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Burrows Industrial Estate
Goodman Property Services (Aust) Pty Ltd
05-Mar-2020

Phase I & II ESA

1-3 Burrows Road, St Peters

Phase I & II ESA

1-3 Burrows Road, St Peters

Client: Goodman Property Services (Aust) Pty Ltd

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05-Mar-2020

Job No.: 60623599

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Quality Information

Document Phase I & II ESA

Ref 60623599

Date 05-Mar-2020

Prepared by Alex Latham

Reviewed by Brad Eismen

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	5-Mar-2020	Draft for comment	Alex Latham Associate Director	
0	05-Mar-2020	Final	Alex Latham Associate Director	

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Glossary

General Terms			
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure (2013)		
BTEXN	Benzene, toluene, ethylbenzene, xylenes and naphthalene		
CoPC	Contaminants of Potential Concern		
CSM	Conceptual Site Model		
DQI	Data Quality Indicators		
DQO	Data Quality Objectives		
EPA	Environment Protection Authority		
GME	Groundwater Monitoring Event		
HIL	Health Investigation Level		
HSL	Health Screening Level		
LOR	Limit of Reporting		
LNAPL	Light Non-Aqueous Phase Liquid		
m bgs	Metres below ground surface		
m btoc	Metres Below Top of Casing		
NATA	National Association of Testing Authorities		
NEPC	National Environment Protection Council		
NEPM	National Environment Protection Measure		
OCP	Organochlorine Pesticides		
OPP	Organophosphorus Pesticides		
PAH	Polycyclic Aromatic Hydrocarbons		
PCB	Polychlorinated Biphenyls		
PID	Photoionisation detector		
QA/QC	Quality Assurance/Quality Control		
RPD	Relative Percent Difference		
SWL	Standing Water Level		
TCLP	Toxicity Characteristic Leachate Procedure		
TPH/TRH	Total Petroleum Hydrocarbons/Total Recoverable Hydrocarbons		
UPSS	Underground Petroleum Storage System		
UST	Underground Storage Tank		
VHC	Volatile Halogenated Compound (or Chlorinated Hydrocarbons [CHC])		
VOC	Volatile Organic Compound		
Units			
m	Metre	mg/L	milligrams/litre
mg/kg	milligrams/kilogram	µg/L	micrograms/litre

Executive Summary

AECOM Australia Pty Ltd (AECOM) was engaged by Goodman Property Services (Aust) Pty Ltd (GPSA) to complete a Phase I and II Environmental Site Assessment (ESA) of Burrows Industrial Estate, 1-3 Burrows Road, St Peters, NSW (the Site).

The Site has been assessed generally following the guidelines endorsed by the NSW EPA. The assessment included a review of Site history and background data (Phase I ESA in 2015) followed by intrusive investigation, sampling and analysis (Phase II ESA in 2015 and 2020).

The Phase I ESA data indicated that Site was extensively filled with materials and has been utilised since the 1940s for the production of packaging (hessian bags and then plastic containers and other plastic products) and then as a warehouse type estate. Historical use included above and below ground storage of petroleum hydrocarbons, inks, gases, adhesives and vehicle workshop(s). The Site has undergone many stages of building alterations, removals and additions over the years.

The Phase II ESA was completed in readily accessible areas across the Site. Thirty nine soil boreholes were completed and eight groundwater monitoring wells were installed and sampled. Fill materials were identified at each borehole and current data indicates that it extends on average, to approximately 3.5 m depth. The soil sampling density completed is just below the minimum rate recommended in the NSW EPA (1995) Sampling Design Guidelines, but given the encountered conditions, is considered adequate to assess Site suitability for continued commercial/industrial land use.

Groundwater is present in the fill materials and current data indicates it is present between 0.6 to 2.75 m depth. Groundwater elevation data indicated a difference (on average) of 0.6 m between the 2015 and 2020 groundwater monitoring events.

The fill materials have been identified to be contaminated with lead, asbestos, benzo(a)pyrene (B(a)P) and long chain-length total recoverable hydrocarbons (TRH). The volume of fill material is estimated to be in the order of 120 000 m^3. Contamination at concentrations exceeding the adopted assessment criteria has not been identified in natural soils underlying the fill however, acid sulfate soil conditions are likely to be present.

Groundwater has high concentrations of copper, zinc and nickel and to a lesser extent, lead. Given the high concentrations of lead in fill, it does not appear to be significantly leaching into groundwater. Similarly, B(a)P has not been detected in groundwater. Volatile compounds have not been identified in groundwater to date.

Based on the available data, the following conclusions are made:

- With respect to the proposed redevelopment, AECOM considers that the Site can be made suitable for commercial/industrial land use however, implementation of control/management mechanisms will be required.
- The control mechanisms would include the preparation and adherence to a Remedial Action Plan (RAP), Construction-phase Site Management Plan (CSMP) and after redevelopment, a Long Term Site Environmental Management Plan (LTSEMP).

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by Goodman Property Services (Aust) Pty Ltd (GPSA) to complete a Phase I and II Environmental Site Assessment (ESA) of Burrows Industrial Estate, 1-3 Burrows Road, St Peters, NSW (the Site).

The Site location is shown on **Figure 1** and the layout and sampling location plan is shown in **Figure 2** (**Appendix A**). Tables of results are provided in **Appendix B**.

It is understood that Tallina Pty Ltd, part of the Goodman Group, owns the Site. GPSA is contemplating demolition of existing buildings and construction of free-standing, slab-on-ground style, multi-storey warehouses. Indicative redevelopment plans are included in **Appendix C**.

AECOM completed the fieldwork for the ESA in 2015 and 2020. The Phase I ESA data were collected in 2015 and in some instances, were not up-dated in 2020, given that no significant changes in Site operations have occurred. This is not considered to compromise data integrity.

It is noted that the Site dimension and area changed between 2015 and 2020 due to a compulsory acquisition associated with the M5 motorway project. The northern portion of the 2015 Site was acquired.

1.1 Objectives

The project objectives were to:

- Obtain an understanding of soil and groundwater contamination conditions at the Site.
- Assess Site suitability for commercial/industrial land use.
- Support a Development Application (DA) for the Site redevelopment.

1.2 Scope of Work

To achieve the objectives, the following works were completed:

- Review of historical and background information relating to the Site, including:
  - Previous contamination assessment reports.
  - Council Section 149 planning certificate (now known as a 10.7 certificate).
  - Historical certificates of title and aerial photographs.
  - NSW EPA register of regulated contaminated sites.
  - Soil, geology and hydrogeological data.
- Site inspections to assess Site operations and to locate boreholes.
- Drilling of 39 soil boreholes (BH01 to BH22 [2015] and BH100 to BH117[1] [2020]) to a maximum depth of 6.3 metres below ground surface (m bgs). Soil samples were collected from the boreholes.
- Collection of four surface soil samples (SS01 to SS04) in 2015.
- Installation and development of eight groundwater monitoring wells (MW01, MW16, MW17, MW19, MW21, MW102, MW105 and MW115)[2].
- Surveying of the top of the monitoring well casings and all borehole locations to Australian Height Datum (AHD) and Map Grid Australia (MGA).
- Gauging, purging and sampling of the groundwater monitoring wells.

[1] Borehole BH112 was not completed (due to operational requirements of a tenant)
[2] Monitoring wells MW01, MW16, MW17, MW19 and MW21 were installed in 2015 and MW102, MW105 and MW115 were installed in 2020.

- Laboratory analysis of soil and groundwater samples using methods endorsed by the National Association of Testing Authority (NATA) to evaluate concentrations of Contaminants of Potential Concern (CoPC). The CoPC included:
  - Total recoverable hydrocarbons (TRH).
  - Benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN).
  - Suite of eight metals, including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc (M8).
  - Polycyclic aromatic hydrocarbons (PAH) and phenols.
  - Organochlorine and organophosphorus pesticides (OCP, OPP).
  - Polychlorinated biphenyls (PCB).
  - Asbestos.
  - Volatile halogenated compounds (VHC).
- Data evaluation and reporting.

1.3 Data Quality Objectives

The seven step Data Quality Objective (DQO) approach endorsed in NSW EPA (2017) was adopted. The DQOs have set quality assurance and quality control parameters for the field and laboratory programs, to ensure data of appropriate reliability have been used to assess the environmental condition of the Site.

The DQOs for this project are presented in **Appendix C**. Attainment of the DQOs has been assessed by reference to the data quality indicators (DQIs), also presented in **Appendix C**.

1.4 Guidelines

AECOM completed works with reference to the following guidelines:

- National Environment Protection Measure (NEPM), *Assessment of Site Contamination (ASC) (National Environment Protection Council [NEPC]*, *1999* as amended (2013) (the ASC NEPM).
- CRC CARE (2011). *Technical Report No.10 - Health Screening Levels* (HSLs*) for Petroleum Hydrocarbons in Soil and Groundwater*. Friebel, E. and Nadebaum, P. Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE).
- NSW EPA (2017). *Contaminated Land Management*, *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*.
- NSW DEC (2007). *Guidelines for the Assessment and Management of Groundwater Contamination*.
- NSW EPA (1995). *Sampling Design Guidelines*.
- NSW OEH (2011). *Guidelines for Consultants Reporting on Contaminated Sites*. NSW Government Office of Environment & Heritage (OEH).

2.0 Site Details

2.1 Identification

Site identification details are summarised on **Table 1**.

Table 1 Site Identification

Item	Description
Address[1]	1-3 Burrows Road, St Peters
Legal Description[1]	Lot 11, DP 606737 Lot 1, DP 1227450[3]
Site Area[2]	3.45 hectares (Ha). Lot 11: 3.27 Ha Lot 1: 0.186 Ha
Site Owner[1, 3]	Tallina Pty Ltd
Local Government[1]	City of Sydney
Zoning[1]	IN1 General Industrial
Elevation (m AHD)[2]	2.03 to 4.93 (based on survey data)

Notes: 1 = Section 149 Certificate. 2 = survey data. 3 = Certificate of Title

2.2 Current Land Use

The Site is used as a warehouse-type industrial estate. Site tenants during the AECOM fieldwork programs included:

Table 2 Site Tenants

Unit(s)	Tenants/Comment(s)
1	2015 & 2020: Vacant building
2	2015: AST Services: storage and distribution of electric motor cars 2020: Vacant building
3	2015: Jets (Qantas Freight): freight transport and distribution 2020: Vacant building
4	2015 & 2020: Coca Cola Amatil: freight storage (drink products), transport and distribution
5-6	2015 & 2020: Staging Rentals: manufacture and/or storage of ‘props’ for theatre productions/stage shows
7	2015: PCA Express: freight storage (including quarantine products), transport and distribution 2020: Vacant building
8-9	2015: Sealed Air Australia: freight storage, transport and distribution 2020: 4Cabling: equipment storage
9A	Office area. Not inspected in 2015 or 2020.

The Site was mostly sealed in concrete and bitumen hardstand surfaces. Small garden or lawn areas were present along the main access driveway from Burrows Road and near Unit 8. A small area of unpaved ground was present between Unit 9 and the north western Site boundary and multiple fragments of asbestos containing material (ACM) were observed in this area.

[3] Identified as Lot 12 DP606737 in 2015.

2.3 Surrounding Land Use

Land use surrounding the Site included:

- North and east: M5 motorway project, constructed on the Alexandria Landfill facility (former brick-pit).
- South: Burrows Road followed by commercial/industrial properties, then Alexandra Canal. The Canal is located approximately 75 m to the south east.
- West: Canal Road followed by commercial/industrial properties.

3.0 Background Information/Phase I ESA

The following sections summarise the Site history and background data reviewed by AECOM.

3.1 Section 149 Certificate

AECOM reviewed the Planning Certificate issued under Section 149 of the Environmental Planning and Assessment Act, 1979. The Certificate was dated 20 August 2015 and is summarised below:

- The Site was identified as Lots 11 and 12 in DP 606737 and owned by Tallina Pty Ltd.
- The Site was zoned IN1 General Industrial under the Sydney Local Environmental Plan 2012.
- There were no matters listed for the Site under the Contaminated Land Management Act, 1997.

A copy of the Certificate is included in **Appendix D**.

3.2 Previous Reports

3.2.1 Mahaffey Associates Pty Ltd 1994

AECOM reviewed a report dated 10 May 1994 (Report No. GR270, *Geotechnical Assessment of Possible Site Contamination at No. 1-3 Burrows Road, Alexandria*) prepared for Goodman Hardie Pty Ltd, as summarised below:

- The Site was noted to be located in an area reclaimed by the infilling of Sheas Creek and construction of Alexandra Canal. Fill materials were expected to be present at the Site to approximately 1 m bgs.
- Historical Site activities were noted to comprise a hessian bag manufacturer (Abrahams Pty Ltd) and warehousing by Australian Liquor Distributors Pty Ltd.
- In 1994, the Site was occupied by:
    - Premier VIP Stores Pty Ltd (Units 1 and 2). Warehousing and dispatch type-operation. The report noted there were no chemical manufacturing or chemical storage activities.
    - Croxley Collins Pty Ltd (Unit 3). The report noted there was a recharging location for battery operated equipment.
    - St Regis Bates Pty Ltd (Units 4 to 7). The report noted that operations included the manufacture of multi-layered heavy paper packaging and inks were used for printing.
    - Rheem Australia Pty Ltd (Units 8 to 11). The report noted there were a variety of manufacturing activities related to the production of strengthened plastic fabrics, packaging liners and finished packaging. A 9000 litre underground storage tank (UST) for the storage of solvents was present, as were two Liquified Petroleum Gas (LPG) tanks.
- The report concluded that the Site "*has not suffered significant contamination as a result of past developments*" and "*existing activities are not likely to involve a significant environmental risk*".

3.2.2 Hibbs & Associates Pty Ltd 2005

AECOM reviewed a report dated April 2005 (Reference No. S3933/130, *Hazardous Materials Survey, Burrows Industrial Estate, 1-3 Burrows Road, Alexandria*) prepared for Macquarie Goodman Property Services Pty Ltd, as summarised below. The report only assessed above ground hazardous materials.

- No friable asbestos containing materials were identified on the Site.
- Bonded asbestos materials were identified to include asbestos cement sheets lining the external soffits of Units 1 and 9a, lining a gas cabinet near the machinery area in Unit 7 and possible vinyl asbestos tiles in Unit 3.

3.2.3 AECOM 2011

AECOM completed an Underground Petroleum Storage System (UPSS) inspection and compliance report in 2011 (reference 60218857_Burrows IE_20111118). The report is included in Appendix D and identified the following:

- At least five USTs had been present. Three USTs were decommissioned by removal in 1997 and two USTs may have been abandoned in-situ in approximately 1990. Based on WorkCover[4] data, the USTs appeared to be:
  - 2 x 18 000 L (petrol): located in the south western portion of the Site, near Unit 1.
  - 1 x 20 000 L (petrol): located on the northern side of Unit 8.
  - 1 x 9000 L (solvent): located adjacent to Units 4 and 6.
  - 2 x 20 000 L (petrol): located adjacent to Units 4 and 6.
- No active USTs were identified by AECOM in 2011.
- WorkCover NSW Dangerous Goods records were obtained for the Site and these are included in the AECOM 2011 report. The Dangerous Goods records also noted the following:
  - Rheem Australia (occupier) and A. Abrahams & Sons (trading name) (1972 and 1975): two bunded storage areas of brick wall and concrete floors for the storage of solvent-based inks and waste solvents/inks. An above ground tank for 4 700 L of copper naphthenate (a wood preservative) located opposite Units 4 and 6.
  - Rheem Australia (1994): roofed package store, with toluene (800 L), black ink (300 L), reducer (100 L) and butyl rubber adhesive (4000 L). Two 7500 L above ground storage tanks (ASTs), for propane and butane and a 2000 L AST for LPG. A drum store for 15 000 L of 'Instapak Component A'.

