Queensland Government
Groundwater Information
Bore Report

Page: 3 of 4
GWDB8250

Report Date: 16/09/2019 11:54

From Year:

Elevations 0 records for RN 61924

Water Analysis Part 1 1 records for RN 61924

Pipe	Date	Rec	Analyst	Analysis No	Depth (m)	Meth	Src	Cond (uS/cm)	pH	Si (mg/L)	Total Ions (mg/L)	Total Solids (mg/L)	Hard	Alk	Fig. of Merit	SAR	RAH
A	27/01/1981	1	GCL	088576	20.00	MA	GR	915	7.8	49	712.00	561.75	315	324	1.8	2.0	0.17

Water Analysis Part 2 1 records for RN 61924

Pipe	Date	Rec	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	27/01/1981	1	81.0	1.3	62.0	39.0		392.0		1.5	92.0	0.20	28.0	15.0				

Water Levels 1 records for RN 61924

Pipe	Date	Time	Measure (m)	Meas Point	Remark	Meas Type	Coll Auth	Coll	Method	Project	Quality
X	20/01/1981		-16.00	N	Natural Surface	NR	Not Recorded	NR	NR	Not Recorded	130 Data is of unknown quality

Wire Line Logs 0 records for RN 61924

Field Measurements 0 records for RN 61924

Special Water Analysis 0 records for RN 61924

Queensland Government
Groundwater Information
Bore Report

Page: 4 of 4
GWDB8250

Report Date: 16/09/2019 11:54

From Year:

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Open Licence (Single Supply)

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 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

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Disclaimer and indemnity:

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Queensland Government
Groundwater Information
Bore Report

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Report Date: 16/09/2019 11:42

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
43848	Sub-Artesian Facility	Existing	03/07/1973	Warwick	6660 - SOUTHERN DOWNS REGIONAL
Details			Location		
Description	SEC 12 TOWN OF MARYVALE		Latitude	28-04-27	Basin 4223
Parish	1988 - GILBERT		Longitude	152-14-32	Sub-area
Original Name			GIS Latitude	-28.074305135	Lot 33
			GIS Longitude	152.24226578	Plan ML2302
			Easting	425548	
Driller Name			Northing	6894335	Map Scale 40C - 40 Chain
Drill Company			Zone	56	Map Series N - New Series
Const Method	ROTARY DRILLER N LAWRENCE 1973		Accuracy		Map No 5955
Bore Line			GPS Accuracy		Map Name
D/O File No	W0913	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No	L41467B	RN of Bore Replaced			
Log Received Date		Data Owner			
Roles					

Casing 2 records for RN 43848

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	03/07/1973	1	0.00	7.40	Steel Casing	5.000	WT - Wall Thickness	127
A	03/07/1973	2	7.40	54.90	Open Hole			

Strata Logs 18 records for RN 43848

Rec	Top (m)	Bottom (m)	Strata Description
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Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	0.15	SOIL
2	0.15	6.10	DECOMPOSED BASALT
3	6.10	11.58	BASALT
4	11.58	13.72	VESICULAR BASALT (SOAK)
5	13.72	19.51	BASALT
6	19.51	21.03	VESICULAR BASALT
7	21.03	22.86	BASALT
8	22.86	23.47	VESICULAR BASALT (WATER)
9	23.47	26.21	BASALT
10	26.21	28.65	VESICULAR BASALT (WATER)
11	28.65	31.39	BASALT
12	31.39	33.22	VESICULAR BASALT
13	33.22	34.44	BASALT
14	34.44	36.88	VESICULAR BASALT (WATER)
15	36.88	54.86	REDDISH BROWN CLAY
902			3/7/1973 SWL -18.3
903			AIR TEST 0.34 L/S
910			QUALITY DESCRIPT : POTA

Stratigraphies

3 records for RN 43848

Source	Rec	Top (m)	Bottom (m)	Strata Description
DNR	1			MAIN RANGE VOLCANICS
DNR	2			MAIN RANGE VOLCANICS
DNR	3			MAIN RANGE VOLCANICS

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Aquifers 3 records for RN 43848

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	23.00	24.00	BSLT - Basic Volcanic							VS	MAIN RANGE VOLCANICS
2	26.00	29.00	BSLT - Basic Volcanic							VS	MAIN RANGE VOLCANICS
3	34.00	37.00	BSLT - Basic Volcanic							VS	MAIN RANGE VOLCANICS

Pump Tests Part 1 0 records for RN 43848

Pump Tests Part 2 0 records for RN 43848

Bore Conditions 0 records for RN 43848

Elevations 0 records for RN 43848

Water Analysis Part 1 0 records for RN 43848

Water Analysis Part 2 0 records for RN 43848

Water Levels 1 records for RN 43848

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
X	03/07/1973		-18.30	N	Natural Surface		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality

Wire Line Logs 0 records for RN 43848

Field Measurements 0 records for RN 43848

Special Water Analysis 0 records for RN 43848

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From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
64557	Sub-Artesian Facility	Existing		Warwick	6660 - SOUTHERN DOWNS REGIONAL
Details			Location		
Description	L808 ML2301		Latitude	28-04-18	Basin 4223
Parish	1988 - GILBERT		Longitude	152-14-21	Sub-area 610
Original Name			GIS Latitude	-28.07162265	Lot
			GIS Longitude	152.23917446	Plan
			Easting	425242	
Driller Name			Northing	6894630	Map Scale 40C - 40 Chain
Drill Company			Zone	56	Map Series N - New Series
Const Method			Accuracy	GPS	Map No 5955
Bore Line			GPS Accuracy	1	Map Name
D/O File No	G2090	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date		Data Owner			
Roles					

Casing 1 records for RN 64557

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	27/07/1982	1	0.00	24.40	Steel Casing			127

Strata Logs 1 records for RN 64557

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	24.40	BASALTS

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Stratigraphies	0 records for RN 64557
Aquifers	0 records for RN 64557
Pump Tests Part 1	0 records for RN 64557
Pump Tests Part 2	0 records for RN 64557
Bore Conditions	0 records for RN 64557
Elevations	0 records for RN 64557
Water Analysis Part 1	0 records for RN 64557
Water Analysis Part 2	0 records for RN 64557
Water Levels	0 records for RN 64557
Wire Line Logs	0 records for RN 64557
Field Measurements	0 records for RN 64557
Special Water Analysis	0 records for RN 64557

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From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
149312	Sub-Artesian Facility	Existing	17/10/2013	Warwick	6660 - SOUTHERN DOWNS REGIONAL

Details			Location		
Description			Latitude	28-04-27	Basin 4223
Parish	1988 - GILBERT		Longitude	152-14-16	Sub-area
Original Name			GIS Latitude	-28.07429092	Lot 75
			GIS Longitude	152.237759	Plan ML2302
			Easting	425105	
Driller Name	REYNOLDS, STEPHEN ROBERT		Northing	6894334	Map Scale
Drill Company	S & K DRILLING		Zone	56	Map Series
Const Method	HAMMER		Accuracy		Map No
Bore Line			GPS Accuracy		Map Name
D/O File No	DRILLOGCAB	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	31/10/2013	Data Owner			
Roles	Water Supply				

Casing 3 records for RN 149312

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	17/10/2012	1	0.00	36.00	Polyvinyl Chloride	125.000	AP - Aperture Size	125
A	17/10/2012	2	24.00	30.00	Perforated or Slotted Casing	2.000	AP - Aperture Size	125
X	17/10/2012	3	6.00	7.00	Bentonite Seal			165

Strata Logs 4 records for RN 149312

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From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	0.50	SOIL
2	0.50	8.00	SANDY CLAY
3	8.00	13.00	BROKEN BASALT
4	13.00	36.00	BASALT*

Stratigraphies 0 records for RN 149312

Aquifers 1 records for RN 149312

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
0	24.00	30.00	BSLT - Basic Volcanic	17/10/2012	0.00	N	POTABLE	0.78	N	WZ	MAIN RANGE VOLCANICS

Pump Tests Part 1 0 records for RN 149312

Pump Tests Part 2 0 records for RN 149312

Bore Conditions 0 records for RN 149312

Elevations 0 records for RN 149312

Water Analysis Part 1 0 records for RN 149312

Water Analysis Part 2 0 records for RN 149312

Water Levels 0 records for RN 149312

Wire Line Logs 0 records for RN 149312

Field Measurements 0 records for RN 149312

Special Water Analysis 0 records for RN 149312

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Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
149350	Sub-Artesian Facility	Existing	21/01/2013	Warwick	6660 - SOUTHERN DOWNS REGIONAL

Details			Location		
Description			Latitude	28-04-27	Basin 4223
Parish	1988 - GILBERT		Longitude	152-14-41	Sub-area
Original Name			GIS Latitude	-28.07426395	Lot 24
			GIS Longitude	152.2446396	Plan M58411
			Easting	425781	
Driller Name	REYNOLDS, STEPHEN ROBERT		Northing	6894341	Map Scale
Drill Company	S & K DRILLING		Zone	56	Map Series
Const Method	ROTARY AIR		Accuracy		Map No
Bore Line			GPS Accuracy		Map Name
D/O File No	DRILLOGCAB	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	01/02/2013	Data Owner			
Roles	Water Supply				

Casing 3 records for RN 149350

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	21/01/2013	1	0.00	30.00	Polyvinyl Chloride	7.200	WT - Wall Thickness	125
A	21/01/2013	2	18.00	24.00	Perforated or Slotted Casing	2.000	AP - Aperture Size	125
X	21/01/2013	3	0.00	6.00	Grout			165

Strata Logs 3 records for RN 149350

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Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	4.00	CLAYEY SOIL
2	4.00	11.00	WEATHERED BASALT
3	11.00	30.00	BASALT*

Stratigraphies 0 records for RN 149350

Aquifers 1 records for RN 149350

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	18.00	24.00	BSLT - Basic Volcanic	21/01/2013	-15.00	N	POTABLE	0.22	N	VS	MAIN RANGE VOLCANICS

Pump Tests Part 1 0 records for RN 149350

Pump Tests Part 2 0 records for RN 149350

Bore Conditions 0 records for RN 149350

Elevations 0 records for RN 149350

Water Analysis Part 1 0 records for RN 149350

Water Analysis Part 2 0 records for RN 149350

Water Levels 0 records for RN 149350

Wire Line Logs 0 records for RN 149350

Field Measurements 0 records for RN 149350

Special Water Analysis 0 records for RN 149350

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Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
149351	Sub-Artesian Facility	Existing	17/01/2013	Warwick	6660 - SOUTHERN DOWNS REGIONAL

Details			Location		
Description			Latitude	28-04-20	Basin 4223
Parish	1988 - GILBERT		Longitude	152-14-31	Sub-area
Original Name			GIS Latitude	-28.07231965	Lot 19
			GIS Longitude	152.2418491	Plan M58410
			Easting	425505	
Driller Name	REYNOLDS, STEPHEN ROBERT		Northing	6894554	Map Scale
Drill Company	S&K DRILLING		Zone	56	Map Series
Const Method	ROTARY AIR		Accuracy		Map No
Bore Line			GPS Accuracy		Map Name
D/O File No		Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	01/02/2013	Data Owner			
Roles	Water Supply				

Casing 3 records for RN 149351

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	17/01/2013	1	0.00	30.00	Polyvinyl Chloride	7.200	WT - Wall Thickness	125
A	17/01/2013	2	18.00	24.00	Perforated or Slotted Casing			125
X	17/01/2013	2	0.00	6.00	Grout			165

Strata Logs 3 records for RN 149351

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From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	10.00	CLAYEY SOIL
2	10.00	12.00	BROKEN BASALT
3	12.00	30.00	BASALT*

Stratigraphies 0 records for RN 149351

Aquifers 1 records for RN 149351

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	18.00	24.00	BSLT - Basic Volcanic				POTABLE	2.50	N	VS	MAIN RANGE VOLCANICS

Pump Tests Part 1 0 records for RN 149351

Pump Tests Part 2 0 records for RN 149351

Bore Conditions 0 records for RN 149351

Elevations 0 records for RN 149351

Water Analysis Part 1 0 records for RN 149351

Water Analysis Part 2 0 records for RN 149351

Water Levels 0 records for RN 149351

Wire Line Logs 0 records for RN 149351

Field Measurements 0 records for RN 149351

Special Water Analysis 0 records for RN 149351

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From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
61924	Sub-Artesian Facility	Existing	20/01/1981	Warwick	6660 - SOUTHERN DOWNS REGIONAL

Details			Location		
Description	A8 SEC6 (TOWN OF MARYVALE)		Latitude	28-04-18	Basin 4223
Parish	1988 - GILBERT		Longitude	152-14-23	Sub-area
Original Name			GIS Latitude	-28.071834912	Lot 608
			GIS Longitude	152.239584205	Plan ML2301
			Easting	425283	
Driller Name			Northing	6894607	Map Scale 40C - 40 Chain
Drill Company			Zone	56	Map Series N - New Series
Const Method	ROTARY RIG DRILLER S REYNOLDS		Accuracy		Map No 5955
Bore Line			GPS Accuracy		Map Name
D/O File No	W1217	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment JP			
H/O File No	L51693B	RN of Bore Replaced			
Log Received Date		Data Owner			
Roles					

Casing 3 records for RN 61924

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	20/01/1981	1	0.00	41.00	Plastic Casing	6.350	WT - Wall Thickness	127
A	20/01/1981	2	17.00	21.00	Perforated or Slotted Casing		AP - Aperture Size	
A	20/01/1981	3	41.00	51.00	Open Hole			120

Strata Logs 12 records for RN 61924

Queensland Government
Groundwater Information
Bore Report

Page: 2 of 4
GWDB8250

Report Date: 16/09/2019 11:54

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	10.00	DECOMPOSED BASALT
2	10.00	17.00	BASALT
3	17.00	20.00	DECOMPOSED BASALT AND WATER SWL 16MET
4	20.00	30.00	RED CLAY
5	30.00	34.00	BROWN CLAY
6	34.00	38.00	YELLOW CLAY
7	38.00	41.00	BROWN CLAY
8	41.00	51.00	BASALT BORE CASED SURFACE TO 41METRES
9			WITH 127MM PVC TUBING SLOTTED 17 TO21
10			METRES
902			20/01/1981 SWL -16.00 M TMP NUL C
910	17.00	21.00	QUALITY DESCRIPT/CONDUCT: 915

Stratigraphies

1 records for RN 61924

Source	Rec	Top (m)	Bottom (m)	Strata Description
DNR	1			MAIN RANGE VOLCANICS

Aquifers

1 records for RN 61924

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	17.00	21.00	BSLT - Basic Volcanic							WZ	MAIN RANGE VOLCANICS

Pump Tests Part 1

0 records for RN 61924

Pump Tests Part 2

0 records for RN 61924

Bore Conditions

0 records for RN 61924

Queensland Government
Groundwater Information
Bore Report

Page: 3 of 4
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From Year:

Elevations 0 records for RN 61924

Water Analysis Part 1 1 records for RN 61924

Pipe	Date	Rec	Analyst	Analysis No	Depth (m)	Meth	Src	Cond (uS/cm)	pH	Si (mg/L)	Total Ions (mg/L)	Total Solids (mg/L)	Hard	Alk	Fig. of Merit	SAR	RAH
A	27/01/1981	1	GCL	088576	20.00	MA	GR	915	7.8	49	712.00	561.75	315	324	1.8	2.0	0.17

Water Analysis Part 2 1 records for RN 61924

Pipe	Date	Rec	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	27/01/1981	1	81.0	1.3	62.0	39.0		392.0		1.5	92.0	0.20	28.0	15.0				

Water Levels 1 records for RN 61924

Pipe	Date	Time	Measure (m)	Meas Point	Remark	Meas Type	Coll Auth	Coll	Method	Project	Quality
X	20/01/1981		-16.00	N	Natural Surface	NR	Not Recorded	NR	NR	Not Recorded	130 Data is of unknown quality

Wire Line Logs 0 records for RN 61924

Field Measurements 0 records for RN 61924

Special Water Analysis 0 records for RN 61924

Queensland Government
Groundwater Information
Bore Report

Page: 4 of 4
GWDB8250

Report Date: 16/09/2019 11:54

From Year:

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Appendix E

Historic Aerial Photographs





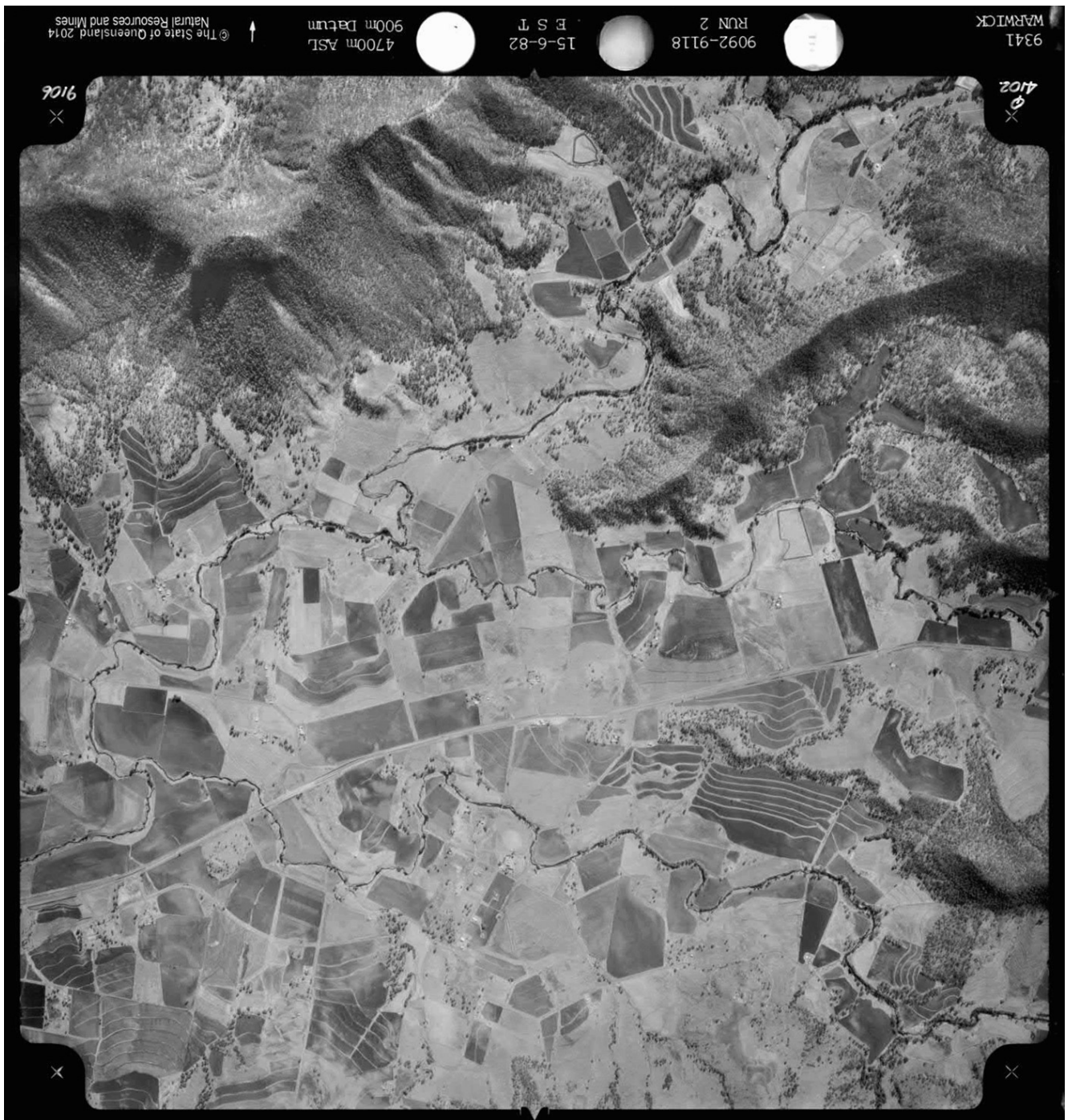
Q651-144

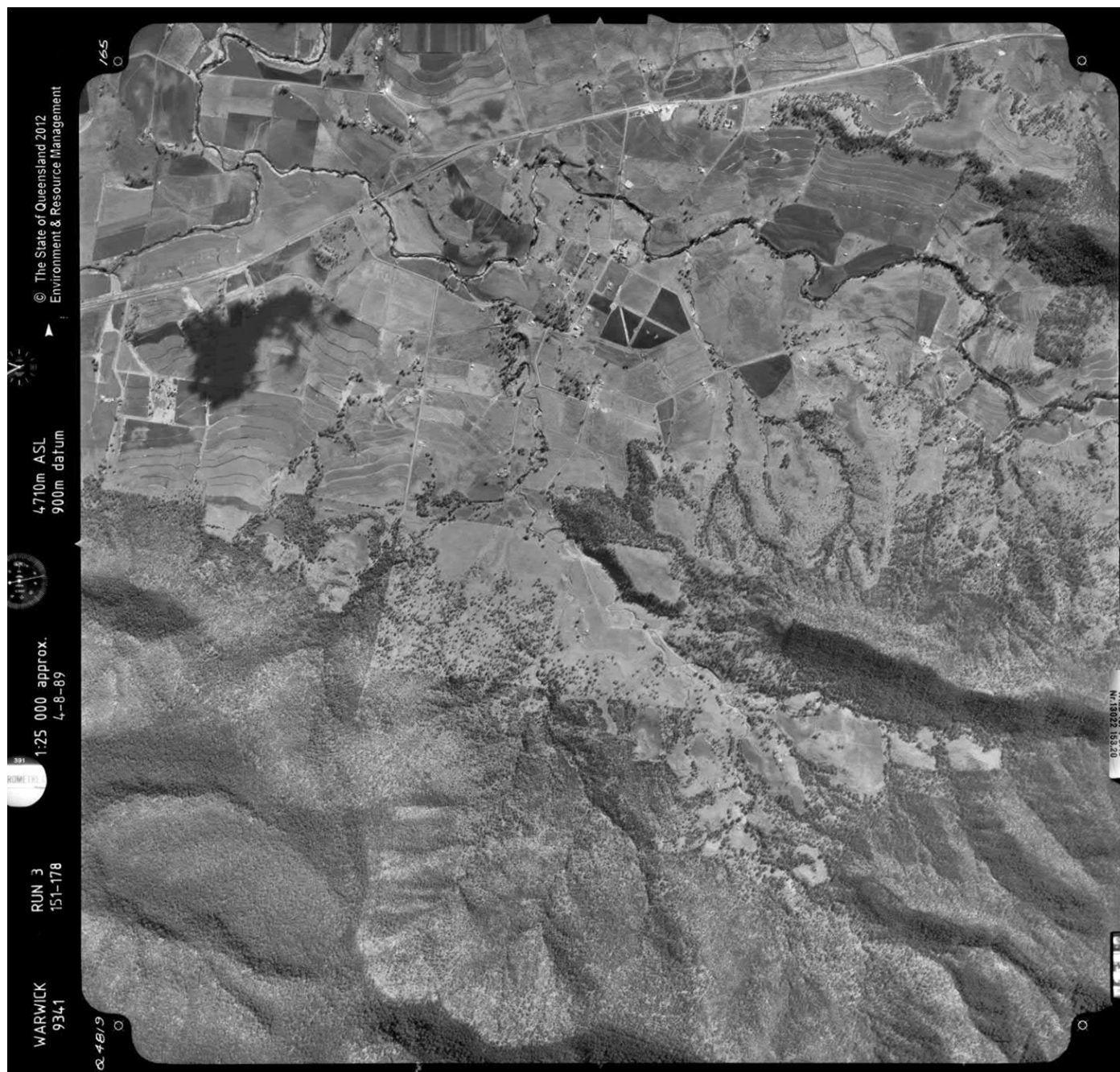
NEW ENGLAND HIGHWAY RUN 21
ROCKLEA-WALLANGARRA

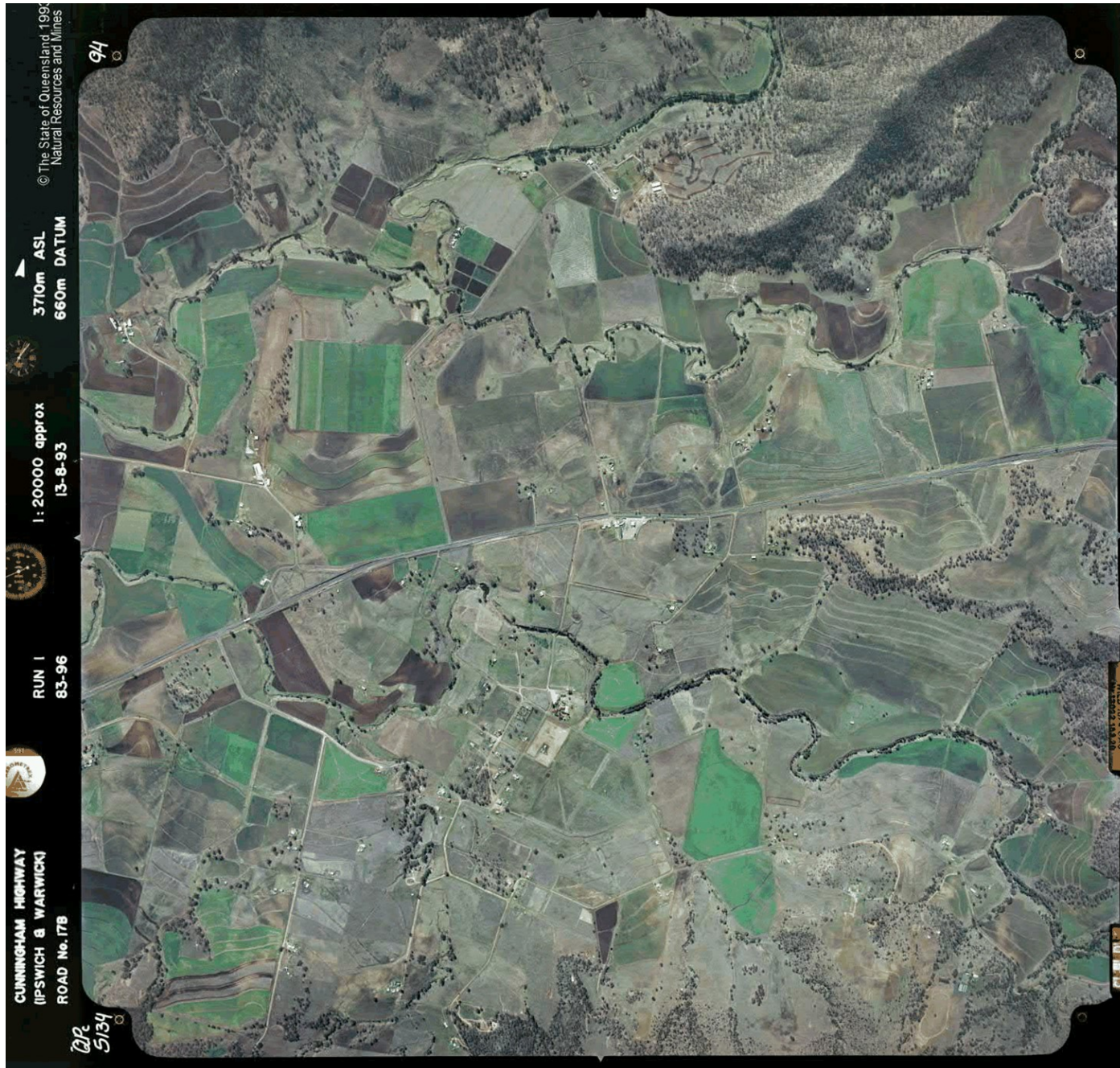
4.7.56 LENS 8 1/4"

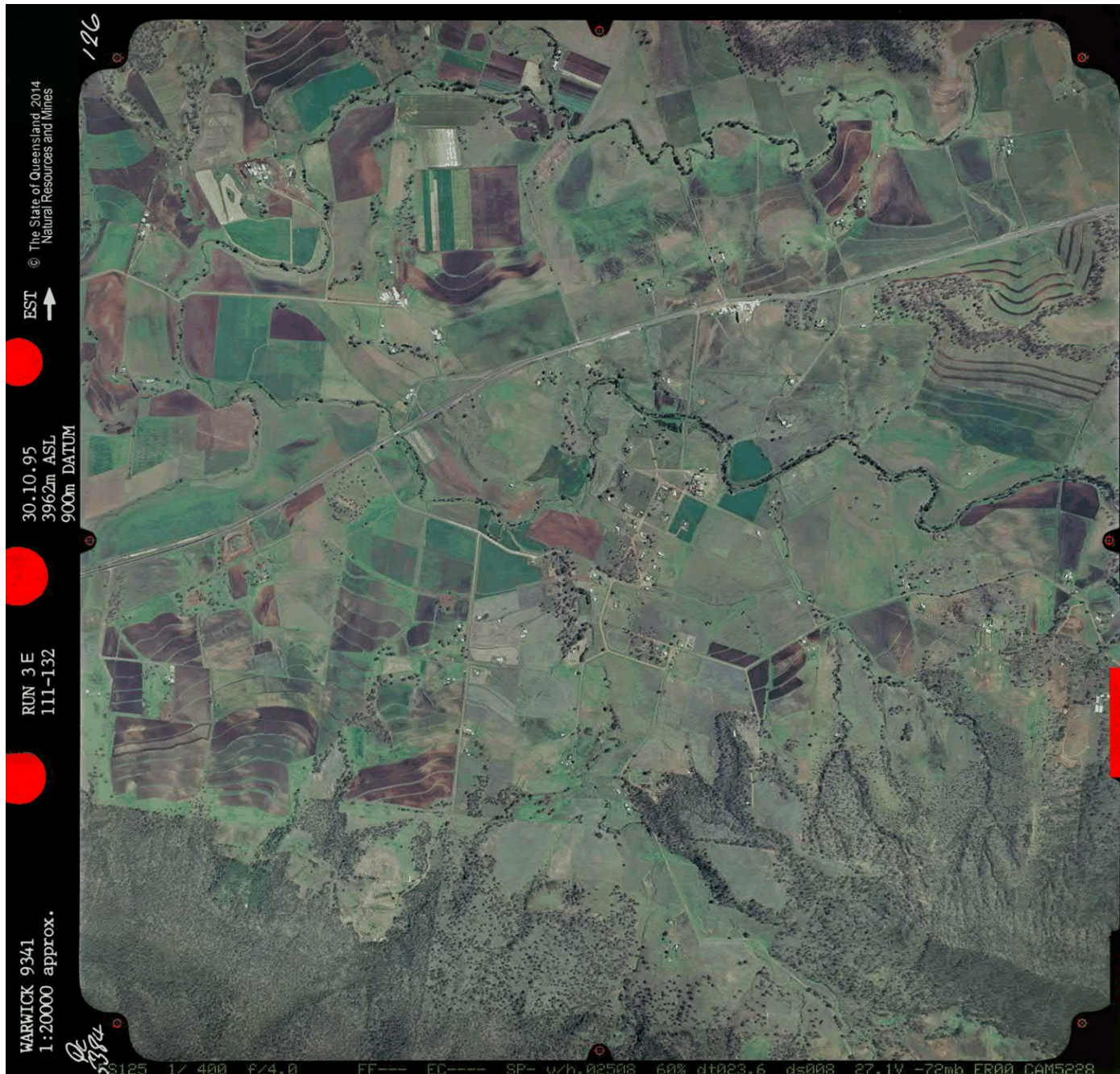
9850' ↑

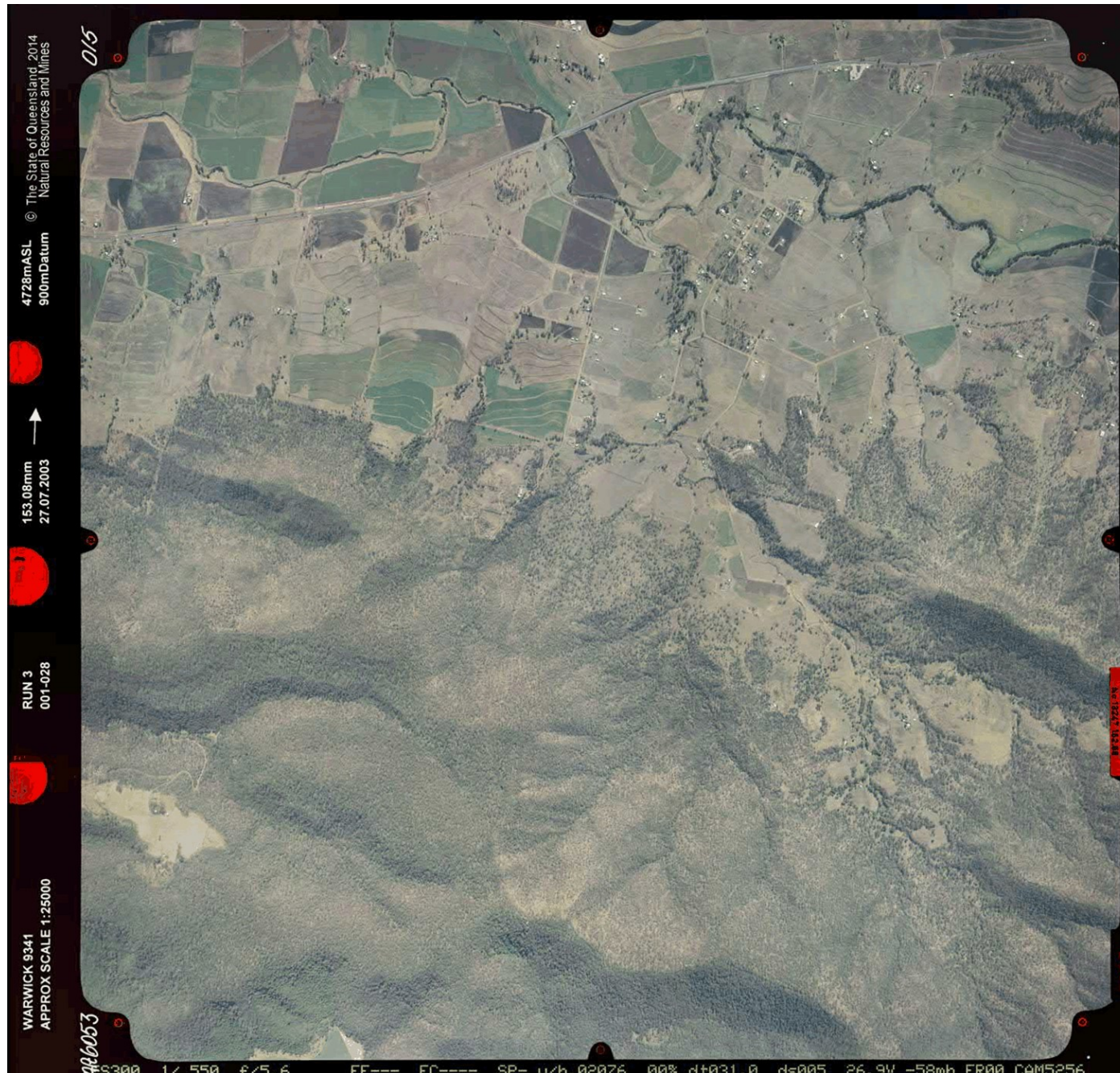
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Environment & Resource Management

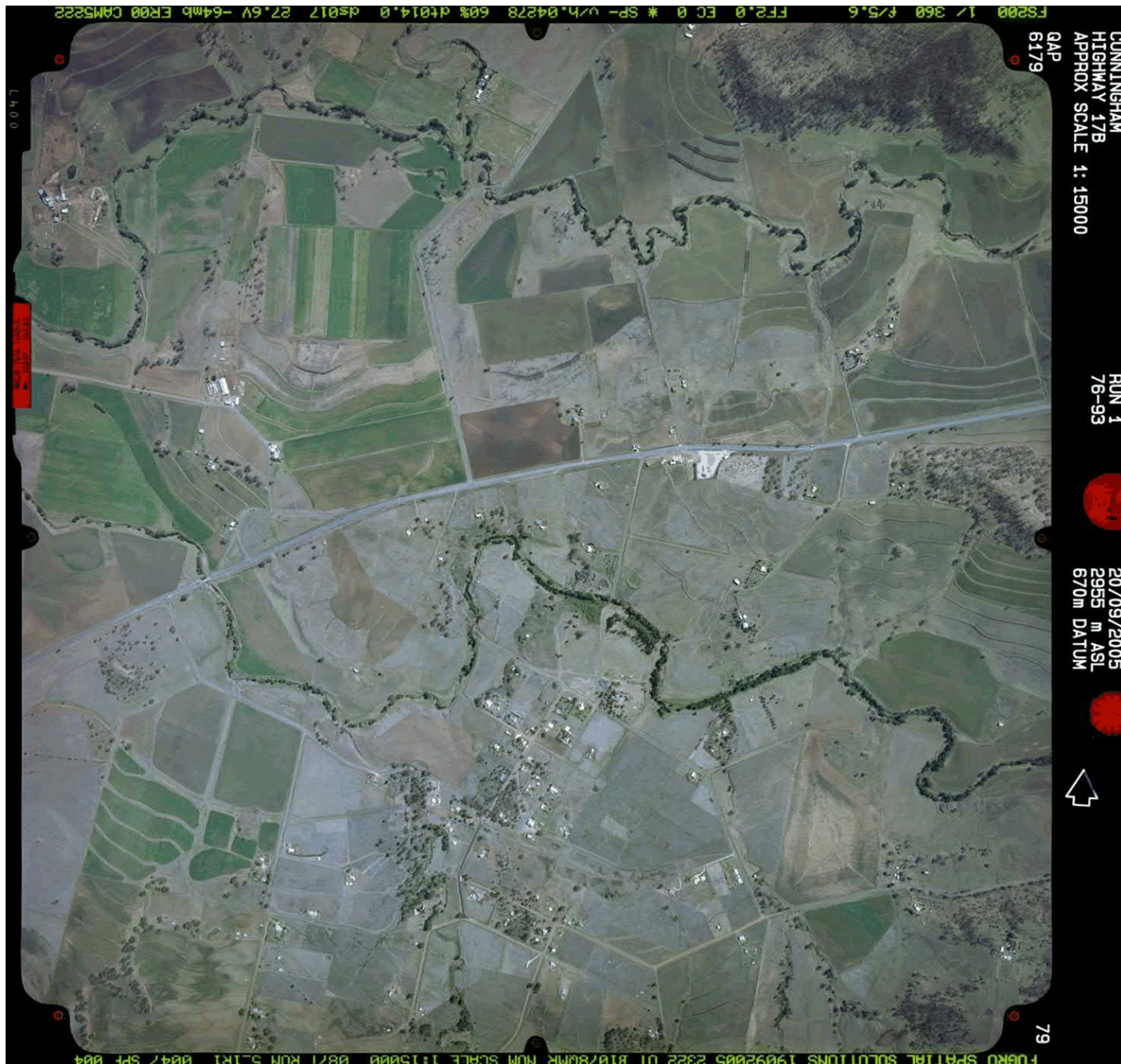














Appendix F

Certificates of Laboratory Analysis

F1

INITIAL ASSESSMENT
LAB DATA



CHAIN OF CUSTODY

ALS Laboratory please tick →

□ Sydney: 277 Woodpark Rd, Smithfield NSW 2176
Ph: 02 8794 8555 E: samples.sydney@alsenviro.com
□ Newcastle: 5 Rosgum Rd, Warabrook NSW 2304
Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com

□ Brisbane: 32 Shand St, Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
□ Townsville: 14-15 Desma Ct, Bohle QLD 4818
Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com

□ Melbourne: 2-4 Westall Rd, Springvale VIC 3171
Ph: 03 6549 9600 E: samples.melbourne@alsenviro.com
□ Adelaide: 2-1 Burma Rd, Pooraka SA 5095
Ph: 08 8359 0890 E: adelaide@alsenviro.com

□ Perth: 10 Hod Way, M
Ph: 08 9209 7655 E: sam
□ Launceston: 27 Wells
Ph: 03 6331 2158 E: laur

Environmental Division
Brisbane

Work Order Reference
EB1921909



Telephone : + 61-7-3243 7222

CLIENT: Environmental Advisors Pty Ltd		TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date):		FOR LABORATORY USE ONLY	
OFFICE: Sunshine Coast		(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)		Custody Seal	
PROJECT: 090 MARYVALE		<input type="checkbox"/> Non Standard or urgent TAT (List due date):		Free ice / frost receptacle	
ORDER NUMBER:		ALS QUOTE NO.: BN/217/19		Random Sample	
PROJECT MANAGER: Andrew Winters		CONTACT PH: 0409 662 747		Other comments	
SAMPLER: Jane Smalley/PAXTON		SAMPLER MOBILE: 049114302		COC SEQUENCE NUMBER (Circle)	
COC emailed to ALS? No		EDD FORMAT: Default		COC: ① 2 3 4 5 6 7	
Email Reports to (will default to PM if no other addresses are listed): Andrew Winters		RELINQUISHED BY: Jane Smalley		OF: ① 2 3 4 5 6 7	
Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au		DATE/TIME: 21/8/19		RECEIVED BY:	
				DATE/TIME:	
				RELINQUISHED BY:	
				DATE/TIME:	

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY		SAMPLE DETAILS MATRDX Solid(S) Water(W)		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)										Additional Information	
LAB ID	SAMPLE ID	DATE / TIME		MATRIX	TYPE & PRESERVATIVE <i>(refer to codes below)</i>	TOTAL BOTTLES	S-27+S-12 (TRHBTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2 + S-12 (8 metals, OC/OPPP)	S-2 Heavy Metals								Comments on likely contaminant level's, dilutions, or samples requiring specific QC analysis etc.
1	1/0 - 0.05	19/08/2019		Soil	Jar	1		x									
2	1/0.2-0.25	19/08/2019		Soil	Jar	1			x								
3	1/0.6-0.7	19/08/2019		Soil	Jar	1											
4	2/0-0.05	19/08/2019		Soil	Jar	1			x								
5	2/0.5-0.6	19/08/2019		Soil	Jar	1											
6	2/1.2-1.3	19/08/2019		Soil	Jar	1											
7	3/0-0.05	19/08/2019		Soil	Jar	1		x									
8	3/0.4-0.5	19/08/2019		Soil	Jar	1											
9	4/0-0.05	19/08/2019		Soil	Jar	1	x										
10	4/0.25-0.3	19/08/2019		Soil	Jar	1											
11	4/0.5-0.6	19/08/2019		Soil	Jar	1											
12	4/0.9-1.0	19/08/2019		Soil	Jar	1											
13	5/0-0.05	19/08/2019		Soil	Jar	1	x										
TOTAL						13	2	2	2	0	0	0	0	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176
Ph: 02 8784 8555 E: samples.sydney@alsenviro.com
☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304
Ph: 02 4905 6433 E: samples.newcastle@alsenviro.com

☒ Brisbane: 32 Shand St, Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ Townsville: 14-15 Desma Ct, Bolle QLD 4818
Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com

☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171
Ph: 03 9549 9500 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5095
Ph: 08 8359 0860 E: adelaide@alsenviro.com

☐ Perth: 10 Hod Way, Malaga WA 6090
Ph: 08 9209 7655 E: samples.perth@alsenviro.com
☐ Launceston: 27 Wellington St, Launceston TAS 7250
Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT:	Environmental Advisors Pty Ltd	TURNAROUND REQUIREMENTS:	<input checked="" type="checkbox"/> Standard TAT (List due date): <input type="checkbox"/> Non Standard or urgent TAT (List due date):		FOR LABORATORY USE ONLY (Circle)	
OFFICE:	Sunshine Coast	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)			<input type="checkbox"/> Custody Seal Intact <input type="checkbox"/> Free ice / frozen ice blocks present <input type="checkbox"/> Random Sample Temperature on Receipt <input type="checkbox"/> Other comments	
PROJECT:	090 MARYVALE	ALS QUOTE NO.:	BN/217/19	COC SEQUENCE NUMBER (Circle)		
ORDER NUMBER:				COC:	1 2 3 4 5 6 7	
PROJECT MANAGER: Andrew Winters		CONTACT PH: 0409 662 747		OF:	1 2 3 4 5 6 7	
SAMPLER:	Jane Smalley/PAXTON	SAMPLER MOBILE:	049114302	RELINQUISHED BY:		
COC emailed to ALS? No		EDD FORMAT: Default		Jane Smalley		
Email Reports to (will default to PM if no other addresses are listed): Andrew Winters				DATE/TIME:		
Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au				21/8/19		
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:						

ALS USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)						Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-27+S-12 (TRH/BTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2+S-12 (8 metals, OC/OP)	S-2 Heavy Metals					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
14	5/0.2-0.3	19/08/2019	Soil	Jar	1	x							
15	5/0.4-0.5	19/08/2019	Soil	Jar	1	x							
16	6/0-0.05	19/08/2019	Soil	Jar	1								
17	6/0.2-0.25	19/08/2019	Soil	Jar + BAG	1	x							
18	6/0.35-0.4	19/08/2019	Soil	Jar	1			x					
19	6/0.45-0.5	19/08/2019	Soil	Jar	1			x					
20	6/1-1.1	19/08/2019	Soil	Jar	1								
21	7/0-0.05	19/08/2019	Soil	Jar	1		x						
22	7/0.25-0.3	19/08/2019	Soil	Jar	1			x					
23	8/0-0.05	19/08/2019	Soil	Jar	1								
24	8/0.5-0.6	19/08/2019	Soil	Jar	1			x					
25	9/0-0/05	19/08/2019	Soil	Jar	1			x					
26	9/0.25-0.3	19/08/2019	Soil	Jar	1								
TOTAL					26	3	1	5	0	0	0	0	0

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

CHAIN OF CUSTODY														
ALS Laboratory: please tick →			<input type="checkbox"/> Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E: samples.syd@alsenviro.com <input type="checkbox"/> Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4908 9433 E: samples.newcastle@alsenviro.com			<input checked="" type="checkbox"/> Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com <input type="checkbox"/> Townsville: 14-15 Desma Ct, Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com			<input type="checkbox"/> Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com <input type="checkbox"/> Adelaide: 2-1 Burma Rd, Pooraka SA 5005 Ph: 08 8359 0990 E: adelaide@alsenviro.com			<input type="checkbox"/> Perth: 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com <input type="checkbox"/> Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com		
CLIENT: Environmental Advisors Pty Ltd			TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date):			FOR LABORATORY USE ONLY (Circle)								
OFFICE: Sunshine Coast			(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)			<input type="checkbox"/> Non Standard or urgent TAT (List due date):								
PROJECT: 090 MARYVALE			ALS QUOTE NO.: BN/217/19			COC SEQUENCE NUMBER (Circle)								
ORDER NUMBER:						COC: ① 2 3 4 5 6 7								
PROJECT MANAGER: Andrew Winters			CONTACT PH: 0409 662 747			OF: ① 2 3 4 5 6 7								
SAMPLER: Jane Smalley/PAXTON			SAMPLER MOBILE: 049114302			RECEIVED BY:			RECEIVED BY:					
COC emailed to ALS? No			EDD FORMAT: Default			DATE/TIME:			DATE/TIME:					
Email Reports to (will default to PM if no other addresses are listed): Andrew Winters			RELINQUISHED BY: Jane Smalley			DATE/TIME:			DATE/TIME:					
Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au			DATE/TIME: 21/8/19											
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:														
ALS USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION			ANALYSIS REQUIRED including SUITES (NB Suite Codes must be listed to attract suite price)			Additional Information			
								Where Metals are required, specify Total (undiluted bottle required) or Dissolved (field filtered bottle required).						
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-27+S-12 (TRH/IBTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2 + S-12 (8 metals, OC/OP)	S-2 Heavy Metals				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.		
27	9/0.4-0.5	19/08/2019	Soil	Jar	1									
28	9/1.0-1.1	19/08/2019	Soil	Jar	1									
29	10/0-0.05	19/08/2019	Soil	Jar	1									
30	10/0.4-0.5	19/08/2019	Soil	Jar	1									
31	11/0-0.05	19/08/2019	Soil	Jar	1	x								
32	11/0.25-0.3	19/08/2019	Soil	Jar	1									
33	11/0.4-0.5	19/08/2019	Soil	Jar	1									
34	11/0.9-1.0	19/08/2019	Soil	Jar	1									
35	12/0-0.05	19/08/2019	Soil	Jar	1									
36	12/0.5-0.6	19/08/2019	Soil	Jar	1									
37	13/0-0.05	19/08/2019	Soil	Jar	1		x							
38	13/0.25-0.3	19/08/2019	Soil	Jar	1	x								
39	13/0.5-0.6	19/08/2019	Soil	Jar	1			x						
TOTAL:					39	2	1	1	0	0	0	0		
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Air/tight Unpreserved Plastic V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Air/tight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag														