The inferred locations of the USTs are provided on Figure 1 in the AECOM 2011 report (**Appendix D**).

3.2.4 PSM Consult Pty Ltd 2015

Pells Sullivan Meynink (PSM) completed a geotechnical investigation of the Site in September 2015 (Reference: PSM2808-005R. *Burrows Industrial Estate, 1-3 Burrows Road, Alexandria, Geotechnical Investigation*). Review of the report indicated the following:

- The 1:100 000 Sydney Geological map indicates the Site is underlain by Quaternary alluvium (peat, sandy peat and mud).
- Fieldwork was undertaken on 13 August 2015 and included the completion of six Cone Penetrometer Tests (CPTs) by truck mounted testing rig and three bulk samples were collected by hand auger. CPTs were completed to 12 to 14 m bgs. Bulk samples were collected from approximately 0.2 to 0.5 m bgs.
- Bulk samples were logged to comprise clayey sand.
- Based on CPT data, PSM inferred that subsurface Units at the Site included (depths are approximate):
  - Pavement: 0 to 0.2 m bgs.
  - Fill: 0.2 to 1 m bgs. Gravelly sand and clayey sand, medium to very dense.
  - Upper Sand: 1 to 3 m bgs. Silty sand, loose to dense. PSM inferred that groundwater was present between 1.4 and 2.5 m bgs.
  - Upper Clay: 3 to 5.8 m bgs. Clay to silty clay, soft to firm.
  - Lower Sand: 5.8 to 8.7 m bgs. Sand to silty sand, dense to very dense.
  - Lower Clay: 8.7 to 10.7 m bgs. Clay to silty clay, stiff to very stiff.

[4] Now known as SafeWork NSW

- Bedrock: 10.8 m bgs, inferred from CPT refusal.

3.3 Expected Subsurface Conditions

3.3.1 Geology

According the *Sydney 1:100,000 Geological Series Sheet 9130* (DMR, 1983), the Site is mapped to comprise Quaternary sediments consisting peat, sandy peat and mud. The Site is mapped to be situated adjacent to Ashfield Shale of the Wianamatta Group.

3.3.2 Soils

According to the *Sydney 1:100,000 Soil Landscape Series Sheet 9130* (DECCW, 2009), Site soil conditions are mapped to comprise 'Disturbed Terrain', which may comprise:

- Level to hummocky terrain extensively disturbed by human activity, including quarries, tips, areas of landfill.
- Original soils have been removed, greatly disturbed or buried and landfill including soil, rock, building and waste materials may have been added.

Based on the review of the City of Sydney Acid Sulfate Soil (ASS) Risk Map Sheet (**Appendix D**), Class 3 ASS are mapped to be present. Under the classification scheme, Class 3 means that any work greater than 1 m bgs or any works that would lower the water table by greater than 1 m bgs would require development consent.

AECOM notes that ASS are unlikely to manifest in fill materials however, would likely be present in the Quaternary sediments. Investigation and testing was beyond this project scope but would be required to confirm the presence of ASS.

3.3.3 Hydrogeology

AECOM notes that the Site is located in Zone 2 of the Botany Groundwater Management Zones. Groundwater use for domestic purposes (e.g. drinking water, watering gardens, washing, bathing etc.) is banned in Zone 2.

A search of the NSW Office of Water database of registered groundwater bores was undertaken by AECOM in July 2014 and March 2020 for an approximate 0.5 km radius of the Site. Bores identified in close proximity to the Site, on the western side of Alexandra Canal, are summarised below:

Table 3 Bore Search Summary

Bore	Total Depth	SWL	Distance & Direction from Site	Use	Other
GW109821	35	14.5	600 m N	Monitoring	2.2 m of fill, Alexandria Landfill
GW109822	10.45	3	100 m NE	Monitoring	2.6 m of fill, Alexandria Landfill
GW109823	29	12.5	100 m NE	Monitoring	3 m of fill, Alexandria Landfill
GW109824	20.7	4.5	250 m NW	Monitoring	4.5 m of fill, Alexandria Landfill
GW109825	22	14.9	600 m NNW	Monitoring	4.5 m of fill, Alexandria Landfill

Notes: depths are in metres. SWL = standing water level

The bore search data indicates that groundwater is expected to be present at the Site, from approximately 2 m bgs. Groundwater is expected to flow towards Alexandra Canal however, the following is noted:

- Due to proximity of Alexandra Canal, the depth to groundwater may be tidally influenced.
- The presence of the former brick-pit excavation (Alexandria Landfill) and the recent motorway construction works may cause a localised reversal in groundwater flow direction.

3.4 Certificates of Title

AECOM completed a review of historical certificates of title to gain an understanding of former Site owners and potential land use (**Appendix D**). In summary, the documentation indicated the following ownership history:

Table 4 Ownership History

Year(s)	Owner	Possible Use
2000 to date	Tallina Pty Ltd	Warehouse estate
1988 to 2000	Goodman Hardie Pty Ltd	Warehouse estate
1980 to 1988	Superannuation Fund Investment Trust	Warehouse estate
1951 to 1980 (Lot 12)	The Austral Brick Company Pty Ltd	Clay-shale extraction and associated activities
1924 to 1951 (Lot 12)	The central Brick and Tile Company Pty Ltd	As above
1972 to 1979	Rheem Australia Pty Ltd	Production of packaging materials
1949 to 1972	A. Abrahams & Sons Pty Ltd	Manufacturing of hessian bags
1915 to 1948	Council of Municipality of Alexandria	Unknown
Pre 1915	Various owners (e.g. administrators of Estate of James Collins, Gerald William Cooper, Frederick William Lynch [brickyard manager] and Walter George West [brickyard manager]	Brickyards

Review of documentation included in the certificate of title search indicated:

- The presence of a fuel bowser (off-site) near the south western corner of the Site.
- Unit 9 building was noted to be under construction in 1980.
- A brick and galvanised iron factory building was present along the Sites' north western boundary in 1980.

According to the Encyclopaedia of Australian Science (**Appendix D**), A Abrahams & Sons Pty Ltd produced sacks and bags and then flexible packaging.

3.5 Websites

3.5.1 NSW EPA

Review of the NSW EPA website was undertaken to evaluate if the Site or nearby properties were listed as a contaminated site under Section 58 of the Contaminated Land Management Act, 1997 (CLM Act). The subject Site was not listed in 2015 or 2020.

Listed sites in St Peters and Alexandria (in January 2020) included:

- The bed of Alexandra Canal, contaminated with chlorinated hydrocarbons, pesticides and metals.
- Sydney Park (Alexandria Road). Former landfill facility, located immediately adjacent to the Site. Potential to affect the Site through on-site migration of contaminants in groundwater, presence of 'legacy' fill materials or migration of landfill gases.

The former Tidyburn facility (53 Barwon Park Road/15 Campbell Road, St Peters), part of the former landfill facility, was regulated as a Remediation Site in 2015. The EPA considered that soil was contaminated with PAH, TRH and BTEX and groundwater was contaminated with naphthalene and

TRH. In January 2020, the EPA website advised that the contamination was formerly regulated under the CLM Act.

The Site was not listed on the NSW Government PFAS Investigation Program, accessed March 2020. The closest listed site was Alexandria Fire and Rescue located at 189 Wyndham Street, Alexandria.

The EPA website was reviewed for Licences issued under the Protection of the Environment Operations Act. No current licenses for the Site were identified however, Sealed Air Australia Pty Limited formerly held a license for 'hazardous, Industrial or Group A Waste generation or Storage'. Properties with licenses included:

- 6-10 Burrows Road South St Peters, Visy Paper Pty Ltd.
- 25 Burrows Road St Peters, Boral Recycling Pty Ltd.

EPA search records are presented in **Appendix D**.

3.5.2 UXO

Review of the Department of Defence unexploded ordnance (UXO) website on 22 September 2015 indicated that the Site was not listed (**Appendix D**).

3.5.3 Council

AECOM reviewed readily available information posted on the archive section of the City of Sydney website, as summarised below.

Maps

A town planning map from 1950 shows the A. Abrahams & Sons Pty Ltd facility, noted to be a bag and sack manufacturer. The property at 5/5A Canal Road is noted to be a metal merchant.

Photographs

Two photographs show the A. Abrahams & Sons Pty Ltd facility circa 1977 to 1980. The Site frontages to Burrows and Canal Roads are similar to the current layout.

Development & Building Applications

It is noted that the Development and Building Applications (DAs and BAs) may not have necessarily been approved by Council. Review of the data indicated the following:

Table 5 City of Sydney Archives

Item	Date/s	Comments
304(A62)/49	Start: 28 Nov' 1949 End: 29 Jun' 1950	Corner (Cnr) Canal St & Burrows Rd, Alexandria. A. Abrahams & Sons. Amenity Building.
16/50	Start: 14 Dec' 1949 End: 20 May 1953	Cnr Burrows Rd & Canal Rd Alexandria. Alterations & additions to connect two existing buildings to provide additional space for the manufacture of bags. A Abrahams & Sons P/L. Interim Development Application.
216/50	Start: 23 Mar' 1950 End: 14 Apr' 1950	Cnr Burrows Road & Canal Road, Alexandria. Alterations to Building (No.7) & use of portion for the sewing of bags & to house cleaning machines. A. Abrahams & Sons Pty. Ltd. Interim Development Application.
563/51	Start: 06 Jun' 1951 End: 27 Oct' 1952	Canal Rd Burrows Rd, Alexandria. Erection of public weighbridge & housing. A. Abrahams & Son Pty. Ltd.
4719/53	Start: 10 Nov' 1953 End: 13 Jan' 1954	Premises, Canal Rd., Alexandria, occupied by A. Abrahams & Sons P/L. Use of building No. 9 (Fronting Burrows Rd.) by Terazzo & Co. P/L for the purpose of vehicle maintenance and as a workshop
131/54	Start: 28 Jan' 1954 End: 26 May 1955	Cnr Burrows & Canal Rds, Alexandria - office block & septic tank [A Abrahams & Sons Pty Ltd]

Item	Date/s	Comments
5593/56	Start: 07 Nov' 1956 End: 20 Feb' 1957	Property, Burrows Rd. & Canal Rd., Alexandria. A. Abrahams & Sons Pty. Ltd. Subdivision.
1025/57	Start: 01 May 1957 End: 21 May 1958	Cnr. Canal Rd & Burrows Rd, Alexandria (A. Abrahams & Sons) Additions to existing factory. (Building No.4)
457/58	Start: 07 Jul' 1958 End: 01 Dec' 1961	Cnr Canal & Burrows Rd Alexandria. Construction of a Modern Service Station. (A. Abrahams & Sons)
708/60	Start: not specified End: 14 Jul' 1969	Cnr Canal Rd & Burrows Rd, Alexandria. Erection of a factory for use in the manufacture of containers. A Abrahams & Sons P/L.
796/60	Start: 01 Apr' 1960 End: 16 May 1961	Cnr Burrows & Canal Rds, Alexandria - new building (factory) [A Abrahams & Sons]
0594/61	Start: 17 Mar' 1961 End: 29 May 1964	Cnr. Canal Road & Burrows Road, Alexandria. Office Extension. A. Abrahams & Sons Pty. Ltd.
1943/61	Start: 13 Sep' 1961 End: 26 Feb' 1962	Cnr Canal & Burrows Rds., Alexandria. (A. Abrahams & Sons) Factory additions
0001/62	Start: 21 Dec' 1961 End: 02 May 1962	Burrows Rd Alexandria. (Abrahams). Proposed erection of a sub-station. A. Abrahams & Sons P/L
121/62	Start: 12 Dec' 1967 End: 29 May 1968	Premises, Canal Rd & Burrows Rd, Alexandria. A. Abrahams & Sons Pty Ltd. To erect a single-storey building for use as a substation.
2805/63	Start: 04 Dec' 1963 End: 06 Mar' 1970	Cnr Canal & Burrows Rds Alexandria. Plastic Factory. Abrahams & Sons P/L.
6824/67	Start: 12 Dec' 1967 End: 29 May 1968	Premises, N.W. Cnr. Canal Rd. & Burrows Rd.,Alexandria. A Abrahams & Sons Pty Ltd. D.A.(Erection of extension)
80/C/072	Start: 17 Mar' 1961 End: 14 Jun' 1974	Premises Canal Rd, Burrows Rd Alexandria. A Abrahams & Sons Pty Ltd. To erect a single storey addition to a single storey office building. For Council's comment
241/74	Start: 26 Jun' 1974 End: 20 Jan' 1975	Cnr Canal & Burrows Rds, Alexandria. Ink & solvent store (Plastics Dept) A. Abrahams & Sons
35/77	Start: 16 Feb' 1977 End: 14 Jan' 1982	Cnr Canal & Burrows Rd Alexandria. Creation of Factory Units. (Rheem Aust Ltd)
37/79	Start: 20 Jan' 1979 End: 22 Nov' 1979	Cnr Burrows & Canal Rds, Alexandria. Fume exhaust stack & cold air exhaust stack. Rheem Aust Ltd.
44 83 2459	Start: 21 Dec' 1983 End: 04 Oct' 1984	1-3 Burrows Rd. Alexandria. Erect building & use as inflammable liquids store. Rheem Australia Ltd.
45 83 5516	Start: 30 Nov' 1983 End: 27 Mar' 1986	Factory unit 8, No 1 Burrows Rd Alexandria. New Structure. Rheem Aust.
45 86 0070	Start: 07 Jan' 1986 End: 03 Mar' 1987	1 Burrows Rd Alexandria. Erect a hot room, factory unit 9 Eastern wall. Rheem Australia Ltd.

Based on the DA and BA information, historical Site activities are inferred to have included:

- Manufacturing of bags and then plastic containers.
- Workshop and vehicle maintenance workshop(s).
- Below-ground storage of petroleum hydrocarbons and solvent-based inks. AECOM notes that one DA/BA was for the erection of a service station however, the WorkCover records did not contain any information related to this. It is assumed that the petrol station was not constructed.
- Above-ground storage of solvent-based inks and waste inks, toluene, adhesive and copper naphthenate.

3.6 Aerial Photographs

The following information was derived from reviewing historical aerial photographs for the Site and surrounding area. Copies of aerial photographs are included as Figures 3 to 11 (**Appendix A**).