CHAIN OF CUSTODY				ALS Laboratory: please tick →				<input type="checkbox"/> Sydney: 277 Woodpark Rd, Smithfield NSW 2178 Ph: 02 8794 6555 E: samples.sydney@alsenviro.com <input type="checkbox"/> Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4068 0433 E: samples.newcastle@alsenviro.com <input checked="" type="checkbox"/> Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com <input type="checkbox"/> Townsville: 14-15 Desma Ct, Bohle QLD 4819 Ph: 07 4756 0600 E: townsville@alsenviro.com <input type="checkbox"/> Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 9549 0600 E: samples.melbourne@alsenviro.com <input type="checkbox"/> Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0880 E: adelaide@alsenviro.com <input type="checkbox"/> Perth: 10 Hod Way, Molega WA 6009 Ph: 08 9209 7855 E: samples.perth@alsenviro.com <input type="checkbox"/> Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com				
CLIENT: Environmental Advisors Pty Ltd		TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date):		FOR LABORATORY USE ONLY (Circle)								
ICE: Sunshine Coast		(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):										
JECT: 090 MARYVALE		ALS QUOTE NO.: BN/217/19		COC SEQUENCE NUMBER (Circle)								
IER NUMBER:				COC: ① 2 3 4 5 6 7								
JECT MANAGER: Andrew Winters		CONTACT PH: 0409 662 747		OF: ① 2 3 4 5 6 7								
PLER: Jane Smalley/PAXTON		SAMPLER MOBILE: 049114302		RELINQUISHED BY: Jane Smalley		RECEIVED BY:						
: emailed to ALS? No		EDD FORMAT: Default		DATE/TIME:		DATE/TIME:						
If Reports to (will default to PM if no other addresses are listed): Andrew Winters				DATE/TIME:		DATE/TIME:						
If Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au				DATE/TIME:		DATE/TIME:						
MENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:												
LAB USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (fine filtered bottle required).				Additional Information		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-27+S-12 (TRHIBTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2 + S-12 (8 metals, OC/OP)	S-2 Heavy Metals				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
0	14/0-0.05	19/08/2019	Soil	Jar	1		x					
1	14/0.5-0.6	19/08/2019	Soil	Jar	1							
2	15/0-0.05	19/08/2019	Soil	Jar	1							
3	15/0.25-0.3	19/08/2019	Soil	Jar	1							
4	15/0.5-0.6	19/08/2019	Soil	Jar	1							
5	15/1.0-1.1	19/08/2019	Soil	Jar	1							
6	16/0-0.05	19/08/2019	Soil	Jar	1							
7	16/0.15-0.2	19/08/2019	Soil	Jar	1			x				
8	16/0.5-0.6	19/08/2019	Soil	Jar	1							
9	13/1.0-1.1	19/08/2019	Soil	Jar	1							
0	17/0-0.025	19/08/2019	Soil	Jar	1			x				
1	17/0.5-0.6	19/08/2019	Soil	Jar	1							
2	17/1.0-1.1	19/08/2019	Soil	Jar	1							
TOTAL					52	0	1	2	0	0	0	0

r Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 OA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Inc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY <small>ALS Laboratory: please tick →</small>																
CLIENT: Environmental Advisors Pty Ltd OFFICE: Sunshine Coast PROJECT: 090 MARYVALE ORDER NUMBER: PROJECT MANAGER: Andrew Winters SAMPLER: Jane Smalley/PAXTON CDC emailed to ALS? No Email Reports to (will default to PM if no other addresses are listed): Andrew Winters Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au				TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date): <small>(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)</small> <input type="checkbox"/> Non Standard or urgent TAT (List due date): ALS QUOTE NO.: BN/217/19 CONTACT PH: 0409 662 747 SAMPLER MOBILE: 049114302 EDD FORMAT: Default RELINQUISHED BY: Jane Smalley DATE/TIME: 21/8/19				FOR LABORATORY USE ONLY (Circle) Custody Seal Intact? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Free ice / frozen ice bricks present upon receipt? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Random Sample Temperature on Receipt: °C Other comment:								
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:																
ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) <small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (Filtrated bottle required).</small>						Additional Information				
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL BOTTLES	S-27+S-12 (TRIBUTYXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2 + S-12 (8 metals, OC/POPP)	S-2 Heavy Metals								
53	18/0-0.025	19/08/2019	Soil	Jar	1			x								
54	18/0.25-0.3	19/08/2019	Soil	Jar	1											
55	18/0.5-0.6	19/08/2019	Soil	Jar	1											
56	18/1-1.1	19/08/2019	Soil	Jar	1											
57	19/0-0.05	19/08/2019	Soil	Jar	1			x								
58	19/0.5-0.6	19/08/2019	Soil	Jar	1											
59	19/1.0-1.1	19/08/2019	Soil	Jar	1											
60	20/0-0.05	19/08/2019	Soil	Jar	1											
61	20/0.3-0.4	19/08/2019	Soil	Jar	1	x										
62	20/0.5-0.6	19/08/2019	Soil	Jar	1											
63	20/1.0-1.1	19/08/2019	Soil	Jar	1											
64	DUP 1	19/08/2019	Soil	Jar	1		x									
65	DUP2	19/08/2019	Soil	Jar	1	x										
TOTAL					65	2	1	2	0	0	0	0	0	0	0	0
<small>Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.</small>																

CHAIN OF CUSTODY <small>ALS Laboratory: please tick →</small>										<div style="display: flex; justify-content: space-between;"> <div> Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E:samples.sydney@alsenviro.com Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4068 9433 E:samples.newcastle@alsenviro.com </div> <div> Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E:samples.brisbane@alsenviro.com Townsville: 14-15 Dosma Ct, Bohle QLD 4818 Ph: 07 4706 0600 E:townsville.environment@alsenviro.com </div> <div> Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8540 9600 E: samples.melbourne@alsenviro.com Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E:adelaide@alsenviro.com </div> <div> Perth: 10 Hod Way, Malaga WA 6000 Ph: 08 9209 7655 E: samples.perth@alsenviro.com Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2155 E: launceston@alsenviro.com </div> </div>										
CLIENT: Environmental Advisors Pty Ltd OFFICE: Sunshine Coast PROJECT: 090 MARYVALE ORDER NUMBER: PROJECT MANAGER: Andrew Winters SAMPLER: Jane Smalley/PAXTON COC emailed to ALS? No <small>Email Reports to (will default to PM if no other addresses are listed): Andrew Winters</small> <small>Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au</small>				TURNAROUND REQUIREMENTS: <small>(Standard TAT may be longer for some tests e.g. Ultra Traco Organics)</small> <input checked="" type="checkbox"/> Standard TAT (List due date): <input type="checkbox"/> Non Standard or urgent TAT (List due date):				FOR LABORATORY USE ONLY: (Circle) Custody Seal Intact? Yes No N/A Free ice / frozen ice bricks present upon receipt? Yes No N/A Random Sample Temperature on Receipt: °C Other comments:												
CONTACT PH: 0409 662 747 SAMPLER MOBILE: 049114302 EDD FORMAT: Default				RELINQUISHED BY: Jane Smalley DATE/TIME: 21/8/19				RECEIVED BY: DATE/TIME:				RELINQUISHED BY: DATE/TIME:				RECEIVED BY: DATE/TIME:				
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:																				
ALS USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)				CONTAINER INFORMATION				ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) <small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).</small>								Additional Information		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL BOTTLES	S-27+S-12 (TRIBUTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2 + S-12 (8 metals, OCP/OPP)	S-2 Heavy Metals												
66	DUP3	19/08/2019	Soil	Jar	1	x														
67	7/0.5-0.6	19/8																		
					TOTAL	66	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.																				



Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EB1921909

Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Contact	: Customer Services EB
Address	: PO BOX 505 BUDDINA QLD 4575	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: andrew@environmentaladvisors.co m.au	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: ---	Telephone	: +61-7-3243 7222
Facsimile	: ---	Facsimile	: +61-7-3243 7218
Project	: 090 MARYVALE	Page	: 1 of 4
Order number	: ---	Quote number	: EB2019ENVADV0001 (BN/217/19)
C-O-C number	: ---	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ---		
Sampler	: JANE SMALLEY, PAXTON KEARNEY		

Dates

Date Samples Received	: 21-Aug-2019 15:15	Issue Date	: 21-Aug-2019
Client Requested Due Date	: 28-Aug-2019	Scheduled Reporting Date	: 28-Aug-2019

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 5	Temperature	: 2.0°C, 3.3°C, -0.7°C, 0.9°C, 22.0°C - Ice present
Receipt Detail	: MED ESKY	No. of samples received / analysed	: 67 / 28

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please be advised that an extra sample "7/0.5-0.6" was received in addition to the samples listed on the COC. This sample has been added to the end of the work order and will remain on hold unless we are otherwise advised.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

RIGHT SOLUTIONS | RIGHT PARTNER

Issue Date : 21-Aug-2019
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Work Order : EB1921909 Amendment 0
Client : ENVIRONMENTAL ADVISORS



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-12 DC/OP Pesticides	SOIL - S-27 TRI/BTEX/PAH/Phenols/8Metals
EB1921909-001	19-Aug-2019 00:00	1/0 - 0.05		✓	✓	✓	
EB1921909-002	19-Aug-2019 00:00	1/0 2-0.25		✓	✓		
EB1921909-003	19-Aug-2019 00:00	1/0 6-0.7	✓				
EB1921909-004	19-Aug-2019 00:00	2/0-0.05		✓	✓		
EB1921909-005	19-Aug-2019 00:00	2/0 5-0.6	✓				
EB1921909-006	19-Aug-2019 00:00	2/1 2-1.3	✓				
EB1921909-007	19-Aug-2019 00:00	3/0-0.05		✓	✓	✓	
EB1921909-008	19-Aug-2019 00:00	3/0 4-0.5	✓				
EB1921909-009	19-Aug-2019 00:00	4/0-0.05		✓		✓	✓
EB1921909-010	19-Aug-2019 00:00	4/0 25-0.3	✓				
EB1921909-011	19-Aug-2019 00:00	4/0 5-0.6	✓				
EB1921909-012	19-Aug-2019 00:00	4/0 9-1.0	✓				
EB1921909-013	19-Aug-2019 00:00	5/0-0.05		✓		✓	✓
EB1921909-014	19-Aug-2019 00:00	5/0 2-0.3		✓		✓	✓
EB1921909-015	19-Aug-2019 00:00	5/0 4-0.5		✓		✓	✓
EB1921909-016	19-Aug-2019 00:00	6/0-0.05	✓				
EB1921909-017	19-Aug-2019 00:00	6/0 2-0.25		✓		✓	✓
EB1921909-018	19-Aug-2019 00:00	6/0 35-0.4		✓	✓		
EB1921909-019	19-Aug-2019 00:00	6/0 45-0.5		✓	✓		
EB1921909-020	19-Aug-2019 00:00	6/1-1.1	✓				
EB1921909-021	19-Aug-2019 00:00	7/0-0.05		✓	✓	✓	
EB1921909-022	19-Aug-2019 00:00	7/0 25-0.3		✓	✓		
EB1921909-023	19-Aug-2019 00:00	8/0-0.05	✓				
EB1921909-024	19-Aug-2019 00:00	8/0 5-0.6		✓	✓		
EB1921909-025	19-Aug-2019 00:00	9/0-0.05		✓	✓		
EB1921909-026	19-Aug-2019 00:00	9/0 25-0.3	✓				
EB1921909-027	19-Aug-2019 00:00	9/0 4-0.5	✓				
EB1921909-028	19-Aug-2019 00:00	9/1 0-1.1	✓				
EB1921909-029	19-Aug-2019 00:00	10/0-0.05	✓				
EB1921909-030	19-Aug-2019 00:00	10/0 4-0.5	✓				
EB1921909-031	19-Aug-2019 00:00	11/0-0.05		✓		✓	✓
EB1921909-032	19-Aug-2019 00:00	11/0 25-0.3	✓				
EB1921909-033	19-Aug-2019 00:00	11/0 4-0.5	✓				
EB1921909-034	19-Aug-2019 00:00	11/0 9-1.0	✓				
EB1921909-035	19-Aug-2019 00:00	12/0-0.05	✓				

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Page : 3 of 4
Work Order : EB1921909 Amendment 0
Client : ENVIRONMENTAL ADVISORS



			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S02 8 Metals (incl. Digestion)	SOIL - S12 OC/OP Pesticides	SOIL - S27 TRHBTX/NPAH/Phenols/8Metals
EB1921909-036	19-Aug-2019 00:00	12/0.5-0.6	✓				
EB1921909-037	19-Aug-2019 00:00	13/0-0.05		✓	✓	✓	
EB1921909-038	19-Aug-2019 00:00	13/0.25-0.3		✓		✓	✓
EB1921909-039	19-Aug-2019 00:00	13/0.5-0.6		✓	✓		
EB1921909-040	19-Aug-2019 00:00	14/0-0.05		✓	✓	✓	
EB1921909-041	19-Aug-2019 00:00	14/0.5-0.6	✓				
EB1921909-042	19-Aug-2019 00:00	15/0-0.05	✓				
EB1921909-043	19-Aug-2019 00:00	15/0.25-0.3	✓				
EB1921909-044	19-Aug-2019 00:00	15/0.5-0.6	✓				
EB1921909-045	19-Aug-2019 00:00	15/1.0-1.1	✓				
EB1921909-046	19-Aug-2019 00:00	16/0-0.05	✓				
EB1921909-047	19-Aug-2019 00:00	16/0.15-0.2		✓	✓		
EB1921909-048	19-Aug-2019 00:00	16/0.5-0.6	✓				
EB1921909-049	19-Aug-2019 00:00	13/1.0-1.1	✓				
EB1921909-050	19-Aug-2019 00:00	17/0-0.025		✓	✓		
EB1921909-051	19-Aug-2019 00:00	17/0.5-0.6	✓				
EB1921909-052	19-Aug-2019 00:00	17/1.0-1.1	✓				
EB1921909-053	19-Aug-2019 00:00	18/0-0.025		✓	✓		
EB1921909-054	19-Aug-2019 00:00	18/0.25-0.3	✓				
EB1921909-055	19-Aug-2019 00:00	18/0.5-0.6	✓				
EB1921909-056	19-Aug-2019 00:00	18/1-1.1	✓				
EB1921909-057	19-Aug-2019 00:00	19/0-0.05		✓	✓		
EB1921909-058	19-Aug-2019 00:00	19/0.5-0.6	✓				
EB1921909-059	19-Aug-2019 00:00	19/1.0-1.1	✓				
EB1921909-060	19-Aug-2019 00:00	20/0-0.05	✓				
EB1921909-061	19-Aug-2019 00:00	20/0.3-0.4		✓		✓	✓
EB1921909-062	19-Aug-2019 00:00	20/0.5-0.6	✓				
EB1921909-063	19-Aug-2019 00:00	20/1.0-1.1	✓				
EB1921909-064	19-Aug-2019 00:00	DUP 1		✓	✓	✓	
EB1921909-065	19-Aug-2019 00:00	DUP2		✓		✓	✓
EB1921909-066	19-Aug-2019 00:00	DUP3		✓		✓	✓
EB1921909-067	19-Aug-2019 00:00	7/0.5-0.6	✓				

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Issue Date : 21-Aug-2019
Page : 4 of 4
Work Order : EB1921909 Amendment 0
Client : ENVIRONMENTAL ADVISORS



Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	admin@environmentaladvisors.com.au
- Chain of Custody (CoC) (COC)	Email	admin@environmentaladvisors.com.au

ANDREW WINTERS

- *AU Certificate of Analysis - NATA (COA)	Email	andrew@environmentaladvisors.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	andrew@environmentaladvisors.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	andrew@environmentaladvisors.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	andrew@environmentaladvisors.com.au
- Chain of Custody (CoC) (COC)	Email	andrew@environmentaladvisors.com.au
- EDI Format - ENMRG (ENMRG)	Email	andrew@environmentaladvisors.com.au
- EDI Format - XTab (XTAB)	Email	andrew@environmentaladvisors.com.au



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EB1921909	Page	: 1 of 7
Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Telephone	: +61-7-3243 7222
Project	: 090 MARYVALE	Date Samples Received	: 21-Aug-2019
Site	: ---	Issue Date	: 28-Aug-2019
Sampler	: JANE SMALLEY, PAXTON KEARNEY	No. of samples received	: 67
Order number	:	No. of samples analysed	: 28

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 DQD 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 Matrix Spike outliers occur.
- Laboratory Control outliers exist - please see following pages for full details.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- NO Quality Control Sample Frequency Outliers exist.

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Work Order : EB1921909
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP068B: Organophosphorus Pesticides (OP)	QC-2538227-002	----	Parathion	56-38-2	133 %	57-118%	Recovery greater than upper control limit
EP068B: Organophosphorus Pesticides (OP)	QC-2538236-002	----	Parathion	56-38-2	125 %	57-118%	Recovery greater than upper control limit

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)								
1/0 - 0.05, 2/0-0.05, 4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 6/0.45-0.5, 7/0.25-0.3, 9/0-0.05, 13/0-0.05, 13/0.5-0.6, 16/0.15-0.2, 18/0-0.025, 20/0.3-0.4, DUP2,	1/0.2-0.25, 3/0-0.05, 5/0-0.05, 5/0.4-0.5, 6/0.35-0.4, 7/0-0.05, 8/0.5-0.6, 11/0-0.05, 13/0.25-0.3, 14/0-0.05, 17/0-0.025, 19/0-0.05, DUP 1, DUP3	19-Aug-2019	----	----	----	21-Aug-2019	02-Sep-2019	✓

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Work Order : EB1921909
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



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	
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
1/0 - 0.05, 2/0-0.05, 4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 6/0.45-0.5, 7/0.25-0.3, 9/0-0.05, 13/0-0.05, 13/0.5-0.6,	1/0.2-0.25, 3/0-0.05, 5/0-0.05, 5/0.4-0.5, 6/0.35-0.4, 7/0-0.05, 8/0.5-0.6, 11/0-0.05, 13/0.25-0.3, 14/0-0.05	19-Aug-2019	22-Aug-2019	15-Feb-2020	✔	26-Aug-2019	15-Feb-2020	✔
Soil Glass Jar - Unpreserved (EG005T)								
16/0.15-0.2, 18/0-0.025, 20/0.3-0.4, DUP2,	17/0-0.025, 19/0-0.05, DUP 1, DUP3	19-Aug-2019	22-Aug-2019	15-Feb-2020	✔	27-Aug-2019	15-Feb-2020	✔
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
1/0 - 0.05, 2/0-0.05, 4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 6/0.45-0.5, 7/0.25-0.3, 9/0-0.05, 13/0-0.05, 13/0.5-0.6,	1/0.2-0.25, 3/0-0.05, 5/0-0.05, 5/0.4-0.5, 6/0.35-0.4, 7/0-0.05, 8/0.5-0.6, 11/0-0.05, 13/0.25-0.3, 14/0-0.05	19-Aug-2019	22-Aug-2019	16-Sep-2019	✔	27-Aug-2019	16-Sep-2019	✔
Soil Glass Jar - Unpreserved (EG035T)								
16/0.15-0.2, 18/0-0.025, 20/0.3-0.4, DUP2,	17/0-0.025, 19/0-0.05, DUP 1, DUP3	19-Aug-2019	22-Aug-2019	16-Sep-2019	✔	28-Aug-2019	16-Sep-2019	✔

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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	
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
1/0 - 0.05, 4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 11/0-0.05, 13/0.25-0.3, 20/0.3-0.4, DUP2,	3/0-0.05, 5/0-0.05, 5/0.4-0.5, 7/0-0.05, 13/0-0.05, 14/0-0.05, DUP 1, DUP3	19-Aug-2019	22-Aug-2019	02-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
1/0 - 0.05, 4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 11/0-0.05, 13/0.25-0.3, 20/0.3-0.4, DUP2,	3/0-0.05, 5/0-0.05, 5/0.4-0.5, 7/0-0.05, 13/0-0.05, 14/0-0.05, DUP 1, DUP3	19-Aug-2019	22-Aug-2019	02-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 13/0.25-0.3, DUP2,	5/0-0.05, 5/0.4-0.5, 11/0-0.05, 20/0.3-0.4, DUP3	19-Aug-2019	22-Aug-2019	02-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 13/0.25-0.3, DUP2,	5/0-0.05, 5/0.4-0.5, 11/0-0.05, 20/0.3-0.4, DUP3	19-Aug-2019	22-Aug-2019	02-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
4/0-0.05, 5/0.2-0.3, 6/0.2-0.25, 13/0.25-0.3, DUP2,	5/0-0.05, 5/0.4-0.5, 11/0-0.05, 20/0.3-0.4, DUP3	19-Aug-2019	22-Aug-2019	02-Sep-2019	✓	23-Aug-2019	02-Sep-2019	✓

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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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)		19-Aug-2019	22-Aug-2019	02-Sep-2019	✔	23-Aug-2019	02-Sep-2019	✔
4/0-0.05,	5/0-0.05,							
5/0.2-0.3,	5/0.4-0.5,							
6/0.2-0.25,	11/0-0.05,							
13/0.25-0.3,	20/0.3-0.4,							
DUP2,	DUP3							
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)		19-Aug-2019	22-Aug-2019	02-Sep-2019	✔	23-Aug-2019	02-Sep-2019	✔
4/0-0.05,	5/0-0.05,							
5/0.2-0.3,	5/0.4-0.5,							
6/0.2-0.25,	11/0-0.05,							
13/0.25-0.3,	20/0.3-0.4,							
DUP2,	DUP3							

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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 (%)		Evaluation	Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected		
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	4	25	16.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	25	8.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	25	8.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	25	8.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard

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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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
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 (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
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 (2013) Schedule B(3) (Method 202)
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.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ 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.