Table 6 Aerial Photographs

Year	Comments
1930 (Figure 3)	**Site**: no obvious development noted however, surface of the site appears to be disturbed land. An access track runs into the Site, to the area of 'disturbed' ground. **Surrounds**: brick-pit excavations are present to the north and north west of the Site. Burrows and Canal Roads are present and there is minimal commercial/industrial development.
1943 (Figure 4)	**Site**: is undeveloped. The Site surface appears 'mottled' and 'hummocky', suggestive of filling activities. **Surrounds**: brick-pit excavations are present to the north and north west of the Site. Cluster of buildings noted at 5/5A Canal Road. A plume of smoke is visible emanating from a chimney at 5/5A Canal Road. Expansion of industrial activities along Burrows and Canal Roads.
1951 (Figure 5)	**Site**: Eight buildings, parallel to each other and on a south-east to north-west alignment are present, fronting Burrows Road and four buildings are present along the north western boundary area. **Surrounds**: Expansion of industrial activities along Burrows and Canal Roads. Expansion of brick-pit excavations, towards the Site. Cluster of buildings noted at 5/5A Canal Road, possibly representing the metal smelter. A dark area is present immediately to the north of the Site, representing a possible excavation pit.
1961 (Figure 6)	**Site**: eight buildings fronting Burrows Road are still present. There appears to have been additions to the buildings at the north western boundary area. Unit 1 appears to be present. The northern portion of the Site is undeveloped. **Surrounds**: Expansion of brick-pit excavations, towards the Site. Cluster of buildings noted at 5/5A Canal Road, possibly representing the metal smelter. The dark area noted to the north of the Site in the 1943 photograph is not visible and appears to be 'filled' ground.
1978 (Figure 7)	**Site**: eight buildings fronting Burrows road have been replaced by a large warehouse type building. Buildings along the north western boundary area are present and appear to have been extended to the east (i.e. current Units 8 and 9). **Surrounds**: Expansion of brick-pit excavations and/or landfill operations, towards the Site. Cluster of buildings noted at 5/5A Canal Road.
1986 (Figure 8)	**Site**: layout generally as per current. The large building fronting Burrows Road has been modified (i.e. part removed) and the access driveway from Burrows Road is present. Buildings along the western boundary area have been removed and replaced by asphalt paved car park. **Surrounds**: disturbed land associated with the brick-pits/landfill appear to extend to the western and northern Site boundaries.
1991	**Site & Surrounds**: generally as per 1986 photograph.
1999 (Figure 9)	**Site & Surrounds**: generally as per 1986 photograph.
2004 (Figure 10)	**Site**: generally as per 1986 photograph. The rooves on Units 2 to 9 appear to have been modified, possibly changed from corrugated asbestos cement to metal. **Surrounds**: generally as per 1986 photograph.
2014 (Figure 11)	**Site**: as per current layout. **Surrounds**: one shed structure noted at 5/5A Canal Road.

In summary, the aerial photographs indicate:

- The Site was first developed in the mid to late 1940s. Prior to this, the Site appears to have been filled with materials associated with construction of Alexandra Canal and/or waste materials associated with the brick-pits/landfills and/or wastes of unknown origin.
- The Site has undergone extensions to the original buildings and additions of new buildings.
- The original buildings have mostly been removed and replaced.
- Quarrying and landfilling operations have been undertaken on the adjacent property, as well as operation of a metal merchant/smelter at 5/5A Canal Road.
- A high potential for contamination to exist.

3.7 Site Inspection

Inspections of the Site were completed by AECOM prior to and during completion of intrusive investigation activities. Inspection of the internal area of Unit 1 was not undertaken (no access). Observations are summarised below and selected photographs are included in **Appendix E**:

- A high point exists near the central portion of the Site, near Units 5 and 9. The Site surface slopes down to the south and to the north of this high point.
- No visible signs of the presence of USTs were observed, consistent with the AECOM 2011 observations.
- The Site surface was mostly paved. The asphalt paved car park was considered to be in an average to poor condition. Concrete floor slabs in Units 2 to 6, 8 and 9 were generally in good condition.
- A fire pump housing unit was present between Units 1 and 2. The pumps appeared to be electric-powered and no signs of fuel storage were observed.
- In 2015, some minor production of plastics (moulds) was observed in Unit 8 and 9 as well as some storage of pre-packaged chemical containers. Storage activities appeared to be well maintained. In 2020, Units 8 and 9 were used for storing solid, inert goods.
- Unit 4 was utilised for the storage of packaged drink products.
- Units 5 and 6 were used for the storage and manufacture of ‘set-designs’. Manufacturing was observed to include the sawing, cutting and painting of wood products. Based on the presence of the concrete floor slab, the potential for these activities to contaminate the subsurface is considered to be low. A purpose-built and self contained spray booth was present in the south eastern portion of Unit 6. The booth was located on concrete hardstand, noted to be in good condition. Borehole BH112 was to be completed adjacent to the spray booth but was not completed due to the operational requirements of the tenant.
- In 2015 Unit 7 appeared to be used for storage of packaged goods on shelving. Observation made from the main access doorway indicated a well maintained facility. In 2020, Unit 7 was vacant and not inspected.
- In 2015, numerous fragments of ACM were observed on the ground surface in a small unpaved area between Unit 9 and the Site north western boundary. Other observed anthropogenic materials included nodules of slag, pieces of glass, ash/coke and metal waste. Fragments of probable ACM and slag were also observed on the ground surface on the northern side of Unit 9.
- Pieces of slag were observed in fill materials beneath the concrete slab for the car-park area of Unit 7.
- A small plant room was present on the southern side of Unit 8. Access was not obtained however, it appeared that compressors were present on a concrete slab. No exhaust pipes or vent pipes were observed.

- A flammable liquids store sign was present on the external northern wall of Unit 8 and a fenced compound was present adjacent to this. The compound was empty but based on the presence of residual steel pipework on the external wall of the building, appeared to formerly store gas cylinders and/or ASTs. Borehole BH19 was completed outside the store area. Two brick bund areas with concrete bases were also present with no storage activities. The bunds appeared to be in reasonable condition with no obvious indications of leaks or spills.
- In 2015, a large mound of material was present off-site, near the Site north western boundary area. In 2020, lands to the west and north of the Site were undergoing M5 motorway works and the mound of material was not evident.

4.0 Investigation Rationale and Methodology

4.1 Contaminants of Potential Concern

Based on the data reviewed, Contaminants of Potential Concern (CoPC) at the Site are considered to include:

- Suite of eight metals (M8): can be present in fill materials of unknown origin and quality, in foundry/casting sands and can be associated with workshop and mechanical repair and maintenance activities. Some metals (e.g. arsenic) have been used for insect (termite) control. Common metal contaminants include arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.
- Benzene, toluene, ethylbenzene xylenes and naphthalene (BTEXN): typically associated with petrol and to a lesser extent, diesel. Can occur in fill materials of unknown origin and quality and can be associated with workshop and maintenance/repair activities. Naphthalene may be associated with the former copper naphthenate storage.
- Total Recoverable Hydrocarbons (TRH): occur in petrol and diesel fuels, oils, solvents and can be present in fill materials of unknown origin and quality.
- Polycyclic aromatic hydrocarbons (PAH): can be present in petrol and diesel fuel, oil, waste oil, creosote, tar, bitumen/asphalt, ash and slag. Can be present in fill materials of unknown origin and quality.
- Phenols: typically associated with waste oils.
- Organochlorine pesticides (OCP): typically related to insect control (termiticides). Typically applied immediately beneath building slabs and/or around timber structures in contact with the ground. Can be present in fill materials of unknown origin and quality.
- Organophosphorus pesticides (OPP): typically related to insect (e.g. termite) control.
- Polychlorinated biphenyls (PCB): historically present in electrical equipment such as transformers and capacitors. Can be present in fill materials of unknown origin and quality.
- Asbestos: can be present in fill materials of unknown origin and quality and with the deterioration/damage/weathering of asbestos building structures.
- Volatile halogenated compounds (VHC): related to solvents such as degreasers, lubricants, and thinners. VHC can be associated with workshop and maintenance/repair activities and are commonly present in groundwater in the Botany Sands.
- Landfill gas: potentially related to the former landfill facilities located near the Site. Gases investigated were hydrogen sulphide (H_2S), methane (CH_4), carbon dioxide (CO_2), carbon monoxide (CO) and oxygen (O_2).

4.2 Investigation Locations

The Site is approximately 3.45 Ha. The NSW EPA (1995) Sampling Design Guidelines recommend approximately 44 sample locations as a minimum number of sampling points for the characterisation of a 3.45 Ha Site.

A total of 39 soil boreholes and four surface samples were completed on a broad grid and in readily accessible areas. Six boreholes (BH01, BH04, BH16, BH17, BH20 and BH21) were positioned in proximity to the inferred locations of the former USTs.

Given that 43 sampling locations have been completed, AECOM considers that the investigation density is sufficient to assess Site suitability for commercial/industrial land use.

Sample locations are shown on **Figure 2** in **Appendix A** and the rationale is presented in **Table 7**.

Table 7 Sample location rationale

Location(s)	Rationale
BH01/MW01	Vicinity of former USTs.
BH02, BH03	Vicinity of former buildings and general Site coverage.
BH04	Vicinity of former USTs.
BH05 to BH15	Vicinity of former buildings and general Site coverage.
BH16/MW16, BH17/MW17	Vicinity of former USTs.
BH18	General Site coverage.
BH19	General Site coverage and vicinity former flammable liquids store area.
BH20	Vicinity of former USTs.
BH21/MW21	Vicinity of former USTs and general Site coverage.
BH22	General Site coverage.
SS01 to SS04	Assess for asbestos in exposed surface soils.
BH100, BH101	Site coverage, based on 2015 analysis results.
BH102/MW102	As above and to better understand groundwater elevation/gradient.
BH103, BH104	Site coverage, based on 2015 analysis results.
BH105/MW105	As above and to better understand groundwater elevation/gradient.
BH106 to BH114	Site coverage, based on 2015 analysis results.
BH115/MW115	As above and to better understand groundwater elevation/gradient.
BH116, BH117	Site coverage, based on 2015 analysis results.

Positions of boreholes were also influenced by Site operational concerns and the presence of underground utilities. Three attempts were made at borehole BH07 and as a result, soil sample identifiers include BH07, BH07A and BH07B. All three locations were located within a one metre radius and the data is considered representative of one borehole location.

4.3 Soil Assessment Methodology

The soil assessment was completed in August 2015 and January and February 2020 and the methodology is summarised below:

Table 8 Soil Assessment Methodology

Activity	Details
Service Clearance	Prior to the drilling, borehole locations were checked for underground services by a Telstra accredited service locator using radio-detection and with reference to utility plans obtained through the Dial-Before-You-Dig service.
Surface Samples	Surface samples were collected by stainless steel hand-trowel and placed into snap-lock plastic bags.

Activity	Details
Drilling Method & Soil Sample Collection	Boreholes were initially drilled by hand auger to approximately 1 m bgs to reduce the risk of contact with underground services. A Geoprobe™ drill rig was used to complete the boreholes by continuous push tube methodology. This enables the collection of relatively undisturbed soil cores within clear, polyethylene (PET) tubes. Samples are collected from the PET tube. Where possible, the push tubes were completed into natural soils. Four boreholes (BH06, BH15, BH113 and BH116) met refusal or were terminated in fill material due to obstructions (e.g. buried concrete slabs) or the potential presence of services. There was minimal to no push tube sample recovery in granular/gravelly fill material in seven boreholes (BH17, BH105, BH106, BH107, BH109, BH110 and BH115), likely due to larger diameter objects obstructing the PET tube. In multiple instances, solid stem auger (SSA) drilling was required to penetrate blocky fill materials. Soil samples were collected directly from the hand auger cutting head, push tube cores and the leading flight of the SSA, near the cutting head. Borehole advancement methodology is provided on the logs in **Appendix F**.
Soil logging	Soil logging was in general accordance with the Unified Soil Classification System.
Soil Sample Collection For Analysis	The soil samples were collected into laboratory-prepared glass jars with Teflon-lined lids, which were filled to minimise headspace and placed in an insulated cooler containing crushed ice. Soil samples for asbestos analyses were collected into snap-lock plastic bags. All soil samples were collected by gloved hand. A new pair of nitrile gloves was worn for each sample collection event.
Field Screening	Soil sub-samples were placed in snap-lock plastic bags and the headspace screened in the field for volatile organic compounds (VOCs) using a calibrated Photoionisation Detector (PID) equipped with a 10.6 eV lamp. The PID screening results are provided on **Table 1** and the borehole logs. Calibration details are provided in **Appendix C**.
Decontamination	Sampling equipment was decontaminated between boreholes by brushing away extraneous materials, washing with phosphate free detergent, followed by a rinse with potable water.
Quality Control (QC) samples	QC samples included the collection and analysis of field duplicate, equipment rinsate blank and trip blank samples (refer to **Appendix C**).
Spoil Disposal	Drilling spoil (from the monitoring wells) was placed into 205 litre drums and appropriately disposed off-site.

4.4 Groundwater Assessment Methodology

The groundwater assessment methodology is summarised below:

Table 9 Groundwater Assessment Methodology

Activity	Details
Well Construction and Installation	Monitoring wells were constructed from Class 18 uPVC 50 mm outside diameter machine threaded riser and slotted (0.5 mm) casing. After completion of the push tube borehole and logging of encountered conditions, including measurement of the water level in the borehole, the borehole was re-drilled with hollow stem augers (in 2015) and SSA (in 2020). The monitoring well materials were then assembled and placed into the annulus of the hollow flight auger. Graded filter sand was added to approximately 0.5 m above the top of the screened interval and a minimum 0.5 m layer of hydrated bentonite seal was added above the filter sand. The hollow flight augers were carefully removed as the sand and bentonite were added to the construction. For the SSA boreholes, monitoring well materials were placed in the reamed borehole. The wells were typically installed with 3 m long screens, targeting the first encountered groundwater strike. The wells were finished with steel road box covers. Well construction details are provided in **Appendix F**.
Well Development	The wells were developed as soon as practicable after installation using low-flow pumping (2015) and high flow pumping (2020), to promote connectivity with the aquifer. Geochemical parameters (temperature, electrical conductivity, redox potential, dissolved oxygen and pH) were measured by a calibrated water quality meter (WQM) during development. Development continued until the geochemical parameters stabilised and the water became clear (refer to **Table 2** in **Appendix B**). Field worksheets and calibration records for the WQM are provided in **Appendix C**.
Survey	Monitoring well locations and the elevation of the top of the casings were recorded by appropriately qualified surveyors (refer **Appendix C)**. The survey also captured all the borehole locations.
Well gauging	The standing water level (SWL) in all monitoring wells was measured using an electronic water/oil interface meter, which was also suitable for detecting light non-aqueous phase liquid (LNAPL). The measurements were taken on the same day and in as close succession as possible to minimise temporal variation. Gauging was completed prior to purging and the data is presented on **Table T2** in **Appendix B**.
Well purging	Monitoring wells were purged using low flow sampling equipment. Geochemical parameters were measured by a calibrated WQM and the SWLs were measured by the interface probe during purging. Purging continued until the geochemical parameters and SWL stabilised. The stabilised geochemical parameters are provided on **Table 3** in **Appendix B**. Field worksheets and calibration records for the WQM are provided in **Appendix C**. The field measurements in the 2020 sampling event were recorded on an electronic tablet and the data output is provided.
Groundwater sampling	Monitoring wells were sampled using low flow sampling equipment. The groundwater samples were collected after the geochemical parameters had stabilised to within approximately 10% in three successive readings.

Activity	Details
Decontamination	Decontamination of the interface meter probe and sampling pump was undertaken using a phosphate free detergent solution followed by a double rinse with laboratory supplied deionised water. Dedicated sampling tubing was used to reduce the risk of cross contamination. Two rinsate blank samples were collected from the interface meter probe head following decontamination procedures. Two field prepared trip blanks (TB) were utilised during sample holding and transport, to assess for potential cross-contamination.
Purge Water Disposal	Purged water was appropriately disposed off-site.

4.5 Landfill Gas Screening Methodology

Screening for landfill ground gases was undertaken with a calibrated landfill gas meter. The methodology included:

- Measurements were taken above each monitoring well before removing the expandable cap and then at the top of the pipe immediately after removing the expandable cap. Measurements at each monitoring well were taken for a minimum of four minutes.
- Ambient air measurements were taken within Units 2, 3, 7 and 9 for a minimum of three minutes. The units had been closed overnight and were accessed via a small fire door. The measurements were taken approximately 250 mm above the concrete floor in the (approximate) centre of each unit, as soon as possible after opening the building.

Field screening results are discussed in **Section 7.2**. Field worksheets are included in **Appendix C**. Screened gases included methane (CH_4), hydrogen sulphide (H_2S), carbon dioxide (CO_2), carbon monoxide (CO) and oxygen (O_2).

4.6 Laboratory Analysis

ALS Environmental (ALS) was the primary laboratory. Envirolab Services Pty Ltd (Envirolab) was the secondary (or 'check') laboratory.

Soil samples selected for analysis was primarily based on:

- The different types of fill materials encountered.
- Material immediately beneath building slabs.
- The presence of odours and/or unusual colouration and/or elevated PID readings.
- The depth to encountered groundwater during drilling.
- Site features (e.g. decommissioned UST).
- In the 2020 program, fill materials to approximately 2 m bgs were targeted, representing an inferred depth of excavation works during Site redevelopment. Wherever possible, PET tube samples were selected for chemical analyses.

Groundwater samples were analysed for TRH, BTEXN, PAH, metals and VHC in 2015. Based on the 2015 results, no PAH analyses were completed in the 2020 groundwater monitoring event (GME).

Table 1 in **Appendix B** provides a summary of the soil and groundwater and quality control samples analysed and the rationale for sample selections for analysis. Laboratory certificates are provided in **Appendix G**.

5.0 Quality Assurance and Quality Control

5.1 QA/QC Data Validation

The QA/QC program implemented for the investigation was completed in accordance with the seven-step DQO process, as described in **Appendix C**. The achievement of the project DQOs was demonstrated by reference to the DQIs.

5.2 Data Useability

The data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported analytical results are representative of the soil and groundwater conditions at the sample locations and that the overall quality of the analytical data produced is acceptably reliable for the purpose of this investigation.

6.0 Assessment Criteria

6.1 Soil

The following guidelines were adopted for evaluation of the soil analysis results:

- NEPC, 1999. *National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013)* (ASC NEPM 2013).
- CRC CARE (2011). *Health Screening Levels for petroleum hydrocarbons in soil and groundwater.* Technical report series No. 10. Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE). Friebel, E. and Nadebaum, P., 2011.

Application of these guidelines is summarised below.

6.1.1 Health Investigation Levels (HILs)

The HILs described in the ASC NEPM 2013 are scientifically based, generic assessment criteria designed to be used in the first stage of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst-case scenario for four generic land use settings, as summarised below:

Table 10 Health Investigation Level Summary

HIL	Land Use
HIL-A	Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools and primary schools.
HIL-B	Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats.
HIL-C	Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools. and footpaths.
HIL-D	Commercial/industrial such as shops, offices, factories and industrial sites.

6.1.2 Health Screening Levels (HSLs)

The HSLs presented in the ASC NEPM 2013 and CRC CARE 2011 were developed to be protective of human health by determining the reasonable maximum concentration from site sources for a range of situations commonly encountered on contaminated sites. The HSLs apply to the same land use settings as for the HILs, although the values for residential A and B are combined and include consideration of soil texture and depth to source to determine the appropriate soil, groundwater and soil vapour criteria for the exposure scenario. The HSLs are summarised on the following table:

Table 11 Health Screening Level Summary

HSL	Land Use	Soil Depths	Soil Types (all land uses)
HSL-A HSL-B HSL-C HSL-D	See **Table 10**	0 m to <1 m 1 m to <2 m 2 m to <4 m 4 m +	**Sand** (sand, sandy clay, sandy clay loam, sandy loam, loamy sand, loam, sandy silt and silty sand) **Silt** (silt, silty clay and silty clay loam) **Clay** (clay, clay loam and silt loam)
Shallow Trench Worker	Utility/intrusive maintenance workers involved in shallow trenches (to a maximum depth of 1 m)	0 m to <2 m 2 m to <4 m 4 m +	

6.1.3 Aesthetics

The ASC NEPM 2013 and CRC CARE 2011 do not provide numeric aesthetic guidelines however, the ASC NEPM states that "*site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity*".

Aesthetic issues generally relate to the presence of low-concern or non-hazardous inert foreign material (refuse) in soil or fill resulting from human activity. Issues that may require further assessment could include:

- Highly malodorous soils or extracted groundwater.
- Hydrocarbon sheen on surface water.
- Discoloured chemical deposits or soil staining with chemical waste.
- Presence of putrescible refuse materials that may generate hazardous levels of methane.

6.1.4 Ecological Investigation Levels (EILs)

The EILs presented in the ASC NEPM have been developed for selected metals and organic substances and are applicable for assessing risk to terrestrial ecosystems. EILs depend on specific soil physicochemical properties and land use scenarios, generally apply to the top 2 m of soil and apply to three generic land use settings:

- Areas of ecological significance (e.g. National and State Parks, wilderness areas and designated conservation areas). A 99% level of species protection.
- Urban residential areas and public open space, which is broadly consistent with HIL A, HIL B and HIL C land use scenarios. An 80% level of species protection.
- Commercial and industrial. A 60% level of species protection.

Generic EILs are available for arsenic, DDT (an OCP compound) and naphthalene. Site specific EILs can be calculated (via the background concentration plus the added contaminant limit method) for chromium, copper, nickel and zinc.

Fill material with variable concentrations of metals has been identified across the Site to an approximate average depth of 3.5 m, therefore background concentrations would be near impossible to calculate. As the Site will continue to be a commercial/industrial facility and it is expected that fill material will be capped and future landscape areas will comprise imported soil, Site-specific and generic EILs have not been considered by AECOM to assess the fill material.

6.1.5 Ecological Screening Levels (ESLs)

The ESLs presented in the ASC NEPM are based on a review of Canadian 'risk-based' guidance for petroleum hydrocarbons in coarse and fine grained soils. AECOM notes that the ASC NEPM derived values are moderate to low reliability and that:

- ESLs apply from the surface to 2 m depth, corresponding to the root zone and habitation zone of many species.
- ESLs only apply to coarse and fine grained soils. Where soil texture is not known, a conservative approach should be adopted (i.e. assume coarse soils). AECOM notes that Fill materials may comprise both coarse and fine grained soils and non-soil material.
- Consideration should be given to the risk of material being excavated and causing an exposure risk.

6.1.6 Management Limits (MLs)

The MLs presented in the ASC NEPM reflect the nature and properties of petroleum hydrocarbons, such as:

- The formation of observable LNAPL.
- Fire and explosion hazards.

- Effects on buried infrastructure (e.g. penetration of, or damage to, in-ground services).

Application of the MLs requires consideration of site-specific factors such as the depth to building basements and services and depth to groundwater. The ASC NEPM notes that the MLs may have less relevance at operating industrial sites, which have no or limited sensitive receptors in the area of potential impact.

6.1.7 Asbestos

The ASC NEPM provides HSLs for asbestos, which are the same as the investigation criteria in WA DOH 2009. The HSLs relate to the same land use scenarios as the HILs and HSLs noted in **Section 6.1.1**. In summary, the ASC NEPM provides the following information on asbestos:

- Bonded ACM: comprises asbestos containing material that is in a sound condition, although possibly broken or fragmented and where the asbestos is bound in a matrix such as cement or resin. Bonded ACM is restricted to material that cannot pass through a 7 mm x 7 mm sieve. This sieve size equates to the approximate thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release. Bonded ACM is equivalent to 'non-friable' asbestos in Safe Work Australia (2016). Per the ASC NEPM, bonded ACM in sound condition represents a low human health risk.
- Fibrous Asbestos (FA): comprises friable asbestos material and severely weathered asbestos cement sheet, insulation products and woven asbestos material. FA can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded. FA is equivalent to friable asbestos in Safe Work Australia (2016).
- Asbestos Fines (AF): includes free fibres, small fibre bundles and small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. AF is equivalent to friable asbestos in Safe Work Australia (2016).

The ASC NEPM provides the following HSLs for asbestos contamination in soil for a commercial/industrial exposure scenario:

- Bonded ACM: 0.05% w/w.
- Friable ACM (FA and AF): 0.001 % w/w.
- All forms of asbestos: no visible asbestos in surface soils.

In the 2015 assessment, samples for asbestos were analysed by the absence/presence method and as such, results are not comparable to the HSLs. AECOM adopted the HSLs for the samples analysed in the 2020 investigation, which are presented on **Table 5** in **Appendix B**.

6.1.8 Waste Classification

The NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classification of Waste* were utilised for fill or soil materials that may require disposal to landfill. Waste classification criteria are shown on **Tables 4** and **7** in **Appendix B**.

6.1.9 Adopted Soil Assessment Criteria (SAC)

The following have been adopted as the soil assessment criteria.

Table 12 Soil Assessment Criteria

Guideline	Level Adopted	CoPC
ASC NEPM 2013	HIL-D	PAH, Metals, OCP, OPP, PCB, phenols
	Vapour Intrusion: HSL-D, Sand. Depth depends on sample collection depth	TRH, BTEXN
CRC CARE 2011	Direct Contact: HSL-D Direct Contact: Intrusive Maintenance Worker	

Guideline	Level Adopted	CoPC
ASC NEPM 2013	No visible asbestos in surface soils Bonded ACM Friable ACM	Asbestos

The following rationale was applied in the selection of these SAC:

- Commercial/industrial standards (HIL-D and HSL-D for industrial land use) were adopted as they are most applicable criteria for the proposed land use.
- For HSLs, sand was selected as the soil type, based on a conservative measure (i.e. significant volumes of highly variable fill material). Depth was based on sample collection depth.

The selected SAC are provided with the soil analysis results on **Tables 4** to **6** (**Appendix B**).

Table 4 includes the NSW EPA (2014) Waste Classification Criteria for General Solid Waste (GSW) and Restricted Solid Waste (RSW). The Waste Classification criteria, including Toxicity Characteristic Leachate Procedure (TCLP) tests, are presented on **Table 7**.

6.2 Groundwater

The sample analysis data has been compared to the following groundwater investigation levels (GILs) provided in the ASC NEPM:

- HSL D for vapour intrusion, sand aquifer, groundwater 2 to <4 m depth.
- Marine waters.

The following rationale was applied in the selection of the GILs:

- HSL-D was adopted for human health as they are most applicable to the Site.
- Sand was selected as the soil type and depth to groundwater as 2 m to <4 m based on the presence of fill material and measurements.
- Marine water GILs were selected since groundwater may discharge to Alexandra Canal.

AECOM has adopted the high reliability default guideline values (DGV) for marine water with a 95% level of species protection for cadmium and nickel provided in the Australian and New Zealand Guidelines for fresh and marine water (2018).

Given that the Site is located in an area where abstraction of groundwater for drinking purposes is banned, assessment of results to the drinking water GILs have not been considered. The Drinking Water Guidelines are included on **Table 8** for reference purposes.

The GILs and the groundwater sample analysis results are provided on **Table 8** (**Appendix B**).

7.0 Results

7.1 Soil

7.1.1 Fill Materials

Fill materials were logged at all boreholes completed. In the boreholes where the fill material was penetrated, it was logged between 1.5 m (BH100) and 5.1 m thick (BH110). Based on the logged conditions, it is inferred that fill material extend to an average of 3.5 m bgs across the Site. Given the Site is approximately 3.45 ha, a preliminary fill volume is in the order of 120 000 m^3.

Fill materials were variable in composition although typically comprised mixtures of sand, silt and clay with inclusions of sandstone, concrete, glass, brick, ash, slag, terracotta, porcelain, ceramics, metal fragments and road-base gravel. Material logged as 'ironstone' gravel (red to orange gravel, approximately 10 to 20 mm diameter) were present and it is considered these may represent foundry/casting sands. Anthropogenic inclusions were logged in all boreholes. Selected photographs showing the mixed fill material retrieved during sampling are shown in **Appendix F**.

Review of the borelogs, for locations that penetrated the fill material, indicated that:

- Ash was logged at 14 locations.
- Slag was logged at all locations except BH01, BH100, BH103 and BH104.
- Ironstone gravel was logged at all locations except BH02, BH05, BH21 and BH104.
- Metal waste was logged at 17 locations.
- Fragments of probable ACM were observed in BH07, BH21 and BH22 and ground surface adjacent to Unit 9.
- Buried concrete (slabs) were encountered at BH01, BH02, BH14, BH15 and BH108.
- Potential indicators of putrescible waste were observed at BH105 (bone fragment) and BH101 (cotton buds).

Based on the logged conditions, **Figure 12** in **Appendix A** provides inferred cross sections of the Site subsurface. Due to the heterogeneity of the fill material, no distinction between 'fill-types' has been undertaken.

A summary of the fill samples analysed and their description is presented on **Table 1** in **Appendix B**.

7.1.2 Natural Soil and Bedrock

Natural soils were logged to comprise sandy clay, clay, silty clay, silty sand and sandy silt. In locations where organic fibres were logged to be present in natural soil, this represents the presence of decomposing vegetation matter (i.e. peat and/or peat-like material).

Bedrock was not encountered in the boreholes completed.

7.1.3 Soil Odours and VOC screening

Hydrogen sulphide (H_2S) odour was noted in natural material in the many of the boreholes, sometimes logged as 'organic odour', suggesting the presence of ASS rather than hazardous ground gas associated with landfill. PID readings in samples with H_2S odours were between 0 and 390 ppm (BH09_4.6 m). Concentrations of TRH, BTEXN, phenols and VHC were below the laboratory limit of reporting (LOR) in this sample, indicating that the H_2S odour and/or high moisture content in the soil sub-samples may have been affecting the PID.

Odours were noted at the following locations during the 2015 investigation:

Table 13 Soil Odour & VOC Measurements

Location	Odour	PID (ppm)
BH04	Mild hydrocarbon (HC) odour in fill at 0.5 m	0.5
BH11	HC in sandy silt	0.5
BH16	Possible HC at base of fill	2.1
BH17	Slight HC in Fill at 2.7 m	15.2
BH21	Chemical odour noted from 1 m (odour type not specified)	0.3

No odour observations of fill materials were completed in 2020 due to personnel protective equipment (respirators equipped with P2 and organic cartridges). The maximum measured concentrations of VOC in the screened soil-subsamples in the 2020 investigation were:

- Fill materials: 3.8 ppm at BH108.
- Natural soil: 3.2 ppm at BH106.