QUALITY CONTROL REPORT

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Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Contact	: Customer Services EB
Address	: PO BOX 505	Address	: 2 Byth Street Stafford QLD Australia 4053
	BUDDINA QLD 4575		
Telephone	: ---	Telephone	: +61-7-3243 7222
Project	: 090 MARYVALE	Date Samples Received	: 21-Aug-2019
Order number	: ---	Date Analysis Commenced	: 21-Aug-2019
C-D-C number	: ---	Issue Date	: 28-Aug-2019
Sampler	: JANE SMALLEY, PAXTON KEARNEY		
Site	: ---		
Quote number	: BN/217/19		
No. of samples received	: 67		
No. of samples analysed	: 28		



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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

RIGHT SOLUTIONS | RIGHT PARTNER

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General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

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 QVM-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%.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2538225)									
EB1921909-001	1/0 - 0.05	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	12	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	16	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	84	83	1.20	0% - 50%
EB1921909-019	6/0.45-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	18	19	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	44	43	0.00	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2538232)									
EB1921909-047	16/0.15-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	11	11.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	15	15	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	14	12.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	7	29.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	30	36	19.4	No Limit
EB1921912-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	45	46	0.00	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	18	18	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2538232) - continued									
EB1921912-004	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	25	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	15.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	58	62	5.17	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2538231)									
EB1921909-001	1/0 - 0.05	EA055: Moisture Content	----	0.1	%	22.9	22.5	1.73	0% - 20%
EB1921909-019	6/0.45-0.5	EA055: Moisture Content	----	0.1	%	14.8	14.9	0.718	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2538238)									
EB1921909-047	16/0.15-0.2	EA055: Moisture Content	----	0.1	%	14.2	13.6	4.70	0% - 50%
EB1921912-004	Anonymous	EA055: Moisture Content	----	0.1	%	20.8	20.5	1.12	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2538226)									
EB1921909-001	1/0 - 0.05	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1921909-019	6/0.45-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2538233)									
EB1921909-047	16/0.15-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1921912-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538227)									
EB1921909-001	1/0 - 0.05	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	958-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538227) - continued									
EB1921908-001	1/0 - 0.05	EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EB1921908-038	13/0 25-0.3	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-85-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538236)									
EB1921912-015	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538236) - continued									
EB1921912-015	Anonymous	EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	958-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EB1921909-061	20/0.3-0.4	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	958-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538236) - continued									
EB1921909-061	20/0.3-0.4	EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538227)									
EB1921909-001	1/0 - 0.05	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EB1921909-038	13/0.25-0.3	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538227) - continued									
EB1921909-038	13/0.25-0.3	EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538236)									
EB1921912-015	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EB1921909-061	20/0.3-0.4	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538236) - continued									
EB1921909-061	20/0.3-0.4	EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2538229)									
EB1921909-009	4/0-0.05	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-85-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	58-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2538236)									
EB1921909-061	20/0.3-0.4	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-85-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	58-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2538229)									
EB1921909-009	4/0-0.05	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2538229) - continued									
EB1921909-009	4/0-0.05	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2538235)									
EB1921909-061	20/0.3-0.4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538228)									
EB1921909-009	4/0-0.05	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538230)									
EB1921909-009	4/0-0.05	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538234)									
EB1921909-061	20/0.3-0.4	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538237)									
EB1921909-061	20/0.3-0.4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538228)									
EB1921909-009	4/0-0.05	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538230)									
EB1921909-009	4/0-0.05	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538234)									
EB1921909-061	20/0.3-0.4	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538237)									
EB1921909-061	20/0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2538230)									
EB1921909-009	4/0-0.05	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1921909-061	20/0.3-0.4	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
EB1921909-061	20/0.3-0.4	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

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Method Blank (MB) and Laboratory Control Spike (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 Spike (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			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538225)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	98 mg/kg	108	84	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
EG005T: Chromium	7440-47-3	2	mg/kg	<2	15.4 mg/kg	116	83	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	48 mg/kg	106	86	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	50 mg/kg	105	84	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.4 mg/kg	109	89	126
EG005T: Zinc	7440-66-6	5	mg/kg	<5	115 mg/kg	104	87	127
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538232)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	98 mg/kg	96.0	84	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
EG005T: Chromium	7440-47-3	2	mg/kg	<2	15.4 mg/kg	106	83	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	48 mg/kg	98.4	86	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	50 mg/kg	98.8	84	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.4 mg/kg	105	89	126
EG005T: Zinc	7440-66-6	5	mg/kg	<5	115 mg/kg	95.5	87	127
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538226)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.0847 mg/kg	93.3	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538233)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.0847 mg/kg	88.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538227)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	111	54	121
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	111	80	134
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	111	49	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	117	76	136
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	61	122
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	65	130
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	70	130
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	105	58	118
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	56	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	51	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	57	118
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	67	129
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	62	121

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Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538227) - continued								
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	60	137
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	61	122
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	115	60	123
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	117	52	125
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	55	125
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	118	80	142
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	55	129
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	89.4	53	136
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60- 57-1	0.05	mg/kg	<0.05	----	----	----	----
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538236)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	54	121
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	107	80	134
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	108	49	121
EP068: gamma-BHC	58-88-9	0.05	mg/kg	<0.05	0.5 mg/kg	112	76	136
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	61	122
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	65	130
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	70	130
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	100	58	118
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	56	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	51	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	57	118
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	67	129
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	62	121
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	60	137
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	61	122
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	60	123
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	110	52	125
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	55	125
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	120	80	142
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.7	55	129
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	87.1	53	136
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----

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Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538236) - continued								
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538227)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	41	114
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	25	120
EP068: Monocrotophos	6823-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	71.9	35	135
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	108	44	131
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	70	131
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	70	130
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	109	60	122
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	64	125
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	69	115
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	66	120
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	# 133	57	118
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	70	130
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	62	127
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	80	130
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	58.8	55	106
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	80	134
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	122	61	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	120	57	124
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	35	127
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538236)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	41	114
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	25	120
EP068: Monocrotophos	6823-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	77.1	35	135
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	44	131
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	70	131
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	70	130
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	106	60	122
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	64	125
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.1	69	115
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	66	120
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	# 125	57	118
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	70	130
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	62	127
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	80	130
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	55.5	55	106
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	80	134

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Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
						Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538236) - continued									
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	113	61	123	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	57	124	
EP068: Azinphos Methyl	88-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	35	127	
EP075(SIM)A: Phenolic Compounds (QCLot: 2538229)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	1.5 mg/kg	109	85	129	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	1.5 mg/kg	115	85	127	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	1.5 mg/kg	108	78	132	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	3 mg/kg	111	77	135	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	1.5 mg/kg	109	43	156	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	1.5 mg/kg	110	70	141	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	1.5 mg/kg	105	70	135	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	1.5 mg/kg	103	73	136	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	1.5 mg/kg	108	53	138	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	1.5 mg/kg	99.2	51	140	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	1.5 mg/kg	100	46	140	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	3 mg/kg	86.8	20	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 2538236)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	1.5 mg/kg	119	85	129	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	1.5 mg/kg	114	85	127	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	1.5 mg/kg	115	78	132	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	3 mg/kg	118	77	135	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	1.5 mg/kg	122	43	156	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	1.5 mg/kg	115	70	141	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	1.5 mg/kg	110	70	135	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	1.5 mg/kg	111	73	136	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	1.5 mg/kg	106	53	138	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	1.5 mg/kg	86.5	51	140	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	1.5 mg/kg	116	46	140	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	3 mg/kg	64.9	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538229)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	107	73	133	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	104	63	144	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	108	84	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	107	76	134	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	113	72	137	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	115	77	143	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	108	74	140	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	109	72	139	

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Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538229) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	116	58	145
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	118	63	147
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	1.5 mg/kg	135	71	142
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	107	76	138
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	103	69	140
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	105	58	143
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	103	52	149
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	105	65	140
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538235)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	109	73	133
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	110	63	144
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	107	84	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	107	76	134
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	107	72	137
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	117	77	143
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	114	74	140
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	116	72	139
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	114	58	145
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	114	63	147
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	1.5 mg/kg	102	71	142
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	104	76	138
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	109	69	140
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	114	58	143
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	119	52	149
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	111	65	140
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538228)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	310 mg/kg	103	79	123
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	490 mg/kg	103	77	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538230)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	16 mg/kg	90.6	60	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538234)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	310 mg/kg	87.8	79	123
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	490 mg/kg	105	77	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538237)								

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Sub-Matrix: SOIL				Method Blank (ME) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit			Result	LCS	Low
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538237) - continued								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	16 mg/kg	86.4	60	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538228)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	450 mg/kg	103	81	122
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	320 mg/kg	103	74	122
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538230)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	18.5 mg/kg	89.7	58	124
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538234)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	450 mg/kg	91.6	81	122
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	320 mg/kg	115	74	122
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538237)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	18.5 mg/kg	85.5	58	124
EP080: BTEXN (QCLot: 2538230)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	89.5	67	115
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	97.5	69	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.5	69	116
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	97.0	70	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	72	116
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.4	73	116
EP080: BTEXN (QCLot: 2538237)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.0	67	115
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.5	69	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.5	69	116
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	93.8	70	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.3	72	116
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	92.9	73	116

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				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538225)						Low	High

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	RecoveryLimits (%) Low High	
Laboratory sampleID	Client sample ID	Method: Compound	CAS Number				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538225) - continued							
EB1921909-002	1/0.2-0.25	EG005T: Arsenic	7440-38-2	50 mg/kg	80.6	70	130
		EG005T: Cadmium	7440-43-8	25 mg/kg	90.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.8	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	99.8	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	92.2	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.1	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	84.6	70	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538232)							
EB1921909-050	17/0-0.025	EG005T: Arsenic	7440-38-2	50 mg/kg	83.7	70	130
		EG005T: Cadmium	7440-43-8	25 mg/kg	88.0	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	91.5	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	98.4	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	91.1	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.2	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	91.0	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538226)							
EB1921909-002	1/0.2-0.25	EG035T: Mercury	7439-97-6	5 mg/kg	111	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538233)							
EB1921909-050	17/0-0.025	EG035T: Mercury	7439-97-6	5 mg/kg	109	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538227)							
EB1921909-007	3/0-0.05	EP068: gamma-BHC	58-89-9	0.5 mg/kg	116	76	136
		EP068: Heptachlor	76-44-8	0.5 mg/kg	107	65	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	98.3	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	97.5	67	129
		EP068: Endrin	72-20-8	0.5 mg/kg	106	60	137
		EP068: 4,4'-DDT	50-29-3	0.5 mg/kg	122	80	142
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538236)							
EB1921909-064	DUP 1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	113	76	136
		EP068: Heptachlor	76-44-8	0.5 mg/kg	108	65	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	96.9	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	94.9	67	129
		EP068: Endrin	72-20-8	0.5 mg/kg	107	60	137
		EP068: 4,4'-DDT	50-29-3	0.5 mg/kg	124	80	142
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538227)							
EB1921909-007	3/0-0.05	EP068: Diazinon	333-41-5	0.5 mg/kg	109	70	131
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	99.1	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	102	70	130

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538227) - continued							
EB1921908-007	3/0-0.05	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	85.4	80	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	96.7	80	134
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538236)							
EB1921908-064	DUP 1	EP068: Diazinon	333-41-5	0.5 mg/kg	109	70	131
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	101	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	104	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	90.5	80	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	100	80	134
EP075(SIM)A: Phenolic Compounds (QCLot: 2538229)							
EB1921908-013	5/0-0.05	EP075(SIM): Phenol	108-95-2	1.5 mg/kg	105	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	1.5 mg/kg	109	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	1.5 mg/kg	115	70	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.5 mg/kg	107	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	128	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2538236)							
EB1921908-065	DUP2	EP075(SIM): Phenol	108-95-2	1.5 mg/kg	116	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	1.5 mg/kg	114	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	1.5 mg/kg	125	70	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.5 mg/kg	105	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	74.4	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538229)							
EB1921908-013	5/0-0.05	EP075(SIM): Acenaphthene	83-32-9	1.5 mg/kg	101	70	130
		EP075(SIM): Pyrene	129-00-0	1.5 mg/kg	102	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538236)							
EB1921908-065	DUP2	EP075(SIM): Acenaphthene	83-32-9	1.5 mg/kg	104	70	130
		EP075(SIM): Pyrene	129-00-0	1.5 mg/kg	122	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538228)							
EB1921908-013	5/0-0.05	EP071: C10 - C14 Fraction	----	310 mg/kg	102	70	130
		EP071: C15 - C28 Fraction	----	490 mg/kg	102	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538230)							
EB1921908-013	5/0-0.05	EP080: C6 - C9 Fraction	----	8 mg/kg	80.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538234)							
EB1921908-065	DUP2	EP071: C10 - C14 Fraction	----	310 mg/kg	86.0	70	130
		EP071: C15 - C28 Fraction	----	490 mg/kg	103	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538237)							
EB1921908-065	DUP2	EP080: C6 - C9 Fraction	----	8 mg/kg	83.4	70	130

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	RecoveryLimits (%)	
Laboratory sampleID	Client sampleID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538228)							
EB1921908-013	5/0-0.05	EP071: >C10 - C16 Fraction	----	450 mg/kg	102	70	130
		EP071: >C16 - C34 Fraction	----	320 mg/kg	104	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538230)							
EB1921908-013	5/0-0.05	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	79.9	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538234)							
EB1921908-065	DUP2	EP071: >C10 - C16 Fraction	----	450 mg/kg	89.0	70	130
		EP071: >C16 - C34 Fraction	----	320 mg/kg	113	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538237)							
EB1921908-065	DUP2	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	82.9	70	130
EP080: BTEXN (QCLot: 2538230)							
EB1921908-013	5/0-0.05	EP080: Benzene	71-43-2	2 mg/kg	82.7	70	130
		EP080: Toluene	108-88-3	2 mg/kg	84.7	70	130
EP080: BTEXN (QCLot: 2538237)							
EB1921908-065	DUP2	EP080: Benzene	71-43-2	2 mg/kg	84.4	70	130
		EP080: Toluene	108-88-3	2 mg/kg	87.7	70	130



CERTIFICATE OF ANALYSIS

Work Order : EB1921909
Client : ENVIRONMENTAL ADVISORS
Contact : ANDREW WINTERS
Address : PO BOX 505
 BUDDINA QLD 4575
Telephone : ---
Project : 090 MARYVALE
Order number : ---
C-O-C number : ---
Sampler : JANE SMALLEY, PAXTON KEARNEY
Site : ---
Quote number : BN/217/19
No. of samples received : 67
No. of samples analysed : 28

Page : 1 of 25
Laboratory : Environmental Division Brisbane
Contact : Customer Services EB
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 21-Aug-2019 15:15
Date Analysis Commenced : 21-Aug-2019
Issue Date : 28-Aug-2019 16:09



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. 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.

Signatories	Position	Accreditation Category
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 25
Work Order : EB1821808
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

@ = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- 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.

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Work Order : EB1921908
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	1/0 - 0.05	1/0.2-0.25	2/0-0.05	3/0-0.05	4/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-001	EB1921909-002	EB1921909-004	EB1921909-007	EB1921909-009
					Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		22.9	18.0	10.6	11.8	4.6
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		11	14	<2	3	2
Copper	7440-50-8	5	mg/kg		15	19	12	12	29
Lead	7439-92-1	5	mg/kg		<5	<5	<5	8	149
Nickel	7440-02-0	2	mg/kg		5	6	2	3	4
Zinc	7440-66-6	5	mg/kg		84	72	40	45	125
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	0.9
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	---	---	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	---	---	<0.05	<0.05

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Work Order : EB1921908
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	1/0 - 0.05	1/0.2-0.25	2/0-0.05	3/0-0.05	4/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-001	EB1921909-002	EB1921909-004	EB1921909-007	EB1921909-009
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	---	---	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg		<0.2	---	---	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	---	---	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	---	---	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Prothiophos	34643-46-4	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	---	---	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		---	---	---	---	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		---	---	---	---	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		---	---	---	---	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		---	---	---	---	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		---	---	---	---	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		---	---	---	---	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		---	---	---	---	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		---	---	---	---	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		---	---	---	---	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		---	---	---	---	<0.5

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Work Order : EB1921908
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	1/0 - 0.05	1/0.2-0.25	2/0-0.05	3/0-0.05	4/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-001	EB1921909-002	EB1921909-004	EB1921909-007	EB1921909-009
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		---	---	---	---	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		---	---	---	---	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		---	---	---	---	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		---	---	---	---	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		---	---	---	---	<0.5
Fluorene	86-73-7	0.5	mg/kg		---	---	---	---	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		---	---	---	---	<0.5
Anthracene	120-12-7	0.5	mg/kg		---	---	---	---	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		---	---	---	---	<0.5
Pyrene	129-00-0	0.5	mg/kg		---	---	---	---	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		---	---	---	---	<0.5
Chrysene	218-01-9	0.5	mg/kg		---	---	---	---	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		---	---	---	---	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		---	---	---	---	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		---	---	---	---	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		---	---	---	---	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		---	---	---	---	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		---	---	---	---	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		---	---	---	---	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		---	---	---	---	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		---	---	---	---	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		---	---	---	---	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		---	---	---	---	<10
C10 - C14 Fraction	----	50	mg/kg		---	---	---	---	<50
C15 - C28 Fraction	----	100	mg/kg		---	---	---	---	<100
C29 - C36 Fraction	----	100	mg/kg		---	---	---	---	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		---	---	---	---	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		---	---	---	---	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		---	---	---	---	<10
>C10 - C16 Fraction	----	50	mg/kg		---	---	---	---	<50

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Work Order : EB1921908
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	1/0 - 0.05	1/0.2-0.25	2/0-0.05	3/0-0.05	4/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-001	EB1921909-002	EB1921909-004	EB1921909-007	EB1921909-009
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		---	---	---	----	<100
>C34 - C40 Fraction	----	100	mg/kg		---	---	---	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		---	---	---	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		---	---	---	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		---	---	---	----	<0.2
Toluene	108-88-3	0.5	mg/kg		---	---	---	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		---	---	---	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		---	---	---	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		---	---	---	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		---	---	---	----	<0.2
^ Total Xylenes	----	0.5	mg/kg		---	---	---	----	<0.5
Naphthalene	91-20-3	1	mg/kg		---	---	---	----	<1
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		123	---	---	129	128
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		102	---	---	114	98.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		---	---	---	----	119
2-Chlorophenol-D4	93951-73-6	0.5	%		---	---	---	----	126
2,4,6-Tribromophenol	118-79-6	0.5	%		---	---	---	----	76.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		---	---	---	----	114
Anthracene-d10	1719-06-8	0.5	%		---	---	---	----	119
4-Terphenyl-d14	1718-51-0	0.5	%		---	---	---	----	131
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		---	---	---	----	86.5
Toluene-D8	2037-26-5	0.2	%		---	---	---	----	76.5
4-Bromofluorobenzene	460-00-4	0.2	%		---	---	---	----	90.1

Page : 7 of 25
Work Order : EB1921908
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	5/0-0.05	5/0.2-0.3	5/0.4-0.5	6/0.2-0.25	6/0.35-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-013	EB1921909-014	EB1921909-015	EB1921909-017	EB1921909-018
					Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		10.3	5.3	18.4	16.0	19.7
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		5	<2	<2	25	5
Copper	7440-50-8	5	mg/kg		45	14	10	24	16
Lead	7439-92-1	5	mg/kg		69	<5	<5	61	47
Nickel	7440-02-0	2	mg/kg		5	3	2	26	5
Zinc	7440-66-6	5	mg/kg		70	30	27	77	42
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	5/0-0.05	5/0.2-0.3	5/0.4-0.5	6/0.2-0.25	6/0.35-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-013	EB1921909-014	EB1921909-015	EB1921909-017	EB1921909-018
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Monocrotophos	6823-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Prothiophos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	5/0.0-0.05	5/0.2-0.3	5/0.4-0.5	6/0.2-0.25	6/0.35-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-013	EB1921909-014	EB1921909-015	EB1921909-017	EB1921909-018
				Result	Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Benzo(b)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	5/0-0.05	5/0.2-0.3	5/0.4-0.5	6/0.2-0.25	6/0.35-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-013	EB1921909-014	EB1921909-015	EB1921909-017	EB1921909-018
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		124	125	118	121	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		111	80.5	81.0	85.9	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		115	112	111	111	----
2-Chlorophenol-D4	93951-73-6	0.5	%		122	106	108	113	----
2,4,6-Tribromophenol	118-79-6	0.5	%		86.7	70.8	77.0	78.6	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		112	108	98.6	104	----
Anthracene-d10	1719-06-8	0.5	%		114	118	115	117	----
4-Terphenyl-d14	1718-51-0	0.5	%		126	124	121	124	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		87.1	92.3	83.6	86.9	----
Toluene-D8	2037-26-5	0.2	%		81.0	85.8	76.9	84.4	----
4-Bromofluorobenzene	460-00-4	0.2	%		85.7	94.6	81.7	92.2	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	6/0.45-0.5	7/0-0.05	7/0.25-0.3	8/0.5-0.6	9/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-019	EB1921909-021	EB1921909-022	EB1921909-024	EB1921909-025
					Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		14.8	7.2	18.3	7.6	5.5
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		<2	5	<2	<2	3
Copper	7440-50-8	5	mg/kg		18	15	15	11	23
Lead	7439-92-1	5	mg/kg		<5	8	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		3	6	4	3	4
Zinc	7440-66-6	5	mg/kg		44	102	37	33	75
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		---	<0.05	---	---	---
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		---	<0.05	---	---	---
beta-BHC	319-85-7	0.05	mg/kg		---	<0.05	---	---	---
gamma-BHC	58-89-9	0.05	mg/kg		---	<0.05	---	---	---
delta-BHC	319-86-8	0.05	mg/kg		---	<0.05	---	---	---
Heptachlor	76-44-8	0.05	mg/kg		---	<0.05	---	---	---
Aldrin	309-00-2	0.05	mg/kg		---	<0.05	---	---	---
Heptachlor epoxide	1024-57-3	0.05	mg/kg		---	<0.05	---	---	---
^ Total Chlordane (sum)	----	0.05	mg/kg		---	<0.05	---	---	---
trans-Chlordane	5103-74-2	0.05	mg/kg		---	<0.05	---	---	---
alpha-Endosulfan	959-98-8	0.05	mg/kg		---	<0.05	---	---	---
cis-Chlordane	5103-71-9	0.05	mg/kg		---	<0.05	---	---	---
Dieldrin	60-57-1	0.05	mg/kg		---	<0.05	---	---	---
4,4'-DDE	72-55-9	0.05	mg/kg		---	<0.05	---	---	---
Endrin	72-20-8	0.05	mg/kg		---	<0.05	---	---	---
beta-Endosulfan	33213-65-9	0.05	mg/kg		---	<0.05	---	---	---
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		---	<0.05	---	---	---
4,4'-DDD	72-54-8	0.05	mg/kg		---	<0.05	---	---	---
Endrin aldehyde	7421-93-4	0.05	mg/kg		---	<0.05	---	---	---
Endosulfan sulfate	1031-07-8	0.05	mg/kg		---	<0.05	---	---	---
4,4'-DDT	50-29-3	0.2	mg/kg		---	<0.2	---	---	---
Endrin ketone	53494-70-5	0.05	mg/kg		---	<0.05	---	---	---

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	6/0.45-0.5	7/0-0.05	7/0.25-0.3	8/0.5-0.6	9/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-019	EB1921909-021	EB1921909-022	EB1921909-024	EB1921909-025
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		---	<0.2	---	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		---	<0.05	---	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		---	<0.05	---	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		---	<0.05	---	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		---	<0.05	---	----	----
Monocrotophos	6823-22-4	0.2	mg/kg		---	<0.2	---	----	----
Dimethoate	60-51-5	0.05	mg/kg		---	<0.05	---	----	----
Diazinon	333-41-5	0.05	mg/kg		---	<0.05	---	----	----
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg		---	<0.05	---	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		---	<0.2	---	----	----
Malathion	121-75-5	0.05	mg/kg		---	<0.05	---	----	----
Fenthion	55-38-9	0.05	mg/kg		---	<0.05	---	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		---	<0.05	---	----	----
Parathion	56-38-2	0.2	mg/kg		---	<0.2	---	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		---	<0.05	---	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		---	<0.05	---	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		---	<0.05	---	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		---	<0.05	---	----	----
Prothiophos	34643-46-4	0.05	mg/kg		---	<0.05	---	----	----
Ethion	563-12-2	0.05	mg/kg		---	<0.05	---	----	----
Carbophenothion	786-19-6	0.05	mg/kg		---	<0.05	---	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		---	<0.05	---	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		---	123	---	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		---	93.7	---	----	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	11/0-0.05	13/0-0.05	13/0.25-0.3	13/0.5-0.6	14/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-031	EB1921909-037	EB1921909-038	EB1921909-039	EB1921909-040
					Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		5.5	5.4	7.1	6.2	19.6
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		4	5	<2	<2	3
Copper	7440-50-8	5	mg/kg		15	15	14	14	13
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		6	5	4	3	4
Zinc	7440-66-6	5	mg/kg		85	90	62	36	71
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	<0.05