7.2 Landfill Gas

Field measurements are summarised in the following tables. To provide a preliminary screening assessment of the field data, reference was made to the NSW EPA (2019) *Guidelines for the Assessment and Management of Hazardous Ground Gases*. Section 3.6.2 of the NSW EPA (2019) Guidelines refer to the NSW EPA (2016a) *Environmental Guidelines: Solid Waste Landfills*, which provide the following criteria for gas management:

- Surface emission criteria: the threshold level for further investigation and corrective action is 500 ppm v/v methane at any point on the landfill surface for intermediate and finally-capped areas.
- Gas accumulation criteria, enclosed structures: the threshold level for further investigation and corrective action is detection of methane at concentrations above 1 % (v/v).

Measurements taken within the units on 21 February 2020 are summarised below:

Table 14 Ground Gas Measurements in Ambient Air

Unit	Minutes	CH_4 (% v/v)	H_2S (ppmv)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppmv)
2	0	0	0	0.1	21	0
	4	0	0	0.1	21	0
3	0	0	0	0.1	21	0
	4	0	0	0.1	21.1	0
7	0	0	0	0.1	20.8	0
	4	0	0	0.1	20.8	0
9	0	0	0	0.1	21	0
	5	0	0	0.1	21	0

Methane (CH_4) was not detected by the landfill gas meter in the units measured. The field data for 21 February 2020 indicates that the ground gases investigated are unlikely to pose a constraint to Site redevelopment.

Measurements taken at the groundwater monitoring wells on 21 February 2020 are summarised below:

Table 15 Ground Gas measurements, monitoring wells

Location	Minutes	CH_4 (% v/v)	H_2S (ppmv)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppmv)
MW01	Ambient, ground level (cap on)	0.1	0	0.1	21	1
	0 (cap removed)	0.6	0	0.9	19.8	0
	6	0.2	0	0.2	20.5	0
MW16	Ambient, ground level (cap on)	0	0	0.1	20.7	0
	0 (cap removed)	0	0	1.2	19.4	0
	3	0	0	0.1	20.6	0
MW17	Ambient, ground level (cap on)	0	0	0.1	20.7	0
	0 (cap removed)	0	0	4.2	15.4	0
	4	0	0	0.1	20.6	0
MW19	Ambient, ground level (cap on)	0	0	0.1	20.6	0
	0 (cap removed)	0	0	1.8	19.7	0
	6	0	0	0.1	20.5	0
MW21	Ambient, ground level (cap on)	0.1	0	0.1	20.7	0
	0 (cap removed)	0	0	0.1	20.5	0
	6	0	0	0.1	20.6	0
MW102	Ambient, ground level (cap on)	0	1	0.1	20.8	0
	0 (cap removed)	0	0	0.1	20.6	0
	4	0	0	0.1	20.7	0
MW105	Ambient, ground level (cap on)	0	0	0.1	21.1	0
	0 (cap removed)	0	0	0.4	20.3	0
	6	0	0	0.1	20.8	0
MW115	Ambient, ground level (cap on)	0	0	0.1	20.9	0
	0 (cap removed)	0.1	0	0.1	20.9	0
	6	0.1	0	0.1	20.8	0

The measurement data for 21 February 2020 indicate:

- Methane readings at the ground level, taken immediately above the monitoring wells prior to opening the caps, were 0 to 0.1 % v/v.
- The highest methane measurement for the air space within the monitoring well casings, 0.6 % v/v, was recorded at monitoring well MW01 upon opening the cap and reduced to 0.2 % v/v.

The monitoring well measurement data indicates that the ground gases investigated are unlikely to pose a constraint to Site redevelopment.

7.3 Groundwater

7.3.1 Groundwater Elevation

Groundwater gauging data are presented on **Table 2** and summarised below:

- The measured SWL in the groundwater monitoring wells in August 2015 was between 1.096 (MW01) and 3.16 metres below top of casing (m btoc) (MW16). This represented an average SWL of 2.35 m btoc, equating to 0.99 m AHD.

- The measured SWL in the groundwater monitoring wells in February 2020 was between 0.67 (MW01) and 2.749 m btoc (MW16). This represented an average SWL of 1.74 m btoc, equating to 1.39 m AHD.
- The August 2015 SWL and survey data were inconclusive with respect to identifying the groundwater flow direction. Groundwater was inferred to flow to the south or south east, towards Alexandra Canal.
- The February 2020 SWL and survey data generally indicated a south easterly to southerly flow direction. Data indicated the presence of mounding at MW115 and a low point at MW105, indicating a possible localised reversal of the gradient in the central portion of the Site. Additional monitoring data may be required to confirm the groundwater flow direction.

Groundwater elevation data for February 2020 is presented on **Figure 13** in **Appendix A**.

7.3.2 Geochemical Parameters

The stabilised groundwater geochemical parameters collected during the final purge volume are presented on **Table 3** in **Appendix B** and for February 2020 are summarised below:

- Dissolved oxygen: measurements were between 0 and 2.35 mg/L, indicating low oxygenated conditions.
- Electrical conductivity: measurements were between 485 and 3050 µS/cm, indicating fresh to brackish conditions.
- pH: measurements were between 6.54 and 7.51, indicating near-neutral conditions.
- Redox potential: measurements were between 32.4 and 316.4 mV, indicating a low redox potential.

7.3.3 Groundwater Observations

No LNAPL, unusual odours or colour were noted in the monitoring wells sampled (**Table 3, Appendix B**). A H_2S odour was noted at MW102 during purging and sampling.

7.4 Analysis Results

The soil sample analysis results are presented on **Tables 4** to **7** and the groundwater sample analysis results are presented on **Table 8** (**Appendix B**). For ease of reporting, the tables of results include CoPC for which there are current NSW EPA endorsed assessment criteria. The laboratory analysis reports are presented in **Appendix G** and contain all analysis results.

7.4.1 Soil

TRH, BTEXN

Seventy four samples were laboratory analysed. Concentrations of BTEXN and TRH were below the adopted HSL D for vapour intrusion in the samples analysed.

The concentration of TRH >C16-C34 (F3) exceeded the CRC Care HSL D for Direct Contact in BH21_0.7-0.8. The concentration of F3 in this sample was below the CRC Care criteria for direct contact by an intrusive maintenance worker (IMW).

Concentrations of TRH >C10-C16 (F2) and/or F3 and/or TRH >C34-C40 (F4) exceeded the ASC NEPM management limits (MLs) in three primary samples, including BH17_2.0-2.1, BH20_2.0-2.1 and BH21_0.7-0.8 (**Table 6**).

Concentrations of TRH F2 and/or F3 and/or F4 exceeded the ASC NEPM ecological screening levels in BH17_2.0-2.1, BH20_2.0-2.1 and BH21_0.7-0.8 (**Table 6**).

PAH

Eighty four samples were laboratory analysed and the results indicated:

- Concentrations of total PAH were variable and below the HSL D in the samples analysed.
- Concentrations of naphthalene were below the CRC Care direct contact criteria.

- Concentrations of benzo(a)pyrene toxicity equivalent quotient (B(a)P TEQ) were variable and four results were above the ASC NEPM HIL D. The detected concentration of B(a)P at borehole BH21_07-0.8 exceeded the ASC NEPM HIL D by more than 250%.

Six soil samples were re-analysed by the Toxicity Characteristic Leachate Procedure (TCLP) test method. The B(a)P did not appear to be leaching under acidic conditions (**Table 7**).

Metals

One hundred samples were laboratory analysed to evaluate concentrations of the suite of eight metals. Concentrations of metals in the soil samples analysed were variable and below the adopted SAC with the exception of lead.

Concentrations of lead exceeded the ASC NEPM HIL D (1500 mg/kg) in 46 samples. Of these 46 samples, 20 exceeded the ASC NEPM HIL D by more than 250% (i.e. exceeded 3750 mg/kg). All samples with lead concentrations above the HIL D were fill material.

Results of TCLP tests for metals (**Table 7**) indicated that fill materials spanned the waste categories provided in the NSW EPA (2014) Waste Classification Guidelines, including:

- General Solid Waste (GSW).
- Restricted Solid Waste (RSW).
- Hazardous Waste (HW).

The presence of asbestos would result in a dual classification. The chemical classification and special (asbestos) waste.

OCP, OPP, PCB

Nineteen samples were laboratory analysed. Concentrations of OCP, OPP and PCB were below the ASC NEPM HIL D in the samples analysed.

Phenols

Four soil samples were laboratory analysed. Concentrations of phenol compounds were below the ASC NEPM HIL D in the samples analysed.

VHC

Four soil samples were laboratory analysed. Concentrations of VHC were below the laboratory LOR in the samples analysed.

Asbestos

Forty four fill and two fragment samples were laboratory analysed for asbestos (**Table 5**, **Appendix B**). Asbestos was identified in nine samples from the 2015 investigation, as summarised below:

Table 16 Asbestos results

Sample	Laboratory Comment/Result
BH01_0.3-0.4	one loose bundle of friable asbestos fibres approximately 3 x 1 x 0.5 mm
BH03_1.0-1.2	several friable asbestos fibre bundles approximately 5 x 2 x 2 mm
BH07A_0.5-0.6	one loose bundle of friable asbestos fibres approximately 4 x 1 x 0.5 mm
BH21_0.7-0.8	Several pieces of heavily degraded and friable asbestos fibre board approximately 60 x 30 x 3 mm with soil debris containing several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm
BH22_0.3-0.4	Two pieces of bonded asbestos cement sheeting approximately 45 x 35 x 5 mm, several pieces of friable asbestos cement sheeting approximately 4 x 4 x 1 mm
BH22_0.45	One piece of bonded asbestos cement sheeting approximately 90 x 60 x 5 mm
SS01	Two pieces of friable asbestos fibre board approximately 4 x 3 x 2 mm, several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm

Sample	Laboratory Comment/Result
SS02	Four pieces of bonded asbestos cement sheeting approximately 40 x 40 x 5 mm, several pieces of friable asbestos cement sheeting approximately 7 x 6 x 4 mm, several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5 mm
SS04	Five pieces of bonded asbestos cement sheeting approximately 50 x 30 x 5 mm

Whilst quantification analyses were not undertaken in 2015, the presence of loose bundles of friable asbestos fibres suggests that concentrations of asbestos in soil (w/w%) may exceed the ASC NEPM HSL D.

Twenty eight samples of fill were analysed by the quantification method in the 2020 investigation. Two sample results exceeded the ASC MEPM HSL D for bonded ACM and eight samples exceeded the ASC NEPM HSL D for friable asbestos.

Asbestos was identified by laboratory analysis of samples from boreholes (and surface samples) located across the Site.

7.4.2 Groundwater

The following summary of results primarily relates to the February 2020 data, the most recent GME.

TRH, BTEXN

Eight groundwater samples were laboratory analysed. Concentrations of TRH and BTEXN were below the ASC NEPM HSL D, sand aquifer, 2-<4 m depth and below the ASC NEPM marine GIL. Data indicates a no apparent risk of vapour intrusion from groundwater.

PAH

Concentrations of PAH were below the laboratory limit of reporting (LOR) in the August 2015 GME. No PAH analyses were undertaken in February 2020 based on the 2015 results.

VHC

Eight groundwater samples were laboratory analysed. Concentrations of VHC were below the laboratory LOR. Data indicates no apparent risk of vapour intrusion from groundwater.

Metals

Eight groundwater samples were laboratory analysed. Concentrations of metals were below the ASC NEPM marine GIL or ANZG DGV, with the exception of:

- Copper: concentrations at MW16 (231 µg/L), MW17 (32 µg/L) and MW19 (247 µg/L) exceeded the ASC NEPM marine GIL of 1.3 µg/L. It is noted that these concentrations above the ASC NEPM marine GIL were (typically) an order of magnitude higher in the 2020 GME, which maybe related to the disturbance of the subsurface associated with the motorway works.
- Lead: the concentration at MW16 (8 µg/L) and MW19 (5 µg/L) exceeded the ASC NEPM marine GIL of 4.4 µg/L. The location of MW19 suggests an off-Site source.
- Nickel: the concentration at MW19 (294 µg/L) exceeded the ANZG DGV of 70 µg/L. The location of MW19 suggests an off-Site source.
- Zinc: concentrations at all wells except MW102 (59 to 3360 µg/L) exceeded the ASC NEPM marine GIL of 15 µg/L. Data indicate an off-Site source or regional, diffuse contamination source issue.

It is noted there is no ASC NEPM GIL or ANZG marine DGV for arsenic. The highest dissolved arsenic concentration was reported at monitoring well MW19, indicating an off-Site source.

8.0 Discussion

8.1 Proposed Redevelopment

Information supplied by GPSA (to date) indicates that the proposed redevelopment will comprise free standing warehouses, internal roadways and car-parks and associated landscaped areas. GPSA has advised that:

- The warehouse buildings would comprise ‘slab-on-ground’ construction. The concrete slabs would be supported by piers installed into geotechnically appropriate material at depth.
- No basements or sunken-loading docks are contemplated however, a partial undercroft may be incorporated into the buildings.
- Installation of sub-surface utilities (e.g. hydrant ring-mains, sewer, electricity etc) will be required.

8.2 Soil Impact

The data obtained from this investigation identified lead, B(a)P TRH and asbestos impacts in fill materials. The contaminants are non-volatile and are unlikely to present a vapour inhalation risk and once the Site is redeveloped, the floor slabs and hardstand roadways should provide an effective barrier to the impacted materials. Controls will be required to manage potential exposure to asbestos, lead and B(a)P impacts during redevelopment and subsequent operational phase.

Given the volume of fill material inferred to be present and the variability in contaminant concentrations, it is considered that excavation(s) into fill materials to remove contaminant concentrations exceeding commercial/industrial land use criteria are unlikely to be ‘validated’.

With respect to the proposed redevelopment and based on the available data, AECOM considers that the Site can be made suitable for commercial/industrial land use however, implementation of control/management mechanisms will be required. These are envisaged to include but not necessarily be limited to:

- Demolition and removal of existing buildings and pavements under a Construction Phase Site Management Plan (CSMP) for contamination. The CSMP would also need to address contamination-related risks associated with earthworks to prepare the Site surface for redevelopment and include contingency for the management of expected (e.g. asbestos) and unexpected finds (e.g. USTs encountered, unusual conditions, buried drums and other wastes etc). The CSMP would include information that is typically presented in a Remedial Action Plan (RAP).
- All excavation works undertaken within or on fill material must be supervised by Class A licensed asbestos contractors, including appropriate air monitoring for airborne asbestos fibres.
- Given the variability in composition and contaminants concentrations in the fill materials, they should be retained on Site wherever possible. Surplus fill materials should be appropriately disposed off-site in accordance with NSW EPA (2014) Waste Guidelines. Fill materials may require stabilisation prior to being acceptable for landfill disposal.
- Survey of Site surface after earthworks to record the level (m AHD) of residual fill materials and the visual marker layer.
- Placement of non-contaminated materials such as Virgin Excavated Natural Material (VENM) or concrete hardstand (and pavement sub-grade) above the visible marker layer and residual fill material. The ‘barrier’ may need to be in the order of 0.3 to 0.5 m thick. Surveying should be completed to confirm the depth of cover.
- Excavations for the installation of services should be lined with geofabric and backfilled with VENM, to minimise potential exposure to construction workers and future maintenance workers. All service trenches should be surveyed, to allow appropriate long term management.
- Landscape areas should have a minimum cover of 0.5 m of VENM. A visible marker layer should separate the residual fill materials and the VENM.

- A 'validation' report prepared by an appropriate consultant, verifying that the CSMP was adhered to and including all relevant sample analysis data, air monitoring records, waste disposal documentation (as applicable), survey data and photographic evidence.
- Preparation and adherence to an Operational-phase or Long Term Site Environmental Management Plan (LTSEMP).

8.3 Groundwater Impact

The current data have identified high concentrations of zinc, nickel and copper in groundwater and to a lesser extent, lead and arsenic. Given the high concentrations of lead in fill, it does not appear to be significantly leaching into groundwater. Concentrations of dissolved metals are inferred to be related to an off-Site source or regional, diffuse contamination source issue.

B(a)P has not been detected in groundwater at concentrations above the laboratory LOR, indicating a low leaching potential. AECOM notes that PAH compounds typically have low solubility.

Volatile compounds such as BTEXN, short chain-length TRH and VHC have not been identified in groundwater to date, indicating a low risk of vapour intrusion.

Based on the current data and given consideration of the ban on domestic use of groundwater, the presence of metals impacts is not considered to affect Site suitability for continued commercial/industrial land use. Management of potential exposure to groundwater should be documented in the CSMP and LTSMP.

8.4 Conceptual Site Model

The purpose of a Conceptual Site Model (CSM) is to assess the risks potentially present at the Site by identifying and describing contaminant sources, transport mechanisms, exposure pathways and sensitive receptors associated with the Site. The CSM is based on review of background data and the results of this investigation and is summarised below:

Table 17 CSM

Consideration	Details
Site Setting	• The Site is located in a commercial/industrial area • Current and proposed use is commercial/industrial
Site History	• Detailed history of Site operations and processes not known. USTs known to have been present • Site extensively filled • Former landfill facility and smelter adjacent to Site
CoPC	• CoPC are presented in **Section 4.1** • Based on sample analysis data, principal contaminants of concern are lead, B(a)P, asbestos and long chain-length TRH in soil. • Based on sample analysis data, principal contaminants of concern are zinc, copper, nickel and lead in groundwater.
Sources of Contamination	The following activities are known or suspected to have occurred: • Presence of fill materials. • Demolition of buildings. • Fuel storage, below ground. AECOM notes that the specific locations of former features and nature of activities undertaken is not known. This ESA targeted known former contaminant sources and included grid-based sampling.

Consideration	Details
Groundwater	Site groundwater conditions are summarised below: • Groundwater was present at approximately 0.6 to 2.75 m bgs, an average of approximately 1.7 m bgs (or 1.39 m AHD). • Future redevelopment activities may intersect groundwater, hence, short term exposure (incidental ingestion by intrusive maintenance workers) is possible. • Elevation data generally indicates that groundwater flows towards Alexandra Canal. • Groundwater may be tidal and change flow direction depending on the tide. • The Site is located in an area where extraction of groundwater for domestic purposes is banned. • The former landfill adjacent to the Site may affect the groundwater gradient.
Extent of Soil Impacts	• Given the widespread occurrence of fill materials and variable composition, AECOM considers that the extent of impacts in fill materials are unlikely to be 'delineated'. • Natural soils have not been identified to be contaminated.
Extent of Groundwater Impacts	• No sheen, hydrocarbon odours or LNAPL were identified in the monitoring wells gauged and sampled. • Concentrations of some dissolved metals (mostly copper, nickel and zinc) exceeded the ASC NEPM GILs for the protection of marine water aquatic ecosystems.
Landfill Ground Gases	• Screening for hazardous ground gases in monitoring wells and within buildings did not identify concentrations of CH_4 or H2S considered to pose an unacceptable risk.
Potential transport mechanisms and exposure pathways	• Asbestos in Soil: A complete pathway would exist where soil disturbance/excavation is undertaken without implementation of appropriate control measures, including personnel protective equipment (PPE). A complete pathway would exist where there is exposed fill material at the surface and when personnel utilise these areas. This should be documented and managed according to a management plan. • Lead in Soil: there is a potential for direct dermal contact and/or ingestion of lead in soil however, this is considered to be low for the current and proposed Site use. Adoption of management measures would be required during Site redevelopment plus implementation and adherence to a LTSMP after Site redevelopment. • Hydrocarbons and PAH in soil: as per lead and metals in soil. Volatile hydrocarbons (i.e. BTEXN and TRH C6-C10) have not been identified to date. Based on the available soil and groundwater analysis data, the vapour Inhalation risk is currently considered to be low. • Metals in Groundwater: potential direct dermal contact and incidental ingestion by future construction workers and/or subsurface maintenance workers. Risk considered to be low and could be managed by adoption of appropriate control mechanisms and/or PPE.
Potential Receptors of Contamination	Potential human receptors: • Current Site workers, contractors and visitors. The current risk is considered to be low given that the Site is mostly paved. • Construction and maintenance workers during redevelopment. • Future Site workers, contractors and visitors. • Occupants of nearby commercial/industrial premises during Site redevelopment. Potential environmental receptors: • Fauna in groundwater beneath the Site. • Groundwater migrating to the Alexandra Canal.

9.0 Conclusions

Based on the available data, the following conclusions are made:

- With respect to the proposed redevelopment, AECOM considers that the Site can be made suitable for commercial/industrial land use however, implementation of control/management mechanisms will be required.
- The control mechanisms would include the preparation and adherence to a Remedial Action Plan (RAP), Construction-phase Site Management Plan (CSMP) and after redevelopment, a Long Term Site Environmental Management Plan (LTSEMP).

10.0 References

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Appendix A

Figures

G:\IENV\GIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F1 Site Location 03 03 2020 TO

AECOM

SITE LOCATION

Burrows Industrial Estate
New South Wales

FIGURE 1

G:\ENVGIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F2 Site Layout and Sampling Locations 03 03 2020 TO

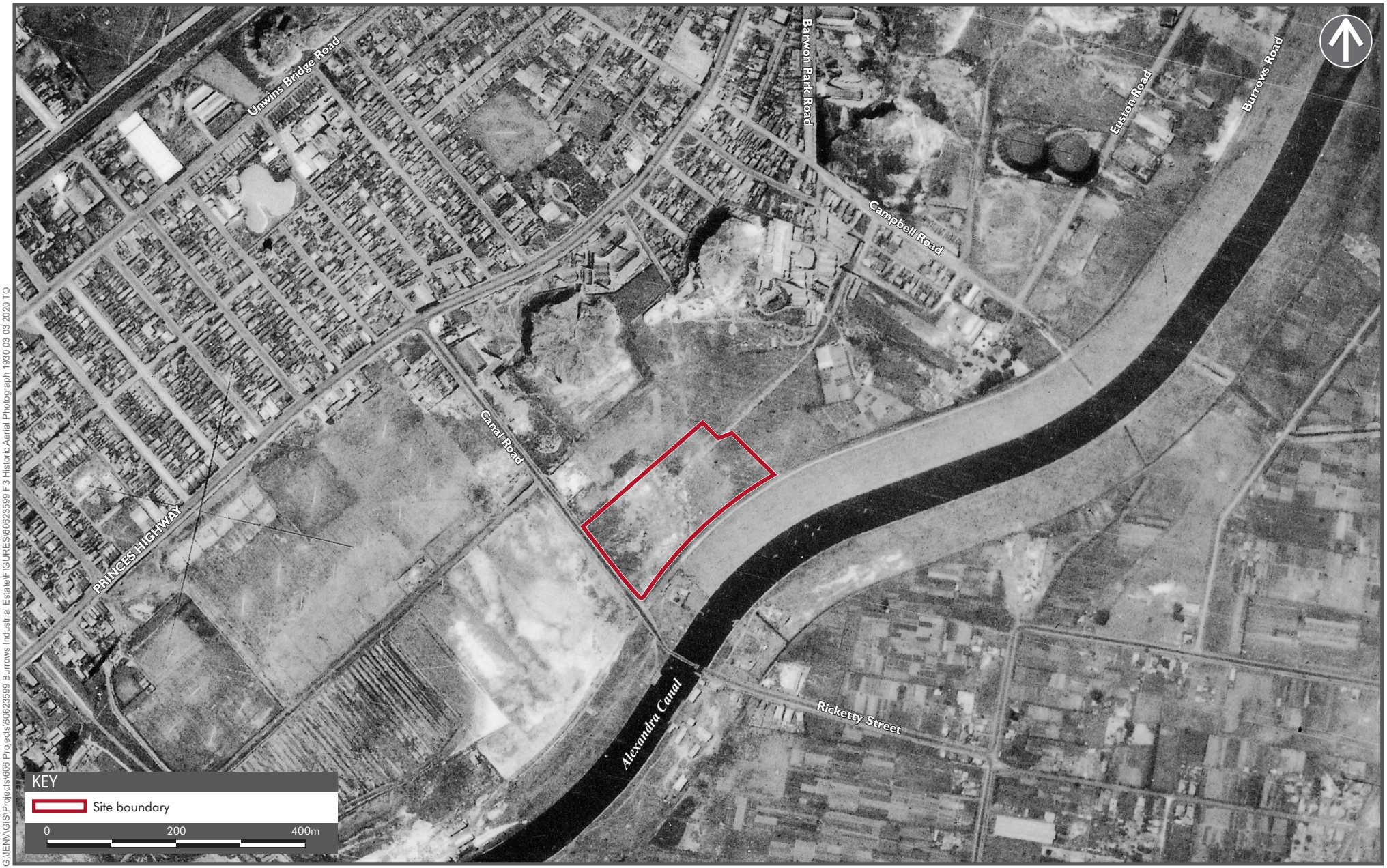
AECOM

SITE LAYOUT AND SAMPLING LOCATIONS

Burrows Industrial Estate
New South Wales

Note: Unit areas are approximate and inferred only

FIGURE 2



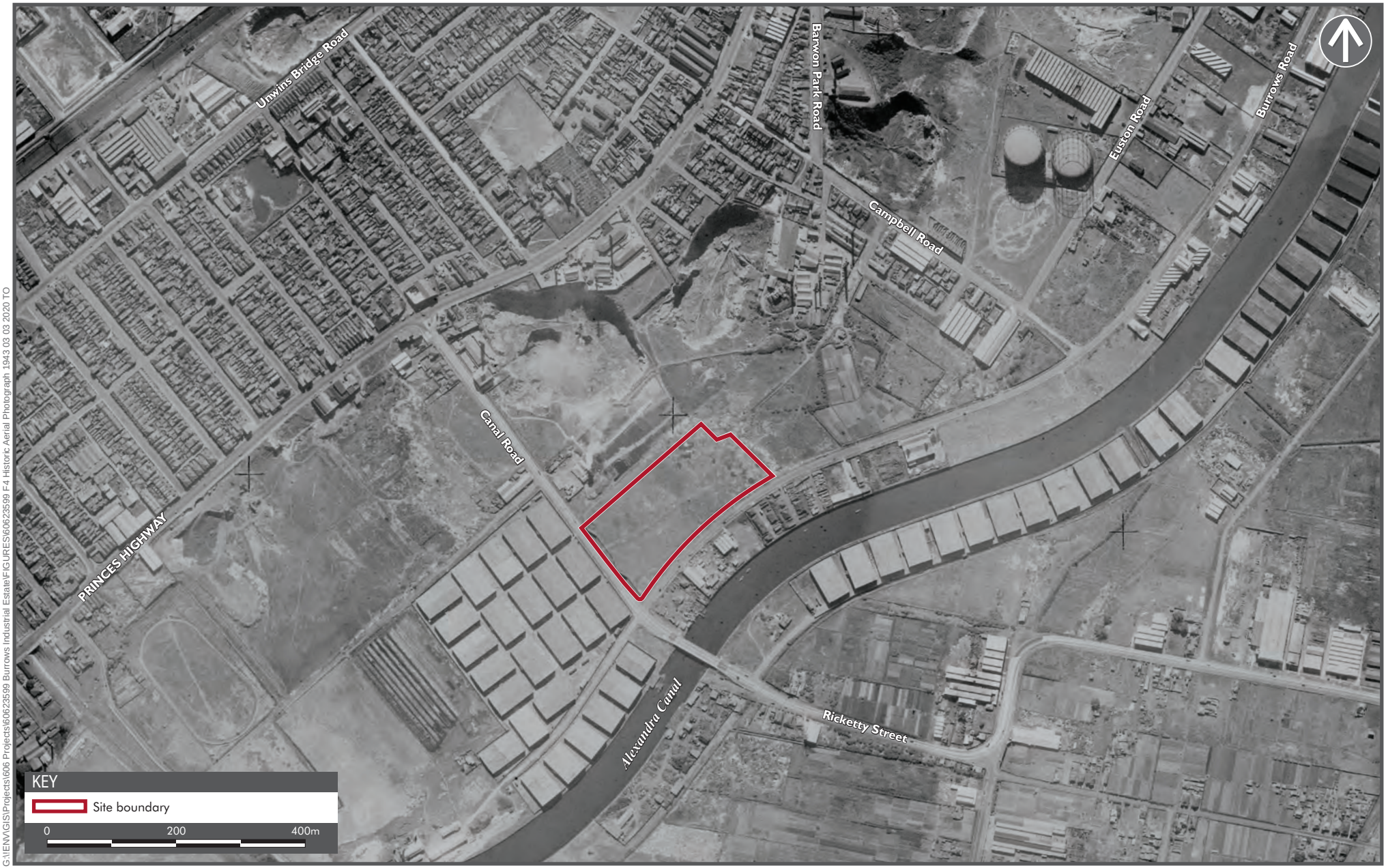
G:\ENV\GIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F3 Historic Aerial Photograph 1930 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 1930

Burrows Industrial Estate
New South Wales

FIGURE 3



G:\ENVGIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F4 Historic Aerial Photograph 1943 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 1943
Burrows Industrial Estate
New South Wales