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	11/0-0.05	13/0-0.05	13/0.25-0.3	13/0.5-0.6	14/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-031	EB1921909-037	EB1921909-038	EB1921909-039	EB1921909-040
				Result	Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	---	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	---	<0.5	<0.5	----	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	11/0-0.05	13/0-0.05	13/0.25-0.3	13/0.5-0.6	14/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-031	EB1921909-037	EB1921909-038	EB1921909-039	EB1921909-040
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	---	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	---	<2	----	----
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)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	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	---	<50	----	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	11/0-0.05	13/0-0.05	13/0.25-0.3	13/0.5-0.6	14/0-0.05
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-031	EB1921909-037	EB1921909-038	EB1921909-039	EB1921909-040
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>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	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		125	122	128	----	121
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		106	96.4	105	----	105
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		118	---	118	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		124	---	123	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		82.6	---	80.4	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		113	---	111	----	----
Anthracene-d10	1719-06-8	0.5	%		118	---	118	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		127	---	125	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		88.4	---	86.8	----	----
Toluene-D8	2037-26-5	0.2	%		85.6	---	85.6	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		90.3	---	90.0	----	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	16/0.15-0.2	17/0-0.025	18/0-0.025	19/0-0.05	20/0.3-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-047	EB1921909-050	EB1921909-053	EB1921909-057	EB1921909-061
				Result	Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		14.2	6.6	8.8	14.6	30.3
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		15	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		9	6	9	5	37
Copper	7440-50-8	5	mg/kg		12	12	12	11	24
Lead	7439-92-1	5	mg/kg		5	5	6	<5	<5
Nickel	7440-02-0	2	mg/kg		3	5	6	6	18
Zinc	7440-66-6	5	mg/kg		30	49	48	35	52
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		---	---	---	---	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		---	---	---	---	<0.05
beta-BHC	319-85-7	0.05	mg/kg		---	---	---	---	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		---	---	---	---	<0.05
delta-BHC	319-86-8	0.05	mg/kg		---	---	---	---	<0.05
Heptachlor	76-44-8	0.05	mg/kg		---	---	---	---	<0.05
Aldrin	309-00-2	0.05	mg/kg		---	---	---	---	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		---	---	---	---	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		---	---	---	---	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		---	---	---	---	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		---	---	---	---	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		---	---	---	---	<0.05
Dieldrin	60-57-1	0.05	mg/kg		---	---	---	---	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		---	---	---	---	<0.05
Endrin	72-20-8	0.05	mg/kg		---	---	---	---	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		---	---	---	---	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		---	---	---	---	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		---	---	---	---	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		---	---	---	---	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		---	---	---	---	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		---	---	---	---	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		---	---	---	---	<0.05

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	16/0.15-0.2	17/0-0.025	18/0-0.025	19/0-0.05	20/0.3-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-047	EB1921909-050	EB1921909-053	EB1921909-057	EB1921909-061
				Result	Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg	---	---	---	---	---	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	---	---	---	---	---	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	---	---	---	---	---	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	---	---	---	---	---	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	---	---	---	---	---	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg	---	---	---	---	---	<0.2
Dimethoate	60-51-5	0.05	mg/kg	---	---	---	---	---	<0.05
Diazinon	333-41-5	0.05	mg/kg	---	---	---	---	---	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg	---	---	---	---	---	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	---	---	---	---	---	<0.2
Malathion	121-75-5	0.05	mg/kg	---	---	---	---	---	<0.05
Fenthion	55-38-9	0.05	mg/kg	---	---	---	---	---	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	---	---	---	---	---	<0.05
Parathion	56-38-2	0.2	mg/kg	---	---	---	---	---	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	---	---	---	---	---	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	---	---	---	---	---	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	---	---	---	---	---	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	---	---	---	---	---	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	---	---	---	---	---	<0.05
Ethion	563-12-2	0.05	mg/kg	---	---	---	---	---	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	---	---	---	---	---	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	---	---	---	---	---	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	---	---	---	---	---	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	---	---	---	---	---	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	---	---	---	---	---	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	---	---	---	---	---	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	---	---	---	---	---	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	---	---	---	---	---	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	---	---	---	---	---	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	---	---	---	---	---	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	---	---	---	---	---	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	---	---	---	---	---	<0.5

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Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	16/0.15-0.2	17/0-0.025	18/0-0.025	19/0-0.05	20/0.3-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-047	EB1921909-050	EB1921909-053	EB1921909-057	EB1921909-061
				Result	Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	---	---	---	---	---	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	---	---	---	---	---	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	---	---	---	---	---	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	---	---	---	---	---	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	---	---	---	---	---	<0.5
Fluorene	86-73-7	0.5	mg/kg	---	---	---	---	---	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	---	---	---	---	---	<0.5
Anthracene	120-12-7	0.5	mg/kg	---	---	---	---	---	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	---	---	---	---	---	<0.5
Pyrene	129-00-0	0.5	mg/kg	---	---	---	---	---	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	---	---	---	---	---	<0.5
Chrysene	218-01-9	0.5	mg/kg	---	---	---	---	---	<0.5
Benzo(b)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	---	---	---	---	---	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	---	---	---	---	---	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	---	---	---	---	---	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	---	---	---	---	---	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	---	---	---	---	---	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	---	---	---	---	---	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	---	---	---	---	---	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	---	---	---	---	---	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	---	---	---	---	---	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	---	---	---	---	---	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	---	---	---	---	---	<10
C10 - C14 Fraction	----	50	mg/kg	---	---	---	---	---	<50
C15 - C28 Fraction	----	100	mg/kg	---	---	---	---	---	<100
C29 - C36 Fraction	----	100	mg/kg	---	---	---	---	---	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	---	---	---	---	---	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	---	---	---	---	---	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	---	---	---	---	---	<10
>C10 - C16 Fraction	----	50	mg/kg	---	---	---	---	---	<50

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	16/0.15-0.2	17/0-0.025	18/0-0.025	19/0-0.05	20/0.3-0.4
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921909-047	EB1921909-050	EB1921909-053	EB1921909-057	EB1921909-061
				Result	Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg	---	---	---	---	---	<100
>C34 - C40 Fraction	----	100	mg/kg	---	---	---	---	---	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	---	---	---	---	---	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	---	---	---	---	---	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	---	---	---	---	---	<0.2
Toluene	108-88-3	0.5	mg/kg	---	---	---	---	---	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	---	---	---	---	---	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	---	---	---	---	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	---	---	---	---	---	<0.5
^ Sum of BTEX	----	0.2	mg/kg	---	---	---	---	---	<0.2
^ Total Xylenes	----	0.5	mg/kg	---	---	---	---	---	<0.5
Naphthalene	91-20-3	1	mg/kg	---	---	---	---	---	<1
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	---	---	---	---	---	116
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	---	---	---	---	---	91.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	---	---	---	---	---	120
2-Chlorophenol-D4	93951-73-6	0.5	%	---	---	---	---	---	121
2,4,6-Tribromophenol	118-79-6	0.5	%	---	---	---	---	---	104
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	---	---	---	---	---	99.4
Anthracene-d10	1719-06-8	0.5	%	---	---	---	---	---	122
4-Terphenyl-d14	1718-51-0	0.5	%	---	---	---	---	---	124
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	---	---	---	---	---	73.9
Toluene-D8	2037-26-5	0.2	%	---	---	---	---	---	73.2
4-Bromofluorobenzene	460-00-4	0.2	%	---	---	---	---	---	82.0

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUP 1	DUP2	DUP3	----	----
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	----	----
Compound	CAS Number	LOR	Unit		EB1921909-064	EB1921909-065	EB1921909-066	-----	-----
					Result	Result	Result	----	----
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		11.3	32.1	18.1	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		3	37	20	----	----
Copper	7440-50-8	5	mg/kg		13	22	18	----	----
Lead	7439-92-1	5	mg/kg		<5	<5	16	----	----
Nickel	7440-02-0	2	mg/kg		4	14	23	----	----
Zinc	7440-66-6	5	mg/kg		67	52	58	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUP 1	DUP2	DUP3	----	----
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	----	----
Compound	CAS Number	LOR	Unit		EB1921909-064	EB1921909-065	EB1921909-066	-----	-----
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Monocrotophos	6823-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Prothiophos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		---	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		---	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		---	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		---	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		---	<0.5	<0.5	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		---	<0.5	<0.5	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		---	<0.5	<0.5	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		---	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		---	<0.5	<0.5	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		---	<0.5	<0.5	----	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUP 1	DUP2	DUP3	----	----
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	----	----
Compound	CAS Number	LOR	Unit		EB1921909-064	EB1921909-065	EB1921909-066	-----	-----
					Result	Result	Result	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		---	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		---	<2	<2	----	----
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+g)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	----	----
>C10 - C16 Fraction	----	50	mg/kg		---	<50	<50	----	----

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUP 1	DUP2	DUP3	----	----
Client sampling date / time					19-Aug-2019 00:00	19-Aug-2019 00:00	19-Aug-2019 00:00	----	----
Compound	CAS Number	LOR	Unit		EB1921909-064	EB1921909-065	EB1921909-066	-----	-----
				Result	Result	Result		----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>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		----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	---	116	116	118	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	---	97.6	96.5	98.5	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	---	113	119		----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	---	106	112		----	----
2,4,6-Tribromophenol	118-79-6	0.5	%	---	99.5	105		----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	---	97.6	98.1		----	----
Anthracene-d10	1719-06-8	0.5	%	---	123	124		----	----
4-Terphenyl-d14	1718-51-0	0.5	%	---	126	127		----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	---	79.6	85.8		----	----
Toluene-D8	2037-26-5	0.2	%	---	73.6	84.6		----	----
4-Bromofluorobenzene	460-00-4	0.2	%	---	84.4	93.7		----	----

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Work Order : EB1921908
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	138
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	23	135
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	155
2-Chlorophenol-D4	93951-73-6	42	153
2,4,6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	157
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127



CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176
Ph: 02 9764 8555 E: samples.syd@alsenviro.com
☐ Newcastle: 6 Rosogum Rd, Warabrook NSW 2304
Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com

☒ Brisbane: 32 Shand St, Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ Townsville: 14-15 Deama Ct, Bohlo QLD 4818
Ph: 07 4796 0500 E: townsville.environment@alsenviro.com

☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171
Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5095
Ph: 08 8359 0890 E: adelaide@alsenviro.com

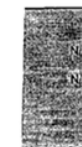
☐ Perth: 10 Hod
Ph: 08 9209 7655
☐ Launceston: 1
Ph: 03 6331 215

Environmental Division
Brisbane

Work Order Reference
EB1921912



Telephone : + 61-7-3243 7222



CLIENT: Environmental Advisors Pty Ltd		TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date):		FOR I Custod Free d recept Bando Other
OFFICE: Sunshine Coast		(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):		
PROJECT: 090 MARYVALE		ALS QUOTE NO.: BN1217/19		
ORDER NUMBER:		COC SEQUENCE NUMBER (Circle)		
PROJECT MANAGER: Andrew Winters		CONTACT PH: 0409 652 747		COC: <input checked="" type="radio"/> 1 2 3 4 5 6 7
SAMPLER: Jane Smalley/PAXTON		SAMPLER MOBILE: 049114302		OF: <input checked="" type="radio"/> 1 2 3 4 5 6 7
COC emailed to ALS? No		EDD FORMAT: Default		RECEIVED BY:
Email Reports to (will default to PM if no other addresses are listed): Andrew Winters		RELINQUISHED BY: Jane Smalley		RELINQUIS
Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au		DATE/TIME: 21/8/19		DATE/TIME

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required):								Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-27-S-12 (TRHIBTEXN, PAH, phenols, 8 metals, OC/OPP pesticides	S-27-S-12 (8 metals, OC/OPP)	S-2 Heavy Metals					P-22 EB only (NEPM background screen)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
1	BG1/0-0.1	20/08/2019	Soil	Jar	1	x									
2	BG1/0.4-0.5	20/08/2019	Soil	Jar	1			x							
3	BG1/1.0-1.1	20/08/2019	Soil	Jar	1										
4	BG2/0-0.2	20/08/2019	Soil	Jar	1	x									
5	BG2/0.5-0.6	20/08/2019	Soil	Jar	1										
6	BG2/1.1-1.2	20/08/2019	Soil	Jar	1										
7	BG3/0-0.1	20/08/2019	Soil	Jar	1	x									
8	BG3/0.9-1.0	20/08/2019	Soil	Jar	1										
9	BG4/0-0.1	20/08/2019	Soil	Jar	1		x								
10	BG4/0.2-0.3	20/08/2019	Soil	Jar	1										
11	BG5/0-0.1	20/08/2019	Soil	Jar	1	x									
12	BG5/0.3-0.4	20/08/2019	Soil	Jar	1			x							
13	BG6/0-0.1	20/08/2019	Soil	Jar	1		x								
TOTAL					13	4	2	2	0	0	0	0			

SPLIT BATCH
Test
Assoc. Batch No.
EB1921914

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
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 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY										
CLIENT: Environmental Advisers Pty Ltd OFFICE: Sunshine Coast PROJECT: 090 MARYVALE ORDER NUMBER: PROJECT MANAGER: Andrew Winters SAMPLER: Jane Smalley/PAXTON COC emailed to ALS? No Email Reports to (will default to PM if no other addresses are listed): Andrew Winters Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au				TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date): <input type="checkbox"/> Non Standard or urgent TAT (List due date): ALS QUOTE NO.: BN/217/19 CONTACT PH: 0409 662 747 SAMPLER MOBILE: 049114302 RELINQUISHED BY: Jane Smalley DATE/TIME: 21/8/19				FOR LABORATORY USE ONLY (Circle) Custody Seal Intact? Yes No Freezer / frozen ice bricks present upon receipt? Yes No Random Sample Temperature on Receipt: °C Other comment:		
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31	RW5/0.4-0.5	20/08/2019	Soil	Jar	1		x			
32	RW5/0.9-1.0	20/08/2019	Soil	Jar	1					
33	RW6/0-0.02	20/08/2019	Soil	Jar	1		x			
34	RW6/0.05-0.1	20/08/2019	Soil	Jar	1			x		
35	RW6/0.4-0.5	20/08/2019	Soil	Jar	1					
36	RW7/0-0.1	20/08/2019	Soil	Jar	1	x				
37	RW7/0.5-0.6	20/08/2019	Soil	Jar	1					
38	RW7/0.6-0.7	20/08/2019	Soil	Jar	1					
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TOTAL					39	2	4	1	0	0

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CHAIN OF CUSTODY				<input type="checkbox"/> Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 6555 E: samples.syd@alsenviro.com <input type="checkbox"/> Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com				<input checked="" type="checkbox"/> Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com <input type="checkbox"/> Townsville: 14-15 Duessa Ct, Bohle QLD 4818 Ph: 07 4796 0900 E: townsville.environmental@alsenviro.com				<input type="checkbox"/> Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9800 E: samples.melbourne@alsenviro.com <input type="checkbox"/> Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0850 E: adelaide@alsenviro.com				<input type="checkbox"/> Perth: 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com <input type="checkbox"/> Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com			
Environmental Advisors Pty Ltd				TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date):				FOR LABORATORY USE ONLY (Circle) Custody Seal intact? Yes No N/A Free ice / frozen ice bricks present upon receipt? Yes No N/A Random Sample Temperature on Receipt: °C Other comment:											
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COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:																			
ALS USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (fluid filtered bottle required).						Additional information							
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-27-S-12 (TRH/BTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2-S-12 (8 metals, OC/POPP)	S-2 Heavy Metals			P-22 EB only (NEPM background screen)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.						
40	RW8/0-0.1	20/08/2019	Soil	Jar	1		x												
41	RW8/0.4-0.5	20/08/2019	Soil	Jar	1	x													
42	RW8/1.0-1.2	20/08/2019	Soil	Jar	1			x											
43	RW9/0-0.1	20/08/2019	Soil	Jar	1			x											
44	RW9/0.1-0.15	20/08/2019	Soil	Jar	1		x												
45	RW9/0.4-0.5	20/08/2019	Soil	Jar	1		x												
46	RW9/1.1-3	20/08/2019	Soil	Jar	1														
47	RW9/2-2.1	20/08/2019	Soil	Jar	1														
48	RW10/0-0.1	20/08/2019	Soil	Jar	1	x													
49	RW10/0.2-0.3	20/08/2019	Soil	Jar	1			x											
50	RW10/0.3-0.4	20/08/2019	Soil	Jar	1														
51	RW10/0.6-0.7	20/08/2019	Soil	Jar	1														
52	RW10/0.9-1.0	20/08/2019	Soil	Jar	1														
TOTAL					52	2	3	3	0	0	0	0	0						
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Air/tight Unpreserved Plastic V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Air/tight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag																			



Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EB1921912

Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Contact	: Customer Services EB
Address	: PO BOX 505 BUDDINA QLD 4575	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: andrew@environmentaladvisors.com.au	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: ---	Telephone	: +61-7-3243 7222
Facsimile	: ---	Facsimile	: +61-7-3243 7218
Project	: 090 MARYVALE	Page	: 1 of 3
Order number	: ---	Quote number	: EB2019ENVADV0001 (BN/217/19)
C-O-C number	: ---	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ---		
Sampler	: JANE SMALLEY, PAXTON KEARNEY		

Dates

Date Samples Received	: 21-Aug-2019 15:15	Issue Date	: 21-Aug-2019
Client Requested Due Date	: 28-Aug-2019	Scheduled Reporting Date	: 28-Aug-2019

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 5	Temperature	: 2.0°C, 3.3°C, -0.7°C, 0.9°C, 22.0°C - Ice present
Receipt Detail	: MED ESKY	No. of samples received / analysed	: 52 / 31

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Due to the number of samples received, this chain of custody has been batched into two work orders: EB1921912 and EB1921914**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

RIGHT SOLUTIONS | RIGHT PARTNER

Issue Date : 21-Aug-2019
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Client : ENVIRONMENTAL ADVISORS



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-12 OC/OP Pesticides	SOIL - S-27 TRHBTX/PAH/Phenols/8Metals
EB1921912-001	20-Aug-2019 00:00	BG1/0-0.1		✓		✓	✓
EB1921912-002	20-Aug-2019 00:00	BG1/0.4-0.5		✓	✓		
EB1921912-003	20-Aug-2019 00:00	BG1/1.0-1.1	✓				
EB1921912-004	20-Aug-2019 00:00	BG2/0-0.2		✓		✓	✓
EB1921912-005	20-Aug-2019 00:00	BG2/0.5-0.6	✓				
EB1921912-006	20-Aug-2019 00:00	BG2/1.1-1.2	✓				
EB1921912-007	20-Aug-2019 00:00	BG3/0-0.1		✓		✓	✓
EB1921912-008	20-Aug-2019 00:00	BG3/0.9-1.0	✓				
EB1921912-009	20-Aug-2019 00:00	BG4/0-0.1		✓	✓	✓	
EB1921912-010	20-Aug-2019 00:00	BG4/0.2-0.3	✓				
EB1921912-011	20-Aug-2019 00:00	BG5/0-0.1		✓		✓	✓
EB1921912-012	20-Aug-2019 00:00	BG5/0.3-0.4		✓	✓		
EB1921912-013	20-Aug-2019 00:00	BG6/0-0.1		✓	✓	✓	
EB1921912-014	20-Aug-2019 00:00	BG6/0.4-0.5	✓				
EB1921912-015	20-Aug-2019 00:00	BG7/0-0.05		✓	✓	✓	
EB1921912-016	20-Aug-2019 00:00	BG7/0.6-0.7	✓				
EB1921912-017	20-Aug-2019 00:00	RW1/0-0.1		✓	✓	✓	
EB1921912-018	20-Aug-2019 00:00	RW1/0.4-0.5		✓	✓		
EB1921912-019	20-Aug-2019 00:00	RW1/1.0-1.1		✓	✓	✓	
EB1921912-020	20-Aug-2019 00:00	RW2/0-0.1		✓		✓	✓
EB1921912-021	20-Aug-2019 00:00	RW2/0.1-0.15		✓		✓	✓
EB1921912-022	20-Aug-2019 00:00	RW2/0.4-0.5	✓				
EB1921912-023	20-Aug-2019 00:00	RW2/1.0-1.1	✓				
EB1921912-024	20-Aug-2019 00:00	RW3/0-0.1		✓		✓	✓
EB1921912-025	20-Aug-2019 00:00	RW3/0.6-0.7	✓				
EB1921912-026	20-Aug-2019 00:00	RW4/0-0.05		✓	✓	✓	
EB1921912-027	20-Aug-2019 00:00	RW4/0.2-0.25		✓	✓	✓	
EB1921912-028	20-Aug-2019 00:00	RW4/0.5-0.6		✓	✓	✓	
EB1921912-029	20-Aug-2019 00:00	RW4/1.2-1.3	✓				
EB1921912-030	20-Aug-2019 00:00	RW5/0-0.1		✓		✓	✓
EB1921912-031	20-Aug-2019 00:00	RW5/0.4-0.5		✓	✓	✓	
EB1921912-032	20-Aug-2019 00:00	RW5/0.9-1.0	✓				
EB1921912-033	20-Aug-2019 00:00	RW6/0-0.02		✓	✓	✓	
EB1921912-034	20-Aug-2019 00:00	RW6/0.05-0.1		✓	✓		
EB1921912-035	20-Aug-2019 00:00	RW6/0.4-0.5	✓				

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Client : ENVIRONMENTAL ADVISORS



			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S02 8 Metals (incl. Digestion)	SOIL - S12 OC/QP Pesticides	SOIL - S27 TRHBTXNPAHPhenols8Metals
EB1921912-036	20-Aug-2019 00:00	R\W7\0-0.1		✓		✓	✓
EB1921912-037	20-Aug-2019 00:00	R\W7\0.5-0.6	✓				
EB1921912-038	20-Aug-2019 00:00	R\W7\0.6-0.7	✓				
EB1921912-039	20-Aug-2019 00:00	R\W7\0.9-1.0	✓				
EB1921912-040	20-Aug-2019 00:00	R\W8\0-0.1		✓	✓	✓	
EB1921912-041	20-Aug-2019 00:00	R\W8\0.4-0.5		✓		✓	✓
EB1921912-042	20-Aug-2019 00:00	R\W8\1.0-1.2		✓	✓		
EB1921912-043	20-Aug-2019 00:00	R\W8\0-0.1		✓	✓		
EB1921912-044	20-Aug-2019 00:00	R\W8\0.1-0.15		✓	✓	✓	
EB1921912-045	20-Aug-2019 00:00	R\W8\0.4-0.5		✓	✓	✓	
EB1921912-046	20-Aug-2019 00:00	R\W8\1.1-1.3	✓				
EB1921912-047	20-Aug-2019 00:00	R\W8\2-2.1	✓				
EB1921912-048	20-Aug-2019 00:00	R\W10\0-0.1		✓		✓	✓
EB1921912-049	20-Aug-2019 00:00	R\W10\0.2-0.3		✓	✓		
EB1921912-050	20-Aug-2019 00:00	R\W10\0.3-0.4	✓				
EB1921912-051	20-Aug-2019 00:00	R\W10\0.6-0.7	✓				
EB1921912-052	20-Aug-2019 00:00	R\W10\0.9-1.0	✓				

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	admin@environmentaladvisors.com.au
- Chain of Custody (CoC) (COC)	Email	admin@environmentaladvisors.com.au

ANDREW WINTERS

- *AU Certificate of Analysis - NATA (COA)	Email	andrew@environmentaladvisors.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	andrew@environmentaladvisors.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	andrew@environmentaladvisors.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	andrew@environmentaladvisors.com.au
- Chain of Custody (CoC) (COC)	Email	andrew@environmentaladvisors.com.au
- EDI Format - ENMRG (ENMRG)	Email	andrew@environmentaladvisors.com.au
- EDI Format - XTab (XTAB)	Email	andrew@environmentaladvisors.com.au



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EB1921912	Page	: 1 of 7
Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Telephone	: +61-7-3243 7222
Project	: 090 MARYVALE	Date Samples Received	: 21-Aug-2019
Site	: ---	Issue Date	: 28-Aug-2019
Sampler	: JANE SMALLEY, PAXTON KEARNEY	No. of samples received	: 52
Order number	:	No. of samples analysed	: 31

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 DQD 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 Matrix Spike outliers occur.
- Laboratory Control outliers exist - please see following pages for full details.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- NO Quality Control Sample Frequency Outliers exist.

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Client : ENVIRONMENTAL ADVISORS
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Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP068B: Organophosphorus Pesticides (OP)	QC-2538236-002	----	Parathion	56-38-2	125 %	57-118%	Recovery greater than upper control limit

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)	20-Aug-2019	----	----	----	21-Aug-2019	03-Sep-2019	✔
BG1/0-0.1, BG2/0-0.2, BG4/0-0.1, BG5/0.3-0.4, BG7/0-0.0.05, RW1/0.4-0.5, RW2/0-0.1, RW3/0-0.1, RW4/0.2-0.25, RW5/0-0.1, RW7/0-0.1, RW8/0-0.1, RW8/0.4-0.5, RW9/0-0.1, RW9/0.4-0.5, RW10/0.2-0.3	BG1/0.4-0.5, BG3/0-0.1, BG5/0-0.1, BG6/0-0.1, RW1/0-0.1, RW1/1.0-1.1, RW2/0.1-0.15, RW4/0-0.05, RW4/0.5-0.6, RW5/0.4-0.5, RW6/0-0.02, RW6/0.05-0.1, RW8/1.0-1.2, RW8/0.1-0.15, RW10/0-0.1,						

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Client : ENVIRONMENTAL ADVISORS
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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	
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)		20-Aug-2019	22-Aug-2019	16-Feb-2020	✔	27-Aug-2019	16-Feb-2020	✔
BG1/0-0.1, BG2/0-0.2, BG4/0-0.1, BG5/0.3-0.4, BG7/0-0.0.05, RW1/0.4-0.5, RW1/1.0-1.1	BG1/0.4-0.5, BG3/0-0.1, BG5/0-0.1, BG6/0-0.1, RW1/0-0.1, RW1/1.0-1.1							
Soil Glass Jar - Unpreserved (EG005T)		20-Aug-2019	23-Aug-2019	16-Feb-2020	✔	26-Aug-2019	16-Feb-2020	✔
RW2/0-0.1, RW3/0-0.1, RW4/0.2-0.25, RW5/0-0.1, RW6/0-0.02, RW7/0-0.1, RW8/0.4-0.5, RW9/0-0.1, RW9/0.4-0.5, RW10/0.2-0.3	RW2/0.1-0.15, RW4/0-0.05, RW4/0.5-0.8, RW5/0.4-0.5, RW6/0.05-0.1, RW8/0-0.1, RW8/1.0-1.2, RW9/0.1-0.15, RW10/0-0.1,							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)		20-Aug-2019	22-Aug-2019	17-Sep-2019	✔	28-Aug-2019	17-Sep-2019	✔
BG1/0-0.1, BG2/0-0.2, BG4/0-0.1, BG5/0.3-0.4, BG7/0-0.0.05, RW1/0.4-0.5, RW1/1.0-1.1	BG1/0.4-0.5, BG3/0-0.1, BG5/0-0.1, BG6/0-0.1, RW1/0-0.1, RW1/1.0-1.1							
Soil Glass Jar - Unpreserved (EG035T)		20-Aug-2019	23-Aug-2019	17-Sep-2019	✔	27-Aug-2019	17-Sep-2019	✔
RW2/0-0.1, RW3/0-0.1, RW4/0.2-0.25, RW5/0-0.1, RW6/0-0.02, RW7/0-0.1, RW8/0.4-0.5, RW9/0-0.1, RW9/0.4-0.5, RW10/0.2-0.3	RW2/0.1-0.15, RW4/0-0.05, RW4/0.5-0.8, RW5/0.4-0.5, RW6/0.05-0.1, RW8/0-0.1, RW8/1.0-1.2, RW9/0.1-0.15, RW10/0-0.1,							

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



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	
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) BG1/0-0.1, BG3/0-0.1, BG5/0-0.1, BG7/0-0.0.05, RW1/1.0-1.1	BG2/0-0.2, BG4/0-0.1, BG6/0-0.1, RW1/0-0.1,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP068) RW2/0-0.1, RW3/0-0.1, RW4/0.2-0.25, RW5/0-0.1, RW6/0-0.02, RW8/0-0.1, RW9/0.1-0.15, RW10/0-0.1	RW2/0.1-0.15, RW4/0-0.05, RW4/0.5-0.6, RW5/0.4-0.5, RW7/0-0.1, RW8/0.4-0.5, RW9/0.4-0.5,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	23-Aug-2019	02-Oct-2019	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) BG1/0-0.1, BG3/0-0.1, BG5/0-0.1, BG7/0-0.0.05, RW1/1.0-1.1	BG2/0-0.2, BG4/0-0.1, BG6/0-0.1, RW1/0-0.1,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP068) RW2/0-0.1, RW3/0-0.1, RW4/0.2-0.25, RW5/0-0.1, RW6/0-0.02, RW8/0-0.1, RW9/0.1-0.15, RW10/0-0.1	RW2/0.1-0.15, RW4/0-0.05, RW4/0.5-0.6, RW5/0.4-0.5, RW7/0-0.1, RW8/0.4-0.5, RW9/0.4-0.5,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	23-Aug-2019	02-Oct-2019	✓
EP075(SIM): Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BG1/0-0.1, BG3/0-0.1,	BG2/0-0.2, BG5/0-0.1	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) RW2/0-0.1, RW3/0-0.1, RW7/0-0.1, RW10/0-0.1	RW2/0.1-0.15, RW5/0-0.1, RW8/0.4-0.5,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	23-Aug-2019	02-Oct-2019	✓

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



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)) BG1/0-0.1, BG3/0-0.1,	BG2/0-0.2, BG5/0-0.1	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) RW2/0-0.1, RW3/0-0.1, RW7/0-0.1, RW10/0-0.1	RW2/0.1-0.15, RW5/0-0.1, RW8/0.4-0.5,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	23-Aug-2019	02-Oct-2019	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BG1/0-0.1, BG3/0-0.1, RW2/0-0.1, RW3/0-0.1, RW7/0-0.1, RW10/0-0.1	BG2/0-0.2, BG5/0-0.1, RW2/0.1-0.15, RW5/0-0.1, RW8/0.4-0.5,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	03-Sep-2019	✓
Soil Glass Jar - Unpreserved (EP071) RW2/0-0.1, RW3/0-0.1, RW7/0-0.1, RW10/0-0.1	RW2/0.1-0.15, RW5/0-0.1, RW8/0.4-0.5,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	23-Aug-2019	02-Oct-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) BG1/0-0.1, BG3/0-0.1, RW2/0-0.1, RW3/0-0.1, RW7/0-0.1, RW10/0-0.1	BG2/0-0.2, BG5/0-0.1, RW2/0.1-0.15, RW5/0-0.1, RW8/0.4-0.5,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	03-Sep-2019	✓
Soil Glass Jar - Unpreserved (EP071) RW2/0-0.1, RW3/0-0.1, RW7/0-0.1, RW10/0-0.1	RW2/0.1-0.15, RW5/0-0.1, RW8/0.4-0.5,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	23-Aug-2019	02-Oct-2019	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BG1/0-0.1, BG3/0-0.1, RW2/0-0.1, RW3/0-0.1, RW7/0-0.1, RW10/0-0.1	BG2/0-0.2, BG5/0-0.1, RW2/0.1-0.15, RW5/0-0.1, RW8/0.4-0.5,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	03-Sep-2019	✓

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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	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	4	28	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	28	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	28	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	28	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard

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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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
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 (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
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 (2013) Schedule B(3) (Method 202)
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.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ 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.



QUALITY CONTROL REPORT

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Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Contact	: Customer Services EB
Address	: PO BOX 505	Address	: 2 Byth Street Stafford QLD Australia 4053
	BUDDINA QLD 4575		
Telephone	: ---	Telephone	: +61-7-3243 7222
Project	: 090 MARYVALE	Date Samples Received	: 21-Aug-2019
Order number	: ---	Date Analysis Commenced	: 21-Aug-2019
C-O-C number	: ---	Issue Date	: 28-Aug-2019
Sampler	: JANE SMALLEY, PAXTON KEARNEY		
Site	: ---		
Quote number	: BN/217/19		
No. of samples received	: 52		
No. of samples analysed	: 31		



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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

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General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

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 QM-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%.

Sub-Matrix: SOIL

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2538232)									
EB1921909-047	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	11	11.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	15	15	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	14	12.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	7	29.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	30	36	19.4	No Limit
EB1921912-004	BG2/0-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	45	46	0.00	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	18	18	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	25	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	15.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	58	62	5.17	0% - 50%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2538244)									
EB1921912-020	RW2/0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	28	23.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	11	16	33.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	20.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	18	24	29.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	33	46	32.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	37	50	29.7	No Limit
EB1921912-036	RW7/0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	6	37.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2538244) - continued									
EB1921912-036	RW7/0-0.1	EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	10	11.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	35	34	0.00	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2538238)									
EB1921909-047	Anonymous	EA055: Moisture Content	----	0.1	%	14.2	13.6	4.70	0% - 50%
EB1921912-004	BG2/0-0.2	EA055: Moisture Content	----	0.1	%	20.8	20.5	1.12	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2538245)									
EB1921912-020	RW2/0-0.1	EA055: Moisture Content	----	0.1	%	4.2	4.3	3.72	No Limit
EB1921912-036	RW7/0-0.1	EA055: Moisture Content	----	0.1	%	3.2	3.2	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2538233)									
EB1921909-047	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1921912-004	BG2/0-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2538243)									
EB1921912-020	RW2/0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1921912-036	RW7/0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538236)									
EB1921912-015	BG7/0-0.05	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	958-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538236) - continued									
EB1921912-015	BG7/0-0.0.05	EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EB1921908-061	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-85-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP069A: Organochlorine Pesticides (OC) (QC Lot: 2538241)									
EB1921912-040	RW8/0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538241) - continued									
EB1921912-040	RW8/0-0.1	EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	958-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EB1921912-020	RW2/0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	958-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2538241) - continued									
EB1921912-020	RW2/0-0.1	EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538236)									
EB1921912-015	BG7/0-0.0.05	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EB1921909-061	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538236) - continued											
EB1921909-061	Anonymous	EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit		
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit		
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538241)											
EB1921912-040	RW8/0-0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit		
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit		
		EB1921912-020	RW2/0-0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
				EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP068: Dimethoate	60-51-5			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Diazinon	333-41-5			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Chlorpyrifos-methyl	5598-13-0			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Malathion	121-75-5			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Fenthion	55-38-9			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Chlorpyrifos	2921-88-2			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Pirimphos-ethyl	23505-41-1			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Chlorfenvinphos	470-90-6			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Bromophos-ethyl	4824-78-6			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Fenamiphos	22224-92-6			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Prothiofos	34643-46-4			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Ethion	563-12-2			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Carbophenothion	786-19-6			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		
EP068: Azinphos Methyl	86-50-0			0.05	mg/kg	<0.05	<0.05	0.00	No Limit		

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2538241) - continued									
EB1921912-020	RW2/0-0.1	EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2538235)									
EB1921909-061	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-85-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	58-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2538240)									
EB1921912-020	RW2/0-0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-85-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	58-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2538235)									
EB1921909-061	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2538235) - continued										
EB1921909-061	Anonymous	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
			205-82-3							
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit			
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2538240)										
EB1921912-020	RW2/0-0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
			205-82-3							
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit	
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit			
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538234)										
EB1921909-061	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538237)										
EB1921909-061	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538239)										
EB1921912-020	RW2/0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2538242)										
EB1921912-020	RW2/0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit	

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538234)									
EB1921909-061	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538237)									
EB1921909-061	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538239)									
EB1921912-020	RW2/0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2538242)									
EB1921912-020	RW2/0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2538237)									
EB1921909-061	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1921912-020	RW2/0-0.1	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
EB1921912-020	RW2/0-0.1	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

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Method Blank (MB) and Laboratory Control Spike (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 Spike (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			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538232)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	98 mg/kg	96.0	84	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
EG005T: Chromium	7440-47-3	2	mg/kg	<2	15.4 mg/kg	106	83	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	48 mg/kg	98.4	86	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	50 mg/kg	98.8	84	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.4 mg/kg	105	89	126
EG005T: Zinc	7440-66-6	5	mg/kg	<5	115 mg/kg	95.5	87	127
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538244)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	98 mg/kg	105	84	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
EG005T: Chromium	7440-47-3	2	mg/kg	<2	15.4 mg/kg	120	83	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	48 mg/kg	108	86	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	50 mg/kg	102	84	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.4 mg/kg	110	89	126
EG005T: Zinc	7440-66-6	5	mg/kg	<5	115 mg/kg	104	87	127
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538233)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.0847 mg/kg	88.0	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538243)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.0847 mg/kg	101	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538236)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	54	121
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	107	80	134
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	108	49	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	112	76	136
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	61	122
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	65	130
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	70	130
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	100	58	118
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	56	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	51	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	57	118
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	67	129
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	62	121

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Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538236) - continued								
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	60	137
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	61	122
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	60	123
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	110	52	125
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	55	125
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	120	80	142
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.7	55	129
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	87.1	53	136
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60- 57-1	0.05	mg/kg	<0.05	----	----	----	----
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538241)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	106	54	121
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	106	80	134
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	106	49	121
EP068: gamma-BHC	58-88-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	76	136
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	61	122
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	65	130
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	70	130
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	58	118
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	56	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	51	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	57	118
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	67	129
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	62	121
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	60	137
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	61	122
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	60	123
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	52	125
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	55	125
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	96.7	80	142
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	55	129
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	98.9	53	136
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----

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Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538241) - continued								
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538236)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	41	114
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	25	120
EP068: Monocrotophos	6823-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	77.1	35	135
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	44	131
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	70	131
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	70	130
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	106	60	122
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	64	125
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.1	69	115
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	66	120
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	# 125	57	118
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	70	130
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	62	127
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	80	130
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	55.5	55	106
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	80	134
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	113	61	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	57	124
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	35	127
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538241)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	41	114
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	25	120
EP068: Monocrotophos	6823-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	45.2	35	135
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	44	131
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	70	131
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	96.3	70	130
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	97.4	60	122
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	64	125
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	69	115
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	66	120
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.8	57	118
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	70	130
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	62	127
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	80	130
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	62.9	55	106
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	80	134

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Sub-Matrix: SOIL				Method Blank (ME) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
						Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2638241) - continued									
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	73.2	61	123	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	68.1	57	124	
EP068: Azinphos Methyl	88-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	102	35	127	
EP075(SIM)A: Phenolic Compounds (QCLot: 2538235)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	1.5 mg/kg	119	85	129	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	1.5 mg/kg	114	85	127	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	1.5 mg/kg	115	78	132	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	3 mg/kg	118	77	135	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	1.5 mg/kg	122	43	156	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	1.5 mg/kg	115	70	141	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	1.5 mg/kg	110	70	135	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	1.5 mg/kg	111	73	136	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	1.5 mg/kg	106	53	138	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	1.5 mg/kg	86.5	51	140	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	1.5 mg/kg	116	46	140	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	3 mg/kg	64.9	20	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 2538240)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	1.5 mg/kg	108	85	129	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	1.5 mg/kg	107	85	127	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	1.5 mg/kg	111	78	132	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	3 mg/kg	111	77	135	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	1.5 mg/kg	80.1	43	156	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	1.5 mg/kg	107	70	141	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	1.5 mg/kg	119	70	135	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	1.5 mg/kg	110	73	136	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	1.5 mg/kg	120	53	138	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	1.5 mg/kg	115	51	140	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	1.5 mg/kg	108	46	140	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	3 mg/kg	61.9	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538235)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	109	73	133	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	110	63	144	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	107	84	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	107	76	134	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	107	72	137	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	117	77	143	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	114	74	140	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	116	72	139	

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Project : 090 MARYVALE



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538235) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	114	58	145
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	114	63	147
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	1.5 mg/kg	102	71	142
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	104	76	138
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	109	69	140
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	114	58	143
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	119	52	149
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	111	65	140
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538240)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	103	73	133
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	113	63	144
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	104	84	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	110	76	134
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	105	72	137
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	108	77	143
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	106	74	140
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	107	72	139
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	104	58	145
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	104	63	147
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	1.5 mg/kg	95.5	71	142
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	92.4	76	138
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	94.6	69	140
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	90.7	58	143
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	89.1	52	149
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	92.6	65	140
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538234)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	310 mg/kg	87.8	79	123
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	490 mg/kg	105	77	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538237)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	16 mg/kg	86.4	60	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538239)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	310 mg/kg	84.2	79	123
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	490 mg/kg	106	77	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538242)								

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Sub-Matrix: **SOIL**

				Method Blank (ME) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538242) - continued								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	16 mg/kg	85.9	60	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538234)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	450 mg/kg	91.6	81	122
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	320 mg/kg	115	74	122
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538237)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	18.5 mg/kg	85.5	58	124
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538239)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	450 mg/kg	89.7	81	122
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	320 mg/kg	115	74	122
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538242)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	18.5 mg/kg	87.5	58	124
EP080: BTEXN (QCLot: 2538237)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.0	67	115
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.5	69	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.5	69	116
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	93.8	70	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.3	72	116
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	92.9	73	116
EP080: BTEXN (QCLot: 2538242)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	85.2	67	115
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.2	69	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.4	69	116
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	88.7	70	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.3	72	116
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.9	73	116

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**

				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
						Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538232)							

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	RecoveryLimits (%) Low High	
Laboratory sampleID	Client sample ID	Method: Congound	CAS Number				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538232) - continued							
EB1921909-050	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	83.7	70	130
		EG005T: Cadmium	7440-43-8	25 mg/kg	88.0	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	91.5	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	98.4	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	91.1	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.2	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	91.0	70	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2538244)							
EB1921912-021	RW2/0.1-0.15	EG005T: Arsenic	7440-38-2	50 mg/kg	88.1	70	130
		EG005T: Cadmium	7440-43-8	25 mg/kg	96.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.0	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	95.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	96.5	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	102	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538233)							
EB1921909-050	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	109	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2538243)							
EB1921912-021	RW2/0.1-0.15	EG035T: Mercury	7439-97-6	5 mg/kg	113	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538236)							
EB1921909-064	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	113	76	136
		EP068: Heptachlor	76-44-8	0.5 mg/kg	108	65	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	96.9	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	94.9	67	129
		EP068: Endrin	72-20-8	0.5 mg/kg	107	60	137
		EP068: 4,4'-DDT	50-29-3	0.5 mg/kg	124	80	142
EP068A: Organochlorine Pesticides (OC) (QCLot: 2538241)							
EB1921912-021	RW2/0.1-0.15	EP068: gamma-BHC	58-89-9	0.5 mg/kg	107	76	136
		EP068: Heptachlor	76-44-8	0.5 mg/kg	88.2	65	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	112	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	108	67	129
		EP068: Endrin	72-20-8	0.5 mg/kg	101	60	137
		EP068: 4,4'-DDT	50-29-3	0.5 mg/kg	103	80	142
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538236)							
EB1921909-064	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	109	70	131
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	101	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	104	70	130

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number			Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538236) - continued							
EB1921909-064	Anonymous	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	90.5	80	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	100	80	134
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2538241)							
EB1921912-021	RW2/0.1-0.15	EP068: Diazinon	333-41-5	0.5 mg/kg	96.1	70	131
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	101	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	89.8	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	96.9	80	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	90.9	80	134
EP075(SIM)A: Phenolic Compounds (QCLot: 2538235)							
EB1921909-065	Anonymous	EP075(SIM): Phenol	108-95-2	1.5 mg/kg	116	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	1.5 mg/kg	114	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	1.5 mg/kg	125	70	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.5 mg/kg	105	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	74.4	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2538240)							
EB1921912-021	RW2/0.1-0.15	EP075(SIM): Phenol	108-95-2	1.5 mg/kg	99.5	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	1.5 mg/kg	100	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	1.5 mg/kg	86.5	70	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.5 mg/kg	109	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	90.6	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538235)							
EB1921909-065	Anonymous	EP075(SIM): Acenaphthene	83-32-9	1.5 mg/kg	104	70	130
		EP075(SIM): Pyrene	129-00-0	1.5 mg/kg	122	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2538240)							
EB1921912-021	RW2/0.1-0.15	EP075(SIM): Acenaphthene	83-32-9	1.5 mg/kg	103	70	130
		EP075(SIM): Pyrene	129-00-0	1.5 mg/kg	102	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538234)							
EB1921909-065	Anonymous	EP071: C10 - C14 Fraction	----	310 mg/kg	86.0	70	130
		EP071: C15 - C28 Fraction	----	490 mg/kg	103	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538237)							
EB1921909-065	Anonymous	EP080: C6 - C9 Fraction	----	8 mg/kg	83.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538239)							
EB1921912-021	RW2/0.1-0.15	EP071: C10 - C14 Fraction	----	310 mg/kg	83.1	70	130
		EP071: C15 - C28 Fraction	----	490 mg/kg	105	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2538242)							
EB1921912-021	RW2/0.1-0.15	EP080: C6 - C9 Fraction	----	8 mg/kg	90.7	70	130

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	RecoveryLimits (%)	
Laboratory sampleID	Client sampleID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538234)							
EB1921908-065	Anonymous	EP071: >C10 - C16 Fraction	----	450 mg/kg	89.0	70	130
		EP071: >C16 - C34 Fraction	----	320 mg/kg	113	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538237)							
EB1921908-065	Anonymous	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	82.9	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538239)							
EB1921912-021	RW2/0.1-0.15	EP071: >C10 - C16 Fraction	----	450 mg/kg	87.7	70	130
		EP071: >C16 - C34 Fraction	----	320 mg/kg	114	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2538242)							
EB1921912-021	RW2/0.1-0.15	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	95.5	70	130
EP080: BTEXN (QCLot: 2538237)							
EB1921908-065	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	84.4	70	130
		EP080: Toluene	108-88-3	2 mg/kg	87.7	70	130
EP080: BTEXN (QCLot: 2538242)							
EB1921912-021	RW2/0.1-0.15	EP080: Benzene	71-43-2	2 mg/kg	89.2	70	130
		EP080: Toluene	108-88-3	2 mg/kg	86.6	70	130



CERTIFICATE OF ANALYSIS

Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Contact : ANDREW WINTERS
Address : PO BOX 505
 BUDDINA QLD 4575
Telephone : ---
Project : 090 MARYVALE
Order number : ---
C-O-C number : ---
Sampler : JANE SMALLEY, PAXTON KEARNEY
Site : ---
Quote number : BN/217/19
No. of samples received : 52
No. of samples analysed : 31

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Laboratory : Environmental Division Brisbane
Contact : Customer Services EB
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 21-Aug-2019 15:15
Date Analysis Commenced : 21-Aug-2019
Issue Date : 28-Aug-2019 16:04



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. 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.

Signatories	Position	Accreditation Category
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

RIGHT SOLUTIONS | RIGHT PARTNER

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General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

@ = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- 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.
- EP068: The LOR for 'BG4/0-0.1' has been raised due to matrix interference.