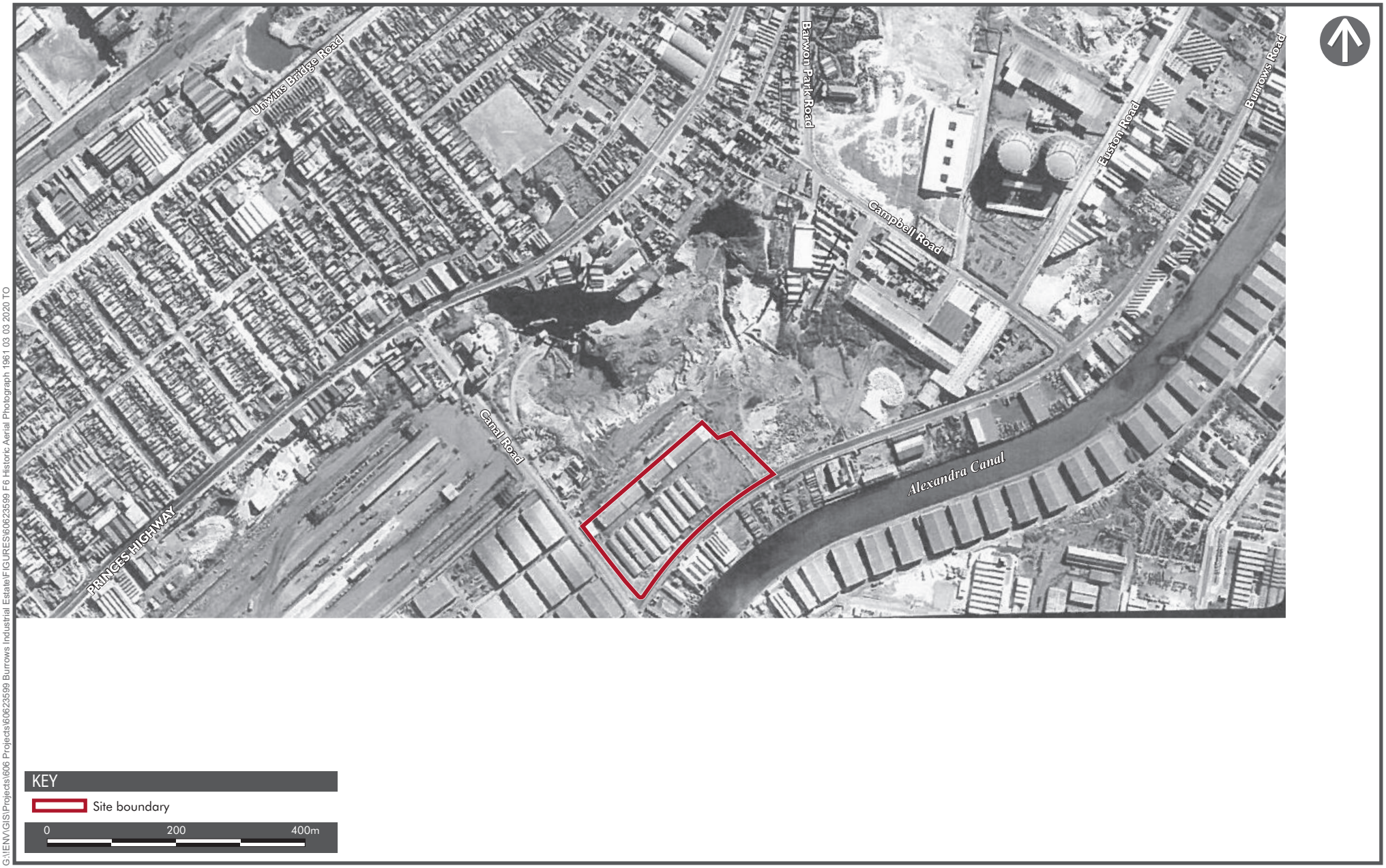
FIGURE 4

G:\ENV\GIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F5 Historic Aerial Photograph 1951 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 1951
Burrows Industrial Estate
New South Wales

FIGURE 5

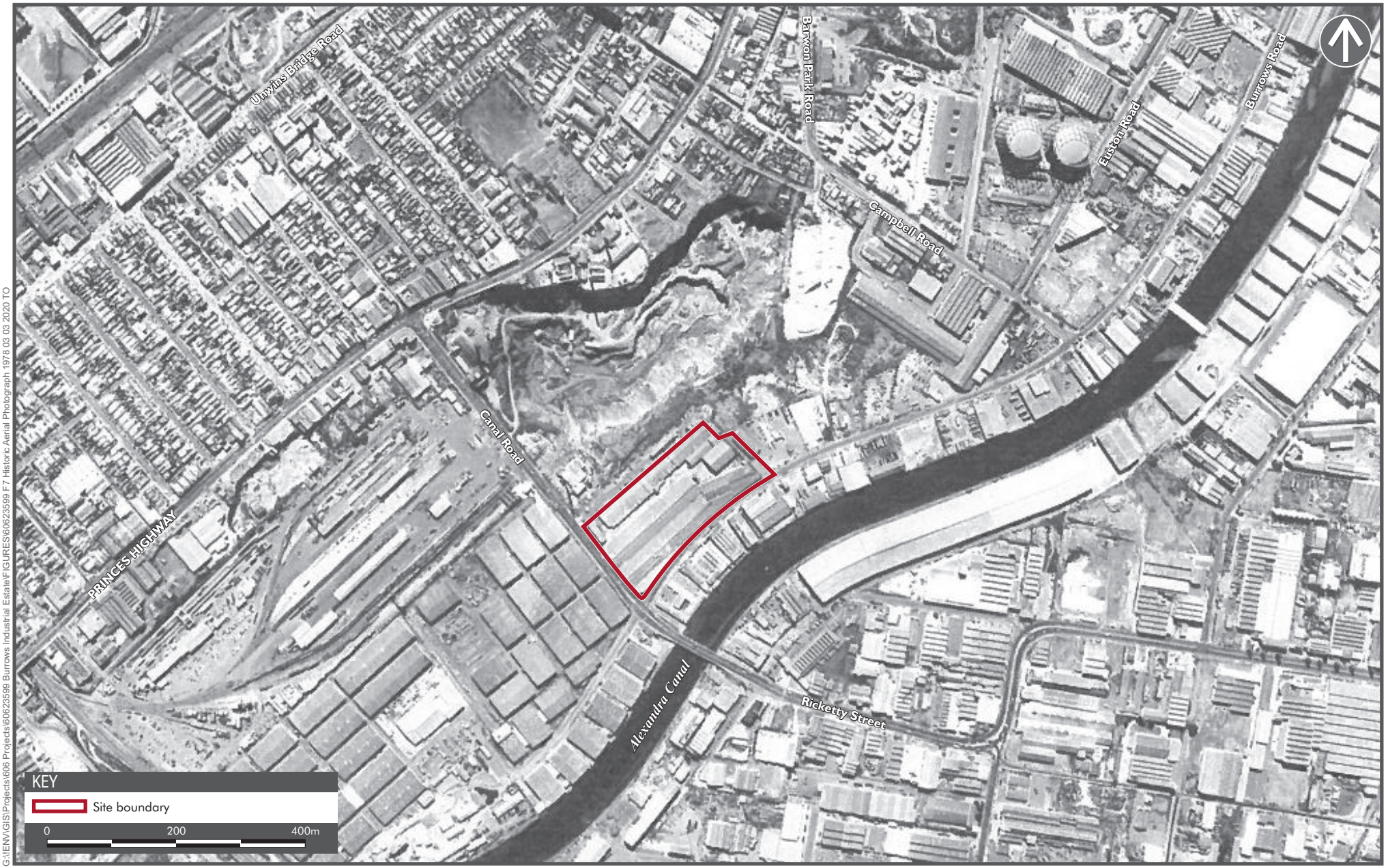


G:\ENV\GIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F6 Historic Aerial Photograph 1961 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 1961
Burrows Industrial Estate
New South Wales

FIGURE 6



G:\ENV\GIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F7 Historic Aerial Photograph 1978 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 1978

Burrows Industrial Estate
New South Wales

FIGURE 7

KEY

Site boundary

0 200 400m

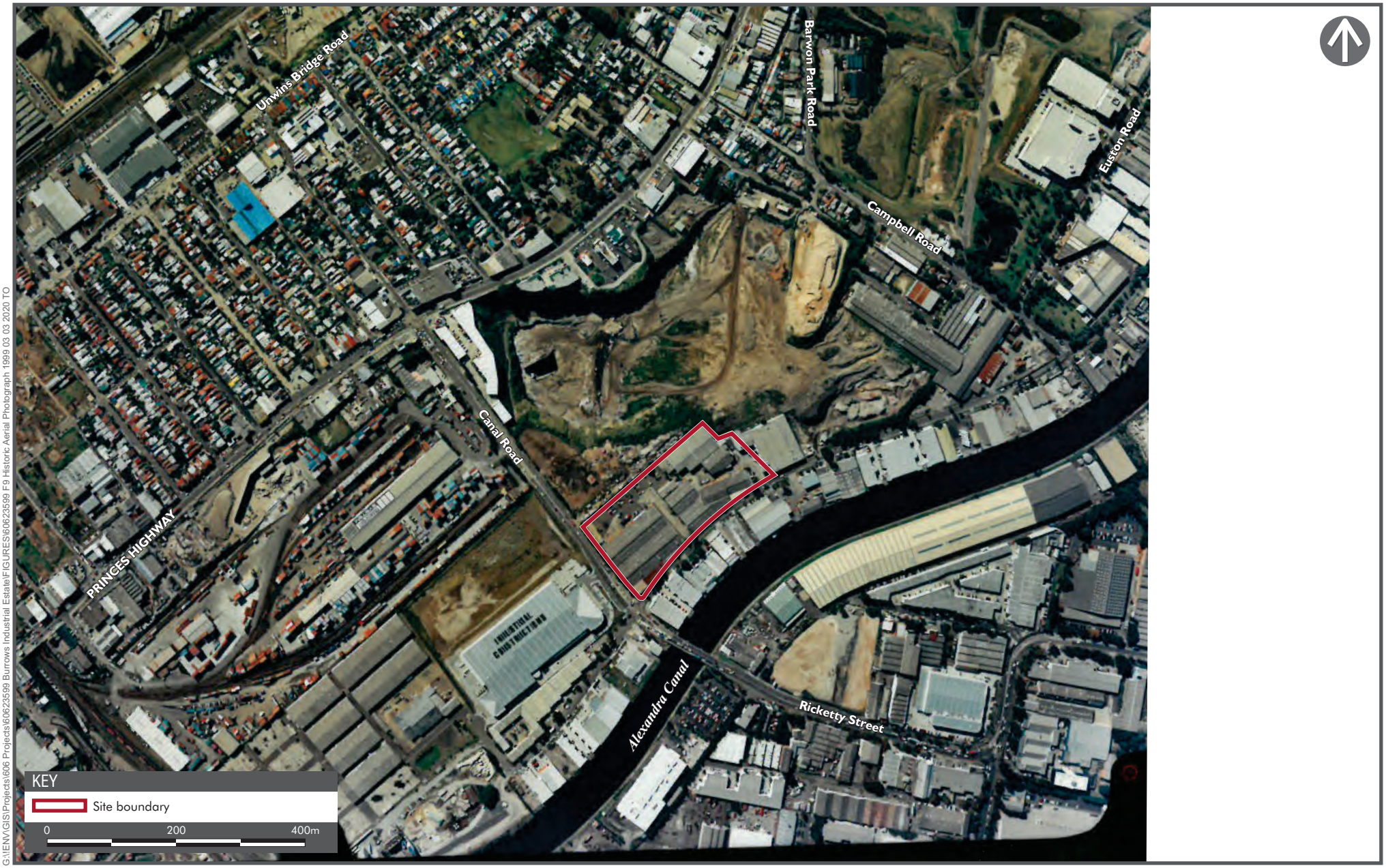
G:\ENVGIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F8 Historic Aerial Photograph 1986 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 1986

Burrows Industrial Estate
New South Wales

FIGURE 8



G:\ENV\GIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F9 Historic Aerial Photograph 1999 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 1999
Burrows Industrial Estate
New South Wales

FIGURE 9

G:\ENVGIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F10 Historic Aerial Photograph 2004 03 03 2020 TO

AECOM

HISTORIC AERIAL PHOTOGRAPH 2004

Burrows Industrial Estate
New South Wales

FIGURE 10

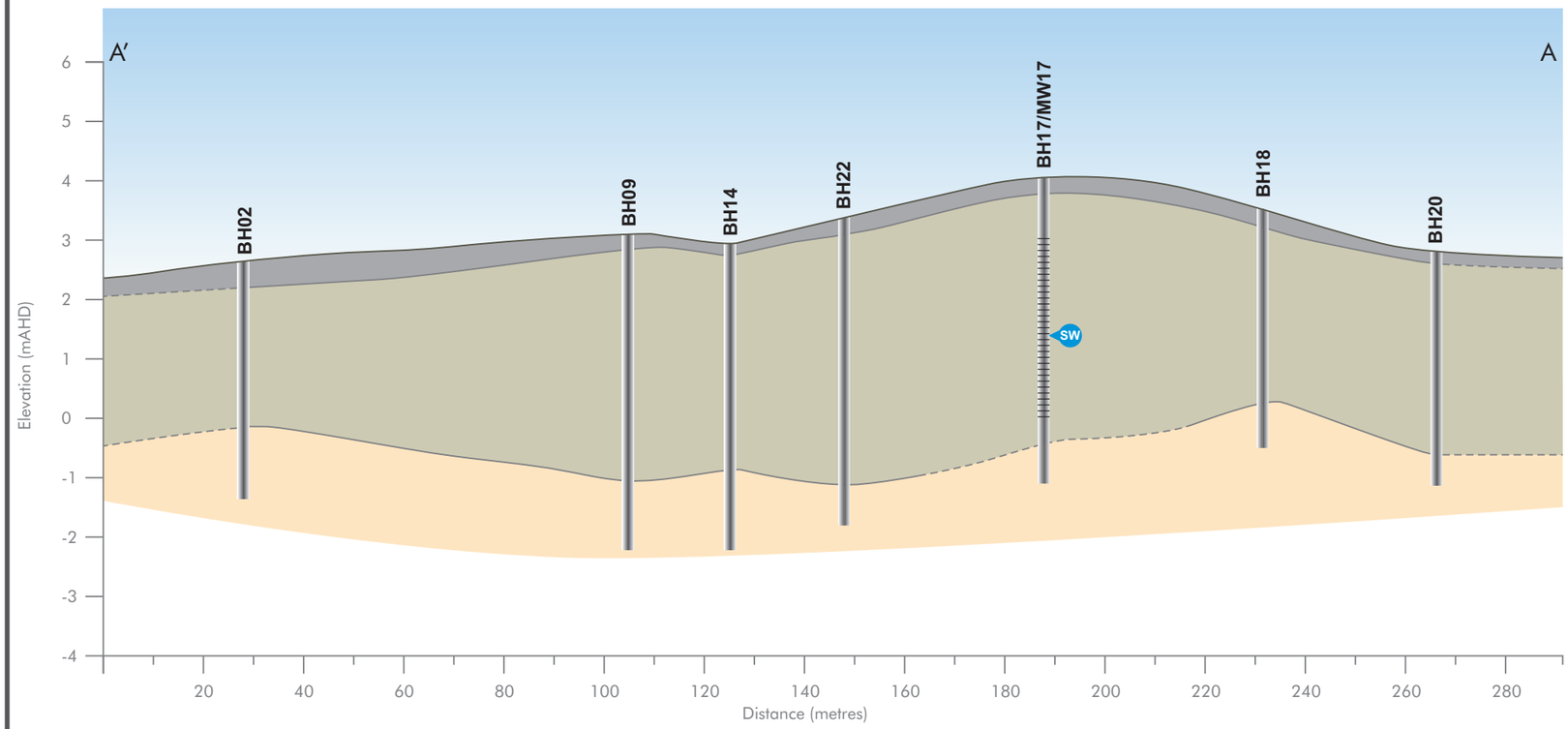
G:\ENVGIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\606023599 F11 Historic Aerial Photograph 2014 03 03 2020 TO