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG1/0-0.1	BG1/0.4-0.5	BG2/0-0.2	BG3/0-0.1	BG4/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-001	EB1921912-002	EB1921912-004	EB1921912-007	EB1921912-009
					Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		5.5	21.8	20.8	20.3	6.5
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	7	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		17	42	45	48	51
Copper	7440-50-8	5	mg/kg		15	23	25	24	28
Lead	7439-92-1	5	mg/kg		<5	<5	8	<5	<5
Nickel	7440-02-0	2	mg/kg		9	20	18	44	37
Zinc	7440-66-6	5	mg/kg		52	50	58	54	96
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG1/0-0.1	BG1/0.4-0.5	BG2/0-0.2	BG3/0-0.1	BG4/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-001	EB1921912-002	EB1921912-004	EB1921912-007	EB1921912-009
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.07
Diazinon	333-41-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Prothiophos	34643-46-4	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	---	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	---	<0.5	<0.5	----

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Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG1/0-0.1	BG1/0.4-0.5	BG2/0-0.2	BG3/0-0.1	BG4/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-001	EB1921912-002	EB1921912-004	EB1921912-007	EB1921912-009
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	---	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	---	<0.5	0.6	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	---	<0.5	4.3	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	---	<0.5	1.1	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	---	<0.5	6.0	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	---	<0.5	5.3	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	---	<0.5	2.4	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	---	<0.5	2.1	----
Benzo(b)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	---	<0.5	2.1	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	---	<0.5	1.0	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	---	<0.5	1.8	----
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		<0.5	---	<0.5	1.0	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	---	<0.5	1.2	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	---	<0.5	28.9	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	---	<0.5	2.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	---	0.6	2.7	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	---	1.2	3.0	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	---	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	---	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	---	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	---	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	---	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	---	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	---	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	---	<50	<50	----

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Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG1/0-0.1	BG1/0.4-0.5	BG2/0-0.2	BG3/0-0.1	BG4/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-001	EB1921912-002	EB1921912-004	EB1921912-007	EB1921912-009
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	---	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	---	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	---	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	---	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	---	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	---	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	---	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	---	<1	<1	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		122	---	114	110	135
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		90.6	---	90.5	87.7	111
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		121	---	107	119	----
2-Chlorophenol-D4	93951-73-6	0.5	%		116	---	99.6	115	----
2,4,6-Tribromophenol	118-79-6	0.5	%		100	---	85.8	89.9	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		102	---	94.6	96.2	----
Anthracene-d10	1719-06-8	0.5	%		131	---	120	112	----
4-Terphenyl-d14	1718-51-0	0.5	%		130	---	125	119	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		87.8	---	84.2	83.5	----
Toluene-D8	2037-26-5	0.2	%		84.5	---	81.7	80.4	----
4-Bromofluorobenzene	460-00-4	0.2	%		95.8	---	92.7	92.0	----

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Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG5/0-0.1	BG5/0.3-0.4	BG6/0-0.1	BG7/0-0.0.05	RW1/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-011	EB1921912-012	EB1921912-013	EB1921912-015	EB1921912-017
					Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		20.3	26.2	14.5	16.1	3.9
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	8
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		49	62	47	51	7
Copper	7440-50-8	5	mg/kg		23	28	24	28	10
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		43	40	44	51	4
Zinc	7440-66-6	5	mg/kg		35	42	48	64	43
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05

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Work Order : EB1921912
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG5/0-0.1	BG5/0.3-0.4	BG6/0-0.1	BG7/0-0.05	RW1/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-011	EB1921912-012	EB1921912-013	EB1921912-015	EB1921912-017
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5-0-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Prothiophos	34643-46-4	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	---	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	---	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	---	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	---	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	---	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	---	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	---	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	---	---	---	---

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG5/0-0.1	BG5/0.3-0.4	BG6/0-0.1	BG7/0-0.005	RW1/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-011	EB1921912-012	EB1921912-013	EB1921912-015	EB1921912-017
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg		<2	---	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	---	---	---	---
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	---	---	---	---
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	---	---	---	---
Fluorene	86-73-7	0.5	mg/kg		<0.5	---	---	---	---
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	---	---	---	---
Anthracene	120-12-7	0.5	mg/kg		<0.5	---	---	---	---
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	---	---	---	---
Pyrene	129-00-0	0.5	mg/kg		<0.5	---	---	---	---
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	---	---	---	---
Chrysene	218-01-9	0.5	mg/kg		<0.5	---	---	---	---
Benzo(b)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	---	---	---	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		<0.5	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	---	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	---	---	---	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	---	---	---	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	---	---	---	---
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	---	---	---	---
C10 - C14 Fraction	----	50	mg/kg		<50	---	---	---	---
C15 - C28 Fraction	----	100	mg/kg		<100	---	---	---	---
C29 - C36 Fraction	----	100	mg/kg		<100	---	---	---	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	---	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	---	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	---	---	---	---
>C10 - C16 Fraction	----	50	mg/kg		<50	---	---	---	---

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BG5/0-0.1	BG5/0.3-0.4	BG6/0-0.1	BG7/0-0.005	RW1/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-011	EB1921912-012	EB1921912-013	EB1921912-015	EB1921912-017
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	---	---	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	---	---	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	---	---	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	---	---	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	---	---	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	---	---	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	---	---	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	---	---	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	---	---	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	---	---	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	---	---	----	----
Naphthalene	91-20-3	1	mg/kg		<1	---	---	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		118	---	115	111	116
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		95.2	---	87.8	87.5	97.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		118	---	---	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		110	---	---	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		97.3	---	---	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		95.0	---	---	----	----
Anthracene-d10	1719-06-8	0.5	%		133	---	---	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		137	---	---	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		81.8	---	---	----	----
Toluene-D8	2037-26-5	0.2	%		81.0	---	---	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		85.5	---	---	----	----

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Client : ENVIRONMENTAL ADVISORS
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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW1/0.4-0.5	RW1/1.0-1.1	RW2/0-0.1	RW2/0.1-0.15	RW3/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-018	EB1921912-019	EB1921912-020	EB1921912-021	EB1921912-024
				Result	Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		10.5	22.4	4.2	2.2	14.8
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	2	68	22	19	79	
Copper	7440-50-8	5	mg/kg	11	25	18	<5	29	
Lead	7439-92-1	5	mg/kg	<5	<5	33	9	<5	
Nickel	7440-02-0	2	mg/kg	4	55	11	4	63	
Zinc	7440-66-6	5	mg/kg	45	60	37	8	61	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05

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Client : ENVIRONMENTAL ADVISORS
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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW1/0.4-0.5	RW1/1.0-1.1	RW2/0-0.1	RW2/0.1-0.15	RW3/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-018	EB1921912-019	EB1921912-020	EB1921912-021	EB1921912-024
				Result	Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	---	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	---	---	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5

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Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW1/0.4-0.5	RW1/1.0-1.1	RW2/0-0.1	RW2/0.1-0.15	RW3/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-018	EB1921912-019	EB1921912-020	EB1921912-021	EB1921912-024
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		---	---	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		---	---	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		---	---	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		---	---	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		---	---	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		---	---	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		---	---	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		---	---	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		---	---	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		---	---	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		---	---	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		---	---	<50	<50	<50

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW1/0.4-0.5	RW1/1.0-1.1	RW2/0-0.1	RW2/0.1-0.15	RW3/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-018	EB1921912-019	EB1921912-020	EB1921912-021	EB1921912-024
				Result	Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg	---	---	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	---	---	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	---	---	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	---	---	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	---	---	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	---	---	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	---	---	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	---	---	<1	<1	<1	<1
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	---	112	118	134	126	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	---	97.4	98.0	117	106	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	---	---	93.4	118	111	
2-Chlorophenol-D4	93951-73-6	0.5	%	---	---	105	123	119	
2,4,6-Tribromophenol	118-79-6	0.5	%	---	---	90.8	97.9	104	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	---	---	110	123	119	
Anthracene-d10	1719-06-8	0.5	%	---	---	104	123	114	
4-Terphenyl-d14	1718-51-0	0.5	%	---	---	109	126	117	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	---	---	85.6	86.9	79.9	
Toluene-D8	2037-26-5	0.2	%	---	---	72.2	76.1	72.1	
4-Bromofluorobenzene	460-00-4	0.2	%	---	---	75.0	81.8	78.6	

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW4/0-0.05	RW4/0.2-0.25	RW4/0.5-0.6	RW5/0-0.1	RW5/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-026	EB1921912-027	EB1921912-028	EB1921912-030	EB1921912-031
				Result	Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		14.9	5.5	23.1	3.2	16.6
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	10	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	59	35	51	4	27	
Copper	7440-50-8	5	mg/kg	28	14	28	10	21	
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	61	24	36	2	8	
Zinc	7440-66-6	5	mg/kg	55	24	55	29	45	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW4/0-0.05	RW4/0.2-0.25	RW4/0.5-0.6	RW5/0-0.1	RW5/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-026	EB1921912-027	EB1921912-028	EB1921912-030	EB1921912-031
				Result	Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	---	---	---	<0.5	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	---	---	---	<0.5	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	---	---	---	<0.5	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	---	---	---	<1	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	---	---	---	<0.5	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	---	---	---	<0.5	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	---	---	---	<0.5	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	---	---	---	<0.5	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	---	---	---	<0.5	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	---	---	---	<0.5	---	---

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW4/0-0.05	RW4/0.2-0.25	RW4/0.5-0.6	RW5/0-0.1	RW5/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-026	EB1921912-027	EB1921912-028	EB1921912-030	EB1921912-031
				Result	Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	---	---	---	---	<0.5	---
Pentachlorophenol	87-86-5	2	mg/kg	---	---	---	---	<2	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	---	---	---	---	<0.5	---
Acenaphthylene	208-96-8	0.5	mg/kg	---	---	---	---	<0.5	---
Acenaphthene	83-32-9	0.5	mg/kg	---	---	---	---	<0.5	---
Fluorene	86-73-7	0.5	mg/kg	---	---	---	---	<0.5	---
Phenanthrene	85-01-8	0.5	mg/kg	---	---	---	---	<0.5	---
Anthracene	120-12-7	0.5	mg/kg	---	---	---	---	<0.5	---
Fluoranthene	206-44-0	0.5	mg/kg	---	---	---	---	<0.5	---
Pyrene	129-00-0	0.5	mg/kg	---	---	---	---	<0.5	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	---	---	---	---	<0.5	---
Chrysene	218-01-9	0.5	mg/kg	---	---	---	---	<0.5	---
Benzo(b)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	---	---	---	---	<0.5	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	---	---	---	---	<0.5	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	---	---	---	---	<0.5	---
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	---	---	---	---	<0.5	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	---	---	---	---	<0.5	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	---	---	---	---	<0.5	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	---	---	---	---	<0.5	---
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	---	---	---	---	<0.5	---
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	---	---	---	---	0.6	---
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	---	---	---	---	1.2	---
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	---	---	---	---	<10	---
C10 - C14 Fraction	----	50	mg/kg	---	---	---	---	<50	---
C15 - C28 Fraction	----	100	mg/kg	---	---	---	---	<100	---
C29 - C36 Fraction	----	100	mg/kg	---	---	---	---	<100	---
^ C10 - C36 Fraction (sum)	----	50	mg/kg	---	---	---	---	<50	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	---	---	---	---	<10	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	---	---	---	---	<10	---
>C10 - C16 Fraction	----	50	mg/kg	---	---	---	---	<50	---

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW4/0-0.05	RW4/0.2-0.25	RW4/0.5-0.6	RW5/0-0.1	RW5/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-026	EB1921912-027	EB1921912-028	EB1921912-030	EB1921912-031
				Result	Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg	---	---	---	---	<100	----
>C34 - C40 Fraction	----	100	mg/kg	---	---	---	---	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	---	---	---	---	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	---	---	---	---	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	---	---	---	---	<0.2	----
Toluene	108-88-3	0.5	mg/kg	---	---	---	---	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	---	---	---	---	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	---	---	---	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	---	---	---	---	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	---	---	---	---	<0.2	----
^ Total Xylenes	----	0.5	mg/kg	---	---	---	---	<0.5	----
Naphthalene	91-20-3	1	mg/kg	---	---	---	---	<1	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	121	121	119	121	121	116
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	103	107	104	84.3	84.6	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	---	---	---	---	107	----
2-Chlorophenol-D4	93951-73-6	0.5	%	---	---	---	---	113	----
2,4,6-Tribromophenol	118-79-6	0.5	%	---	---	---	---	95.9	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	---	---	---	---	115	----
Anthracene-d10	1719-06-8	0.5	%	---	---	---	---	112	----
4-Terphenyl-d14	1718-51-0	0.5	%	---	---	---	---	117	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	---	---	---	---	86.8	----
Toluene-D8	2037-26-5	0.2	%	---	---	---	---	76.4	----
4-Bromofluorobenzene	460-00-4	0.2	%	---	---	---	---	81.5	----

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Client : ENVIRONMENTAL ADVISORS
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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW6/0-0.02	RW6/0.05-0.1	RW7/0-0.1	RW8/0-0.1	RW8/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-033	EB1921912-034	EB1921912-036	EB1921912-040	EB1921912-041
					Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		3.1	1.9	3.2	3.6	7.2
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	8	8	7	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		7	16	9	8	<2
Copper	7440-50-8	5	mg/kg		6	5	9	14	7
Lead	7439-92-1	5	mg/kg		<5	6	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		3	2	4	4	3
Zinc	7440-66-6	5	mg/kg		26	8	35	37	29
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW6/0-0.02	RW6/0.05-0.1	RW7/0-0.1	RW8/0-0.1	RW8/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-033	EB1921912-034	EB1921912-036	EB1921912-040	EB1921912-041
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	---	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Prothiophos	34643-46-4	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	---	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		---	---	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		---	---	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		---	---	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		---	---	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		---	---	<0.5	----	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		---	---	<0.5	----	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		---	---	<0.5	----	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		---	---	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		---	---	<0.5	----	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		---	---	<0.5	----	<0.5

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW6/0-0.02	RW6/0.05-0.1	RW7/0-0.1	RW8/0-0.1	RW8/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-033	EB1921912-034	EB1921912-036	EB1921912-040	EB1921912-041
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		---	---	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		---	---	<2	----	<2
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+g)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
>C10 - C16 Fraction	----	50	mg/kg		---	---	<50	----	<50

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW6/0-0.02	RW6/0.05-0.1	RW7/0-0.1	RW8/0-0.1	RW8/0.4-0.5
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-033	EB1921912-034	EB1921912-036	EB1921912-040	EB1921912-041
				Result	Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg	---	---	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	---	---	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	---	---	<50	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	---	---	<50	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	---	---	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	---	---	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	---	---	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	---	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	---	---	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	---	---	<0.2	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	---	---	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	---	---	<1	----	<1	<1
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	125	---	121	121	131	131
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	92.9	---	95.6	101	106	106
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	---	---	102	----	109	109
2-Chlorophenol-D4	93951-73-6	0.5	%	---	---	109	----	114	114
2,4,6-Tribromophenol	118-79-6	0.5	%	---	---	91.2	----	84.1	84.1
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	---	---	112	----	119	119
Anthracene-d10	1719-06-8	0.5	%	---	---	108	----	114	114
4-Terphenyl-d14	1718-51-0	0.5	%	---	---	112	----	118	118
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	---	---	86.3	----	87.4	87.4
Toluene-D8	2037-26-5	0.2	%	---	---	78.2	----	73.1	73.1
4-Bromofluorobenzene	460-00-4	0.2	%	---	---	81.0	----	77.3	77.3

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW8/10-1.2	RW9/0-0.1	RW9/0.1-0.15	RW9/0.4-0.5	RW10/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-042	EB1921912-043	EB1921912-044	EB1921912-045	EB1921912-048
				Result	Result	Result	Result	Result	Result
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		17.2	2.1	3.8	7.2	9.6
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	6	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		34	35	12	7	52
Copper	7440-50-8	5	mg/kg		24	19	11	12	22
Lead	7439-92-1	5	mg/kg		<5	9	6	<5	<5
Nickel	7440-02-0	2	mg/kg		30	24	5	6	46
Zinc	7440-66-6	5	mg/kg		62	42	7	34	46
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		---	---	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		---	---	<0.05	<0.05	<0.05

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW8/10-1.2	RW9/0-0.1	RW9/0.1-0.15	RW9/0.4-0.5	RW10/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-042	EB1921912-043	EB1921912-044	EB1921912-045	EB1921912-048
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		---	---	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
	0-2								
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Monocrotophos	6823-22-4	0.2	mg/kg		---	---	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5588-13-0	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		---	---	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		---	---	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Prothiophos	34643-46-4	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		---	---	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		---	---	---	---	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		---	---	---	---	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		---	---	---	---	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		---	---	---	---	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		---	---	---	---	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		---	---	---	---	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		---	---	---	---	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		---	---	---	---	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		---	---	---	---	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		---	---	---	---	<0.5

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW8/1.0-1.2	RW9/0.1	RW9/0.1-0.15	RW9/0.4-0.5	RW10/0-0.1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-042	EB1921912-043	EB1921912-044	EB1921912-045	EB1921912-048
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		---	---	---	---	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		---	---	---	---	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		---	---	---	---	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		---	---	---	---	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		---	---	---	---	<0.5
Fluorene	86-73-7	0.5	mg/kg		---	---	---	---	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		---	---	---	---	<0.5
Anthracene	120-12-7	0.5	mg/kg		---	---	---	---	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		---	---	---	---	<0.5
Pyrene	129-00-0	0.5	mg/kg		---	---	---	---	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		---	---	---	---	<0.5
Chrysene	218-01-9	0.5	mg/kg		---	---	---	---	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		---	---	---	---	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		---	---	---	---	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		---	---	---	---	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		---	---	---	---	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		---	---	---	---	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		---	---	---	---	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		---	---	---	---	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		---	---	---	---	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		---	---	---	---	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		---	---	---	---	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		---	---	---	---	<10
C10 - C14 Fraction	----	50	mg/kg		---	---	---	---	<50
C15 - C28 Fraction	----	100	mg/kg		---	---	---	---	<100
C29 - C36 Fraction	----	100	mg/kg		---	---	---	---	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		---	---	---	---	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		---	---	---	---	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		---	---	---	---	<10
>C10 - C16 Fraction	----	50	mg/kg		---	---	---	---	<50

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW8/1.0-1.2	RW9/0.1	RW9/0.1-0.15	RW9/0.4-0.5	RW10/0.0-1
Client sampling date / time					20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00	20-Aug-2019 00:00
Compound	CAS Number	LOR	Unit		EB1921912-042	EB1921912-043	EB1921912-044	EB1921912-045	EB1921912-048
				Result	Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg	---	---	---	---	---	<100
>C34 - C40 Fraction	----	100	mg/kg	---	---	---	---	---	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	---	---	---	---	---	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	---	---	---	---	---	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	---	---	---	---	---	<0.2
Toluene	108-88-3	0.5	mg/kg	---	---	---	---	---	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	---	---	---	---	---	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	---	---	---	---	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	---	---	---	---	---	<0.5
^ Sum of BTEX	----	0.2	mg/kg	---	---	---	---	---	<0.2
^ Total Xylenes	----	0.5	mg/kg	---	---	---	---	---	<0.5
Naphthalene	91-20-3	1	mg/kg	---	---	---	---	---	<1
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	---	---	---	122	127	112
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	---	---	---	106	103	96.5
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	---	---	---	---	---	102
2-Chlorophenol-D4	93951-73-6	0.5	%	---	---	---	---	---	103
2,4,6-Tribromophenol	118-79-6	0.5	%	---	---	---	---	---	89.6
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	---	---	---	---	---	105
Anthracene-d10	1719-06-8	0.5	%	---	---	---	---	---	103
4-Terphenyl-d14	1718-51-0	0.5	%	---	---	---	---	---	106
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	---	---	---	---	---	87.2
Toluene-D8	2037-26-5	0.2	%	---	---	---	---	---	78.6
4-Bromofluorobenzene	460-00-4	0.2	%	---	---	---	---	---	84.3

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Project : 090 MARYVALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	RW1010.2-0.3	---	---	---	---
Client sampling date / time					20-Aug-2019 00:00	---	---	---	---
Compound	CAS Number	LOR	Unit		EB1921912-049	---	---	---	---
				Result		---	---	---	---
EA065: Moisture Content (Dried @ 105-110°C)									
Moisture Content	---	1.0	%		8.6	---	---	---	---
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		5	---	---	---	---
Cadmium	7440-43-9	1	mg/kg		<1	---	---	---	---
Chromium	7440-47-3	2	mg/kg		20	---	---	---	---
Copper	7440-50-8	5	mg/kg		<5	---	---	---	---
Lead	7439-92-1	5	mg/kg		<5	---	---	---	---
Nickel	7440-02-0	2	mg/kg		3	---	---	---	---
Zinc	7440-66-6	5	mg/kg		5	---	---	---	---
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	---	---	---	---

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Project : 090 MARYVALE



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	138
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	23	135
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	155
2-Chlorophenol-D4	93951-73-6	42	153
2,4,6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	157
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127



CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐ Perth: 10 Hod Way, Mal
Ph: 08 9209 7555 E: samp
☐ Launceston: 27 Welling
Ph: 03 6331 2158 E: launc

Environmental Division
Brisbane

Work Order Reference
EB1921914



Telephone : + 61-7-3243 7222

CLIENT: Environmental Advisors Pty Ltd		TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date):		FOR LABORATORY Custody Seal (if) Free/issue / receipt? Random Sample Other comment
OFFICE: Sunshine Coast		(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):		
PROJECT: 090 MARYVALE		ALS QUOTE NO.: BN/217/19		
ORDER NUMBER:		COC SEQUENCE NUMBER (Circle)		
PROJECT MANAGER: Andrew Winters		CONTACT PH: 0409 662 747		
SAMPLER: Jane Smalley/PAXTON		SAMPLER MOBILE: 049114302		
COC emailed to ALS? No		EDD FORMAT: Default		
Email Reports to (will default to PM if no other addresses are listed): Andrew Winters		RELINQUISHED BY: Jane Smalley		
Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au		DATE/TIME: 21/8/19		
RECEIVED BY:		DATE/TIME:		
RELINQUISHED BY:		DATE/TIME:		
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:				

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unflared bottle required) or Dissolved (flared bottle required).										Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-27+S-12 (TRIBTEXN, PAH, phenols, 8 metals, OC/OP pesticides	S-2 + S-12 (8 metals, OC/OPP)	S-2 Heavy Metals							P-22 EB only (NEPM background screen)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	RW11/0-0.05	20/08/2019	Soil	Jar	1	x										
2	RW11/0.6-0.7	20/08/2019	Soil	Jar	1	x										
3	RW12/0-0.05	20/08/2019	Soil	Jar	1											
4	RW12/0.5-0.6	20/08/2019	Soil	Jar	1		x									
5	RW12/0.6-0.7	20/08/2019	Soil	Jar	1											
6	RW12/1.0-1.1	20/08/2019	Soil	Jar	1											
7	DUP101	20/08/2019	Soil	Jar	1		x									
8	DUP102	20/08/2019	Soil	Jar	1		x									
9	DUP103	20/08/2019	Soil	Jar	1											
10	DUP104	20/08/2019	Soil	Jar	1											
11	TP21/0-0.05	20/08/2019	Soil	Jar	1											
12	TP21/0.25-0.3	20/08/2019	Soil	Jar	1											
13	TP21/0.5-0.6	20/08/2019	Soil	Jar	1											
TOTAL					65	2	3	0	0	0	0	0	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY																																																																																																																																																																																																																												
CLIENT: Environmental Advisors Pty Ltd OFFICE: Sunshine Coast PROJECT: 090 MARYVALE ORDER NUMBER: PROJECT MANAGER: Andrew Winters SAMPLER: Jane Smalley/PAXTON COC emailed to ALS? No ALS Laboratory: please tick → <input type="checkbox"/> Sydney: 277 Woodpark Rd, Smithfield NSW 2116 Ph: 02 8784 8555 E: samples.syd@alsenviro.com <input type="checkbox"/> Newcastle: 5 Rotegum Rd, Warabrook NSW 2304 Ph: 02 4958 9433 E: samples.newcastle@alsenviro.com <input checked="" type="checkbox"/> Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com <input type="checkbox"/> Townsville: 14-15 Dasma Ct, Bolme QLD 4818 Ph: 07 4795 0000 E: townsville.environmental@alsenviro.com <input type="checkbox"/> Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com <input type="checkbox"/> Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0690 E: adelaide@alsenviro.com <input type="checkbox"/> Perth: 10 Hod Way, Malaga WA 6090 Ph: 08 9200 7655 E: samples.perth@alsenviro.com <input type="checkbox"/> Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com			TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date): ALS QUOTE NO.: BN/217/19		FOR LABORATORY USE ONLY (Circle) Custody Seal intact? Yes No N/A Free ice frozen on bricks present upon receipt? Yes No N/A Random Sampled temperature of Receipt? °C Other comment:																																																																																																																																																																																																																							
CONTACT PH: 0409 662 747 SAMPLER MOBILE: 049114302 EDD FORMAT: Default Email Reports to (will default to PM if no other addresses are listed): Andrew Winters Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au			RELINQUISHED BY: Jane Smalley DATE/TIME: 21/8/19		RECEIVED BY: DATE/TIME:		RELINQUISHED BY: DATE/TIME:		RECEIVED BY: DATE/TIME:																																																																																																																																																																																																																			
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:																																																																																																																																																																																																																												
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CHAIN OF CUSTODY <small>ALS Laboratory: please tick →</small>													
CLIENT: Environmental Advisors Pty Ltd				TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date): <small>(Standard TAT may be longer for some tests e.g.: Ultra Trace Organics)</small>				FOR LABORATORY USE ONLY (Circle)					
OFFICE: Sunshine Coast				<input type="checkbox"/> Non Standard or urgent TAT (List due date):				Custody Seal Intact? Yes No N/A					
PROJECT: 090 MARYVALE				ALS QUOTE NO.: BN217/19				Free ice / frozen ice bricks present upon receipt? Yes No N/A					
ORDER NUMBER:				COC SEQUENCE NUMBER (Circle)				Random Sample Temperature on Receipt: °C					
PROJECT MANAGER: Andrew Winters				CONTACT PH: 0409 662 747				Other comment:					
SAMPLER: Jane Smalley/PAXTON				SAMPLER MOBILE: 049114302				RECEIVED BY:					
COC emailed to ALS? No				EDD FORMAT: Default				RELINQUISHED BY:					
Email Reports to (will default to PM if no other addresses are listed): Andrew Winters				DATE/TIME: 21/8/19				DATE/TIME:					
Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au				DATE/TIME:				DATE/TIME:					
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:													
ALS USE ONLY													
SAMPLE DETAILS <small>MATRIX: Solid(S) Water(W)</small>				CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) <small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (fluid filtered bottle required).</small>				Additional Information			
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL BOTTLES	S-27+S-12 (TRHIBTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2 + S-12 (8 metals, OC/OP)	S-2 Heavy Metals	P-22 EB only (NEPM background screen)	Comments on likely contaminant levels, dilutions, or samples requiring specific GC analysis etc.			
27	TP25/0.3-0.35	20/08/2019	Soil	Jar	1			x					
28	TP25/0.5-0.6	20/08/2019	Soil	Jar	1								
29	TP26/0-0.05	20/08/2019	Soil	Jar	1			x					
30	TP26/0.19-0.22	20/08/2019	Soil	Jar	1								
31	TP26/0.25-0.3	20/08/2019	Soil	Jar	1			x					
32	TP26/0.5-0.6	20/08/2019	Soil	Jar	1								
33	TP27/0.0-0.05	20/08/2019	Soil	Jar	1			x					
34	TP27/0.5-0.6	20/08/2019	Soil	Jar	1								
35	TP28/0-0.05	20/08/2019	Soil	Jar	1			x					
36	TP28/0.25-0.3	20/08/2019	Soil	Jar	1								
37	TP28/0.5-0.6	20/08/2019	Soil	Jar	1	x							
38	TP28/1.1-1.2	20/08/2019	Soil	Jar	1								
39	TP29/0-0.05	20/08/2019	Soil	Jar	1			x					
TOTAL					91	1	0	6	0	0	0	0	0

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
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ALS Laboratory: please tick -> <input type="checkbox"/> Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8764 8555 E: samples.sydney@alsenviro.com <input type="checkbox"/> Newcastle: 5 Rosagum Rd, Warabrook NSW 2304 Ph: 02 4068 9433 E: samples.newcastle@alsenviro.com <input checked="" type="checkbox"/> Brisbane: 32 Strand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com <input type="checkbox"/> Townsville: 14-15 Desma Ct, Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com <input type="checkbox"/> Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8519 9600 E: samples.melbourne@alsenviro.com <input type="checkbox"/> Adelaide: 2-1 Burma Rd, Pooraka SA 5005 Ph: 08 8356 0890 E: adelaide@alsenviro.com <input type="checkbox"/> Perth: 10 Hod Way, Malaga WA 6060 Ph: 08 9209 7665 E: samples.perth@alsenviro.com <input type="checkbox"/> Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com				RELINQUISHED BY: Jane Smalley DATE/TIME: 21/8/19		RECEIVED BY: DATE/TIME:		RECEIVED BY: DATE/TIME:																																																																																																																																																																																																																															
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41	TP30/0.0-0.05	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
42	TP30/0.25-0.3	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
43	TP30/0.5-0.6	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
44	TP24/0.9-1.0	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
45	TP31/0-0.05	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
46	TP31/0.4-0.5	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
47	TP31/0.5-0.6	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
48	TP31/1.3-1.4	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
49	DUP4	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
50	DUP5	20/08/2019	Soil	Jar	1																																																																																																																																																																																																																																		
51	BG7/0-0.05	20/08/2019	Soil	PSD	1																																																																																																																																																																																																																																		
52	BG6/0-0.1	20/08/2019	Soil	PSD	1																																																																																																																																																																																																																																		
					TOTAL	104	3	2	2	0	0	0	0																																																																																																																																																																																																																										
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.																																																																																																																																																																																																																																							

CHAIN OF CUSTODY <small>ALS Laboratory: please tick →</small>										<small> <input type="checkbox"/> Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E: samples.syd@alsenviro.com <input type="checkbox"/> Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4908 9433 E: samples.newcastle@alsenviro.com <input checked="" type="checkbox"/> Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com <input type="checkbox"/> Townsville: 14-15 Desma Ct, Bohie QLD 4818 Ph: 07 4706 0600 E: townsville.environmental@alsenviro.com <input type="checkbox"/> Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com <input type="checkbox"/> Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsenviro.com <input type="checkbox"/> Perth: 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com <input type="checkbox"/> Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com </small>									
CLIENT: Environmental Advisors Pty Ltd OFFICE: Sunshine Coast PROJECT: 090 MARYVALE ORDER NUMBER: PROJECT MANAGER: Andrew Winters SAMPLER: Jane Smalley/PAXTON COC emailed to ALS? No Email Reports to (will default to PM if no other addresses are listed): Andrew Winters Email Invoice to (will default to PM if no other addresses are listed): admin@environmentaladvisors.com.au				TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date): ALS QUOTE NO.: BN1217/19				FOR LABORATORY USE ONLY (Circle) Custody Seal intact? Yes No N/A Free ice / freezer ice bricks present upon receipt? Yes No N/A Random Sample Temperature on Receipt: °C Other comment:											
CONTACT PH: 0409 662 747 SAMPLER MOBILE: 049114302 EDD FORMAT: Default				RELINQUISHED BY: Jane Smalley DATE/TIME: 21/8/19				RECEIVED BY: DATE/TIME: RELINQUISHED BY: DATE/TIME: RECEIVED BY: DATE/TIME:											
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:																			
ALS-USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) <small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).</small>						Additional Information						
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL BOTTLES	S-27+S-12 (TRIHBTEXN, PAH, phenols, 8 metals, OC/OP pesticides)	S-2 + S-12 (8 metals, OC/OP)	S-2 Heavy Metals				P-22 EB only (NEPM background screen)			Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.				
53	BG5/0-0.1	20/08/2019	Soil	PSD	1							x							
TOTAL						105	0	0	0	0	0	1	0	0					

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EB1921914

Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Contact	: Customer Services EB
Address	: PO BOX 505 BUDDINA QLD 4575	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: andrew@environmentaladvisors.co m.au	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: ---	Telephone	: +61-7-3243 7222
Facsimile	: ---	Facsimile	: +61-7-3243 7218
Project	: 090 MARYVALE	Page	: 1 of 3
Order number	: ---	Quote number	: EB2019ENVADV0001 (BN/217/19)
C-O-C number	: ---	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ---		
Sampler	: JANE SMALLEY, PAXTON KEARNEY		

Dates

Date Samples Received	: 21-Aug-2019 15:15	Issue Date	: 21-Aug-2019
Client Requested Due Date	: 28-Aug-2019	Scheduled Reporting Date	: 28-Aug-2019

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 5	Temperature	: 2.0°C, 3.3°C, -0.7°C, 0.9°C, 22.0°C - Ice present
Receipt Detail	: MED ESKY	No. of samples received / analysed	: 53 / 26

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Due to the number of samples received, this chain of custody has been batched into two work orders: EB1921912 and EB1921914**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

RIGHT SOLUTIONS | RIGHT PARTNER

Issue Date : 21-Aug-2019
Page : 2 of 3
Work Order : EB1921914 Amendment 0
Client : ENVIRONMENTAL ADVISORS



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - P-22 EB Only NEPM Screen for Soil Classification EB Only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-12 OC/OP Pesticides	SOIL - S-27 TRH/TEX/PAH/Phenols/8Metals
EB1921914-001	20-Aug-2019 00:00	RW11/0-0.05		✓			✓	✓
EB1921914-002	20-Aug-2019 00:00	RW11/0.6-0.7		✓			✓	✓
EB1921914-003	20-Aug-2019 00:00	RW12/0-0.05	✓					
EB1921914-004	20-Aug-2019 00:00	RW12/0.5-0.6		✓		✓	✓	
EB1921914-005	20-Aug-2019 00:00	RW12/0.6-0.7	✓					
EB1921914-006	20-Aug-2019 00:00	RW12/1.0-1.1	✓					
EB1921914-007	20-Aug-2019 00:00	DUP101		✓		✓	✓	
EB1921914-008	20-Aug-2019 00:00	DUP102		✓		✓	✓	
EB1921914-009	20-Aug-2019 00:00	DUP103	✓					
EB1921914-010	20-Aug-2019 00:00	DUP104	✓					
EB1921914-011	20-Aug-2019 00:00	TP21/0-0.05	✓					
EB1921914-012	20-Aug-2019 00:00	TP21/0.25-0.3	✓					
EB1921914-013	20-Aug-2019 00:00	TP21/0.5-0.6	✓					
EB1921914-014	20-Aug-2019 00:00	TP21/1.0-1.1	✓					
EB1921914-015	20-Aug-2019 00:00	TP22/0.0-0.05	✓					
EB1921914-016	20-Aug-2019 00:00	TP22/0.5-0.6	✓					
EB1921914-017	20-Aug-2019 00:00	TP23/0-0.05	✓					
EB1921914-018	20-Aug-2019 00:00	TP23/0.25-0.3	✓					
EB1921914-019	20-Aug-2019 00:00	TP23/0.5-0.6	✓					
EB1921914-020	20-Aug-2019 00:00	TP24/0-0.05		✓			✓	✓
EB1921914-021	20-Aug-2019 00:00	TP24/0.2-0.23		✓			✓	✓
EB1921914-022	20-Aug-2019 00:00	TP24/0.3-0.35		✓		✓		
EB1921914-023	20-Aug-2019 00:00	TP24/0.5-0.6		✓		✓		
EB1921914-024	20-Aug-2019 00:00	TP24/0.17-0.20		✓		✓		
EB1921914-025	20-Aug-2019 00:00	TP25/0.0-0.05	✓					
EB1921914-026	20-Aug-2019 00:00	TP25/0.19-0.22		✓			✓	✓
EB1921914-027	20-Aug-2019 00:00	TP25/0.3-0.35		✓		✓		
EB1921914-028	20-Aug-2019 00:00	TP25/0.5-0.6	✓					
EB1921914-029	20-Aug-2019 00:00	TP26/0-0.05		✓		✓		
EB1921914-030	20-Aug-2019 00:00	TP26/0.19-0.22	✓					
EB1921914-031	20-Aug-2019 00:00	TP26/0.25-0.3		✓		✓		
EB1921914-032	20-Aug-2019 00:00	TP26/0.5-0.6	✓					
EB1921914-033	20-Aug-2019 00:00	TP27/0.0-0.05		✓		✓		
EB1921914-034	20-Aug-2019 00:00	TP27/0.5-0.6	✓					
EB1921914-035	20-Aug-2019 00:00	TP28/0-0.05		✓		✓		

Issue Date : 21-Aug-2019
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Work Order : EB1921914 Amendment 0
Client : ENVIRONMENTAL ADVISORS



			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - P-22 EB Only NEPM Screen for Soil Classification EB Only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-12 QC/QP Pesticides	SOIL - S-27 TRHBTEXMPAH, Phenols 8 Metals
EB1921914-036	20-Aug-2019 00:00	TP28/0.25-0.3	✓					
EB1921914-037	20-Aug-2019 00:00	TP28/0.5-0.6		✓			✓	✓
EB1921914-038	20-Aug-2019 00:00	TP28/1.1-1.2	✓					
EB1921914-039	20-Aug-2019 00:00	TP29/0-0.05		✓		✓		
EB1921914-040	20-Aug-2019 00:00	TP29/0.5-0.6	✓					
EB1921914-041	20-Aug-2019 00:00	TP30/0.0-0.05		✓		✓		
EB1921914-042	20-Aug-2019 00:00	TP30/0.25-0.3	✓					
EB1921914-043	20-Aug-2019 00:00	TP30/0.5-0.6	✓					
EB1921914-044	20-Aug-2019 00:00	TP24/0.9-1.0		✓		✓	✓	
EB1921914-045	20-Aug-2019 00:00	TP31/0-0.05		✓			✓	✓
EB1921914-046	20-Aug-2019 00:00	TP31/0.4-0.5		✓		✓		
EB1921914-047	20-Aug-2019 00:00	TP31/0.5-0.6	✓					
EB1921914-048	20-Aug-2019 00:00	TP31/1.3-1.4		✓		✓	✓	
EB1921914-049	20-Aug-2019 00:00	DUP4		✓			✓	✓
EB1921914-050	20-Aug-2019 00:00	DUP5		✓			✓	✓
EB1921914-051	20-Aug-2019 00:00	BG7/0-0.05	✓					
EB1921914-052	20-Aug-2019 00:00	BG6/0-0.1	✓					
EB1921914-053	20-Aug-2019 00:00	BG5/0-0.1		✓	✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	admin@environmentaladvisors.com.au
- Chain of Custody (CoC) (COC)	Email	admin@environmentaladvisors.com.au

ANDREW WINTERS

- *AU Certificate of Analysis - NATA (COA)	Email	andrew@environmentaladvisors.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	andrew@environmentaladvisors.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	andrew@environmentaladvisors.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	andrew@environmentaladvisors.com.au
- Chain of Custody (CoC) (COC)	Email	andrew@environmentaladvisors.com.au
- EDI Format - ENMRG (ENMRG)	Email	andrew@environmentaladvisors.com.au
- EDI Format - XTab (XTAB)	Email	andrew@environmentaladvisors.com.au



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EB1921914	Page	: 1 of 10
Client	: ENVIRONMENTAL ADVISORS	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW WINTERS	Telephone	: +61-7-3243 7222
Project	: 090 MARYVALE	Date Samples Received	: 21-Aug-2019
Site	: ---	Issue Date	: 28-Aug-2019
Sampler	: JANE SMALLEY, PAXTON KEARNEY	No. of samples received	: 53
Order number	:	No. of samples analysed	: 26

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 DQD 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** Laboratory Control outliers occur.
- Duplicate outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.

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Work Order : EB1921914
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	EB1921914--045	TP31/0-0.05	Chromium	7440-47-3	29.2 %	0% - 20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	EB1921914--002	RW11/0.6-0.7	Zinc	7440-66-6	62.4 %	70-130%	Recovery less than lower data quality objective

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
EA001: pH in soil using 0.01M CaCl extract							
Snap Lock Bag (EA001) BG5/0-0.1	20-Aug-2019	26-Aug-2019	27-Aug-2019	✓	26-Aug-2019	26-Aug-2019	✓
EA002: pH 1:5 (Soils)							
Snap Lock Bag (EA002) BG5/0-0.1	20-Aug-2019	23-Aug-2019	27-Aug-2019	✓	23-Aug-2019	23-Aug-2019	✓
EA010: Conductivity (1:5)							
Snap Lock Bag (EA010) BG5/0-0.1	20-Aug-2019	23-Aug-2019	27-Aug-2019	✓	23-Aug-2019	20-Sep-2019	✓

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Work Order : EB1921914
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



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)							
Snap Lock Bag (EA055) BG5/0-0.1	20-Aug-2019	----	----	----	21-Aug-2019	03-Sep-2019	✓
Soil Glass Jar - Unpreserved (EA055) RW11/0.0-0.05, RW12/0.5-0.6, DUP102, TP24/0.2-0.23, TP24/0.5-0.6, TP25/0.19-0.22, TP26/0.0-0.05, TP27/0.0-0.05, TP28/0.5-0.6, DUP4, TP30/0.0-0.05, TP31/0-0.05, TP31/1.3-1.4, RW11/0.6-0.7, DUP101, TP24/0.0-0.05, TP24/0.3-0.35, TP24/0.17-0.20, TP25/0.3-0.35, TP26/0.25-0.3, TP28/0.0-0.05, TP29/0.0-0.05, TP24/0.9-1.0, TP31/0.4-0.5, DUP5	20-Aug-2019	----	----	----	21-Aug-2019	03-Sep-2019	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H) BG5/0-0.1	20-Aug-2019	----	----	----	27-Aug-2019	16-Feb-2020	✓
EA152: Soil Particle Density							
Snap Lock Bag (EA152) BG5/0-0.1	20-Aug-2019	----	----	----	27-Aug-2019	16-Feb-2020	✓
ED005: Exchange Acidity							
Snap Lock Bag (ED005) BG5/0-0.1	20-Aug-2019	26-Aug-2019	17-Sep-2019	✓	27-Aug-2019	17-Sep-2019	✓
ED006: Exchangeable Cations on Alkaline Soils							
Snap Lock Bag (ED006) BG5/0-0.1	20-Aug-2019	26-Aug-2019	17-Sep-2019	✓	28-Aug-2019	17-Sep-2019	✓
ED007: Exchangeable Cations							
Snap Lock Bag (ED007) BG5/0-0.1	20-Aug-2019	26-Aug-2019	17-Sep-2019	✓	27-Aug-2019	17-Sep-2019	✓
ED008: Exchangeable Cations							
Snap Lock Bag (ED008) BG5/0-0.1	20-Aug-2019	26-Aug-2019	17-Sep-2019	✓	27-Aug-2019	17-Sep-2019	✓

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Work Order : EB1921914
Client : ENVIRONMENTAL ADVISORS
Project : 090 MARYVALE



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
EG005(ED093)T: Total Metals by ICP-AES								
Snap Lock Bag (EG005T) BG5/0-0.1		20-Aug-2019	23-Aug-2019	16-Feb-2020	✓	28-Aug-2019	16-Feb-2020	✓
Soil Glass Jar - Unpreserved (EG005T) RW11/0-0.05, RW12/0.5-0.6, DUP102, TP24/0.2-0.23, TP24/0.5-0.6, TP25/0.19-0.22, TP26/0-0.05, TP27/0.0-0.05, TP28/0.5-0.6, TP30/0.0-0.05, RW11/0.6-0.7, DUP101, TP24/0-0.05, TP24/0.3-0.35, TP24/0.17-0.20, TP25/0.3-0.35, TP26/0.25-0.3, TP28/0-0.05, TP29/0-0.05, TP24/0.9-1.0		20-Aug-2019	22-Aug-2019	16-Feb-2020	✓	27-Aug-2019	16-Feb-2020	✓
Soil Glass Jar - Unpreserved (EG005T) TP31/0-0.05, TP31/1.3-1.4, DUP5		20-Aug-2019	23-Aug-2019	16-Feb-2020	✓	28-Aug-2019	16-Feb-2020	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) RW11/0-0.05, RW12/0.5-0.6, DUP102, TP24/0.2-0.23, TP24/0.5-0.6, TP25/0.19-0.22, TP26/0-0.05, TP27/0.0-0.05, TP28/0.5-0.6, TP30/0.0-0.05, RW11/0.6-0.7, DUP101, TP24/0-0.05, TP24/0.3-0.35, TP24/0.17-0.20, TP25/0.3-0.35, TP26/0.25-0.3, TP28/0-0.05, TP29/0-0.05, TP24/0.9-1.0		20-Aug-2019	22-Aug-2019	17-Sep-2019	✓	27-Aug-2019	17-Sep-2019	✓
Soil Glass Jar - Unpreserved (EG035T) TP31/0-0.05, TP31/1.3-1.4, DUP5		20-Aug-2019	23-Aug-2019	17-Sep-2019	✓	28-Aug-2019	17-Sep-2019	✓
EP004: Organic Matter								
Snap Lock Bag (EP004) BG5/0-0.1		20-Aug-2019	27-Aug-2019	27-Aug-2019	✓	27-Aug-2019	24-Sep-2019	✓

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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	
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) RW11/0.0.05, RW12/0.5-0.6, DUP102, TP24/0.2-0.23, TP28/0.5-0.6,	RW11/0.6-0.7, DUP101, TP24/0.0.05, TP25/0.19-0.22, TP24/0.9-1.0	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP068) TP31/0.0.05, DUP4,	TP31/1.3-1.4, DUP5	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	26-Aug-2019	02-Oct-2019	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) RW11/0.0.05, RW12/0.5-0.6, DUP102, TP24/0.2-0.23, TP28/0.5-0.6,	RW11/0.6-0.7, DUP101, TP24/0.0.05, TP25/0.19-0.22, TP24/0.9-1.0	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP068) TP31/0.0.05, DUP4,	TP31/1.3-1.4, DUP5	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	26-Aug-2019	02-Oct-2019	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) RW11/0.0.05, TP24/0.0.05, TP25/0.19-0.22,	RW11/0.6-0.7, TP24/0.2-0.23, TP28/0.5-0.6	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP31/0.0.05, DUP5	DUP4,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	26-Aug-2019	02-Oct-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) RW11/0.0.05, TP24/0.0.05, TP25/0.19-0.22,	RW11/0.6-0.7, TP24/0.2-0.23, TP28/0.5-0.6	20-Aug-2019	22-Aug-2019	03-Sep-2019	✓	23-Aug-2019	01-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP31/0.0.05, DUP5	DUP4,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✓	26-Aug-2019	02-Oct-2019	✓

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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
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
RW11/0-0.05, TP24/0-0.05, TP25/0.19-0.22, TP31/0-0.05, DUP5	RW11/0.6-0.7, TP24/0.2-0.23, TP28/0.5-0.6, DUP4,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✔	23-Aug-2019	03-Sep-2019	✔
Soil Glass Jar - Unpreserved (EP071)								
TP31/0-0.05, DUP5	DUP4,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✔	26-Aug-2019	02-Oct-2019	✔
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
RW11/0-0.05, TP24/0-0.05, TP25/0.19-0.22, TP31/0-0.05, DUP5	RW11/0.6-0.7, TP24/0.2-0.23, TP28/0.5-0.6, DUP4,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✔	23-Aug-2019	03-Sep-2019	✔
Soil Glass Jar - Unpreserved (EP071)								
TP31/0-0.05, DUP5	DUP4,	20-Aug-2019	23-Aug-2019	03-Sep-2019	✔	26-Aug-2019	02-Oct-2019	✔
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
RW11/0-0.05, TP24/0-0.05, TP25/0.19-0.22, TP31/0-0.05, DUP5	RW11/0.6-0.7, TP24/0.2-0.23, TP28/0.5-0.6, DUP4,	20-Aug-2019	22-Aug-2019	03-Sep-2019	✔	23-Aug-2019	03-Sep-2019	✔

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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)							
Electrical Conductivity (1:5)	EA010	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	33	12.12	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	2	16	12.50	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
Pesticides by GCMS	EP068	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	32	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	33	12.12	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	3	17	17.65	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	1	200.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	32	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	33	6.06	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	11.76	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	32	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	33	6.06	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	11.76	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organic Matter	EP004	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard

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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	
Matrix Spikes (MS) - Continued							
PAH/Phenols (SIM)	EP075(SIM)	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	32	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	33	6.06	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	11.76	5.00	✓	NEPM 2013 B3 & ALS QC Standard

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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
pH in soil using a 0.01M CaCl ₂ extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl ₂ and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Exchange Acidity by 1M Potassium Chloride	* F0005	SOIL	In house: referenced to Rayment and Lyons, (2011), method 15G1. This method is unsuitable for near neutral and alkaline soils. NATA accreditation does not cover performance of this service.
Exchangeable Cations on Alkaline Soils	* F0006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Higginson (2011) Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
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 (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1 - 1997. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3).

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Analytical Methods	Method	Matrix	Method Descriptions
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Exchangeable Cations Preparation Method (Alkaline Soils)	ED006PR	SOIL	In house: Referenced to Rayment and Lyons 2011 method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
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 (2013) Schedule B(3) (Method 202)
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1 - 1997. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)
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.
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.