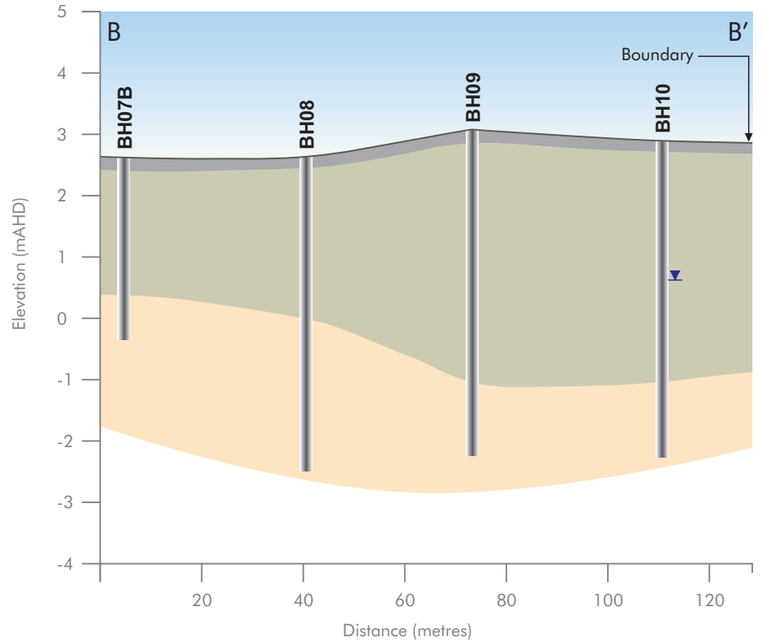
AECOM

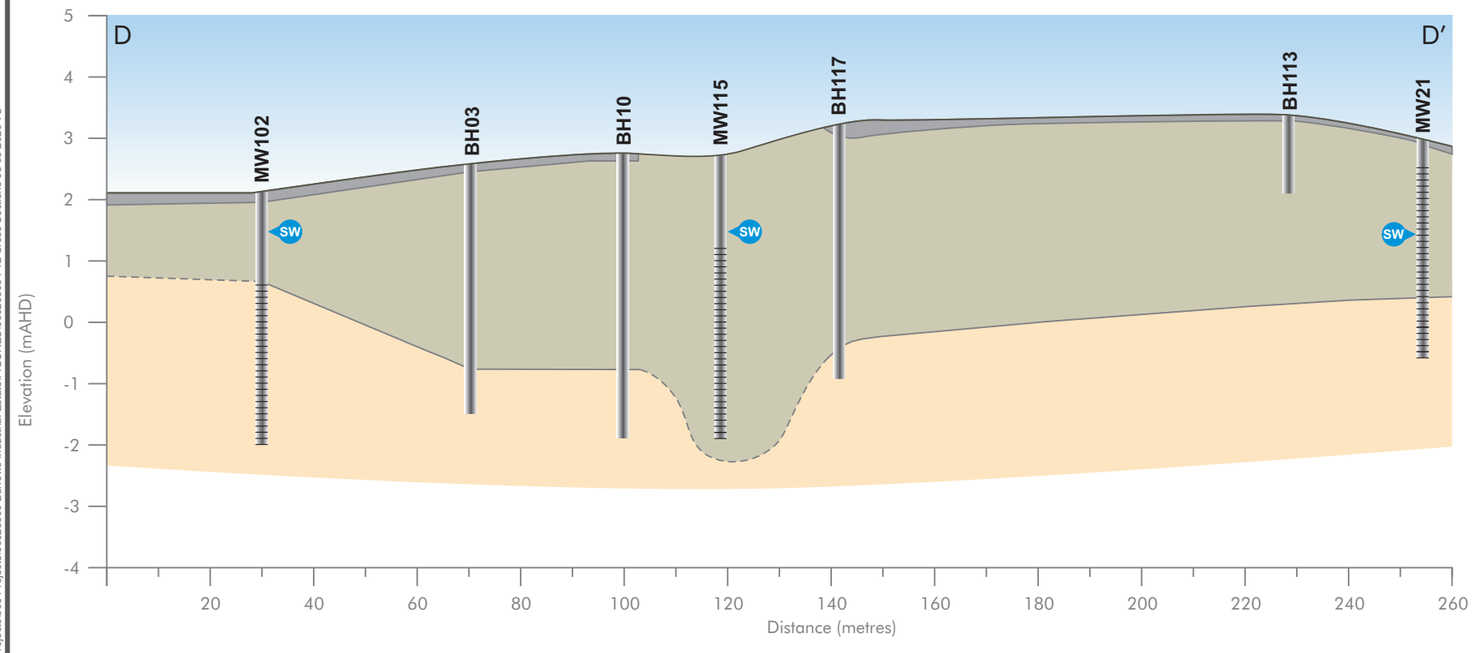
HISTORIC AERIAL PHOTOGRAPH 2014

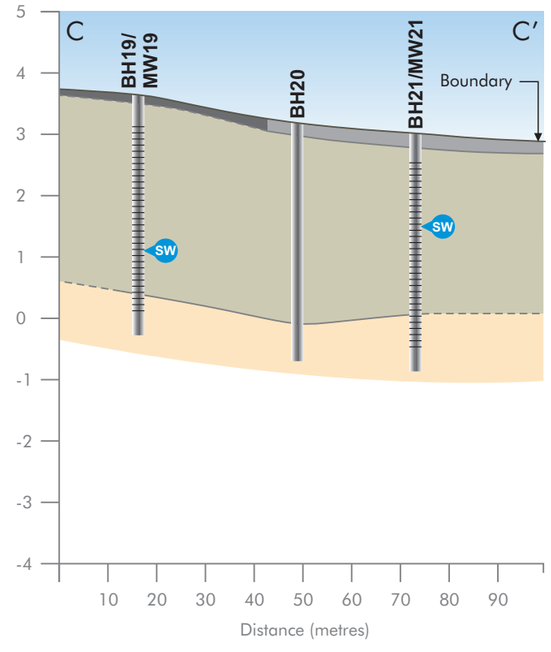
Burrows Industrial Estate
New South Wales

FIGURE 11









Scale: See figured dimensions

KEY

- Asphalt
- Concrete
- Fill
- Natural (clay, sandy clay, sand, clayey sand, sandy silt)
- Screened interval
- SW Stabilised groundwater level (Feb, 2020)

AECOM

CROSS SECTIONS

Burrows Industrial Estate
New South Wales

FIGURE 12

G:\ENV\GIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F12 Cross Sections 03 03 2020 TO

G:\ENVGIS\Projects\606 Projects\60623599 Burrows Industrial Estate\FIGURES\60623599 F13 Groundwater Elevation Plan 03 03 2020 TO

AECOM

GROUNDWATER ELEVATION PLAN

Burrows Industrial Estate
New South Wales

Note: Unit areas are approximate and inferred only

FIGURE 13

Appendix B

Tables

Table 1 - Sample Register

Sample Location & Depth	Sample Date	Sample Type	PID (ppm)	Rationale (fill description)	Analyses															
					TRH C6-C40, BTEXN	TRH C6-C10, BTEX(N)	PAH	Metals	OCP, OPP, PCB	Phenols	Asbestos	Asbestos (quant)	VHC	TCLP - As	TCLP - Pb	TCLP - B(a)P	TCLP - Hg	TCLP - Cr VI	TCLP - Cd	TCLP - Ni
BH01_0.3-0.4	21/08/2015	Fill	0.1	AFM (dark brown-orange sand, FeSt & porcelain)							1									
BH01_1.0-1.1	21/08/2015	Fill	-	AFM (dark brown-orange sand, FeSt & porcelain)	1		1	1	1											
BH01_3.8-3.9	21/08/2015	Sandy Clay	-	Assess natural	1		1													
BH02_0.4-0.5	29/08/2015	Fill	0.2	AFM (crushed SST, concrete, glass & ceramics)	1		1	1			1									
BH02_2.0-2.1	29/08/2015	Fill	2.9	AFM (sand with slag & ceramics)				1												
BH02_3.0-3.1	29/08/2015	Silty Clay	14.1	Assess natural, PID	1															
BH03_0.2-0.3	29/08/2015	Fill	0.1	AFM (SST & RB)			1	1			1									
BH03_1.0-1.2	29/08/2015	Fill	2.1	AFM (crushed SST with slag & ceramics)	1		1	1			1									
BH03_3.0-3.1	29/08/2015	Sandy Clay	19.5	Assess natural, PID	1			1												
BH04_0.5-0.6	20/08/2015	Fill	0.5	AFM (mottled brown-grey sand with RB & slag), HCO	1		1	1												
BH04_1.0-1.1	20/08/2015	Fill	0.6	AFM (black-brown-orange mottled sand, ceramics, aluminium, FeSt, slag)			1	1						1	1	1				
BH04_2.3-2.4	20/08/2015	Silty Clay	0.1	Assess natural	1			1												
BH05_0.5-0.6	20/08/2015	Fill	1.8	AFM (orange and black mottled clay with crushed sandstone, nails)	1		1	1	1	1			1							
BH05_1.0-1.1	20/08/2015	Fill	0.4	AFM (black sand with crushed SST, glass, ceramics, bone, slag & metal)			1	1												
BH05_2.3-2.4	20/08/2015	Sandy Silt	0.7	Assess natural	1			1												
BH06_1.0-1.1	21/08/2015	Fill	0.2	AFM (grey-white crushed SST)				1	1		1									
BH07A_0.5-0.6	20/08/2015	Fill	0.1	AFM (black sand with metal, glass, slag, bricks)			1	1	1		1									
BH07B_1.2-1.3	21/08/2015	Fill	0.9	AFM (brown-black sand, FeSt, metal, ceramics, glass & slag)	1		1	1	1		1									
BH07B_2.3-2.4	21/08/2015	Silty Clay	0.4	Assess natural	1			1												
BH08_0.17-0.18	20/08/2015	Fill	0.5	AFM (black-orange-yellow mottled sand with crushed SST & FeSt)				1	1											
BH08_1.0-1.1	20/08/2015	Fill	0.2	AFM (black-orange mottled sand with crushed SST, metal, slag)	1		1	1												
BH08_2.5-2.6	20/08/2015	Fill	0.3	AFM (black sand with slag)			1	1												
BH08_3.7-3.8	20/08/2015	Silty Sand	0.5	Assess natural	1			1												
BH09_0.25-0.35	21/08/2015	Fill	0.1	AFM (pink crushed SST)			1	1												
BH09_4.0-4.2	21/08/2015	Fill	0.4	AFM (black-brown to green-brown sand with SST, FeSt, ash & slag)			1	1												
BH09_4.5-4.6	21/08/2015	Sandy Clay	390.1	Assess natural, PID	1		1	1		1			1							
BH10_0.15-0.25	21/08/2015	Fill	0.1	AFM (yellow crushed SST)					1											
BH10_4.0-4.1	21/08/2015	Clayey Sand	20.1	Assess natural, PID	1			1												
BH11_0.2-0.3	20/08/2015	Fill	0.1	AFM (dark brown-black gravelly sand with ash)			1	1												
BH11_2.3-2.4	20/08/2015	Fill	0.8	AFM (black-orange mottled silt with FeSt & slag)	1		1	1												
BH11_3.3-3.4	20/08/2015	Sandy Silt	0.5	Assess natural, HCO	1			1												
BH12_0.15-0.25	21/08/2015	Fill	0.1	AFM (black and white sand with SST, ash, slag & glass)			1	1												
BH12_1.0-1.1	21/08/2015	Fill	0.1	AFM (black-red-yellow mottled sand with ash, SST, slag & glass)				1												
BH12_1.8-1.9	21/08/2015	Fill	0.4	AFM (brown sand with slag)							1									
BH12_3.6-3.7	21/08/2015	Fill	3.5	AFM (grey sand), PID	1			1												
BH13_0.4-0.5	20/08/2015	Fill	0.1	AFM (dark brown-black sand with SST, FeSt, glass & ceramics)			1	1												
BH13_3.6-3.7	20/08/2015	Silty Sand	6.6	Assess natural					1											
BH14_0.45-0.55	21/08/2015	Fill	-	AFM (brown sand and RB), below concrete slab					1											
BH14_1.8-1.9	21/08/2015	Fill	0.6	AFM (dark brown sand with slag)			1	1	1											
BH14_4.0-4.1	21/08/2015	Sandy Clay	150.1	Assess natural, PID	1					1			1							
BH15_0.4-0.5	21/08/2015	Fill	0.1	AFM (RB with minor clay)			1	1			1									
BH16_0.7-0.8	21/08/2015	Fill	0	AFM (yellow-grey-black-orange sand with bricks, SST, glass, slag & ash)	1		1	1	1											
BH16_2.0-2.1	22/08/2015	Fill	0.9	AFM (dark brown sand with clay, FeSt, RB, slag, glass & metal)	1			1									1			
BH16_3.0-3.1	22/08/2015	Fill	4.3	AFM (dark brown sand with clay, FeSt, RB, slag, glass & metal)				1												
BH17_1.0-1.1	21/08/2015	Fill	0.1	AFM (sand, mottled brown with black)	1			1												
BH17_2.0-2.1	22/08/2015	Fill	15.2	AFM (grey-brown sand with slag, SST, FeSt, concrete, metal), PID, HCO	1		1	1										1		
BH18_0.7-0.8	29/08/2015	Fill	0	AFM (dark brown-black sand with bricks)	1		1	1			1									
BH18_2.0-2.1	29/08/2015	Fill	0.2	AFM (red-brown-yellow-black sand with FeSt & SST)			1	1												
BH19_2.0-2.2	22/08/2015	Fill	1.9	AFM (orange-brown sand with FeSt & slag)	1			1												
BH20_0.5-0.6	29/08/2015	Fill	0.2	AFM (brown sand with RB)			1	1			1									
BH20_1.0-1.1	29/08/2015	Fill	0.4	AFM (red-brown and black sand with slag & crushed SST)			1	1			1									
BH20_2.0-2.1	29/08/2015	Fill	0.3	AFM (dark brown sand with slag & crushed SST), GWE	1															
BH21_0.7-0.8	21/08/2015	Fill	0.1	AFM (yellow-black mottled sand with SST, concrete & bricks)	1		1	1			1					1				
BH21_2.7-2.8	22/08/2015	Fill	0.2	AFM (brown sand with metal & slag)	1			1												
BH21_3.0-3.1	22/08/2015	Sand	2.1	Assess natural	1		1	1												
BH22_0.3-0.4	21/08/2015	Fill	0.1	assess for asbestos (red-brown to grey-brown sand with FeSt & RB)							1									
BH22_0.45	21/08/2015	Fragment	-	assess for asbestos							1									
BH22_0.8-0.9	21/08/2015	Fill	0.1	AFM (dark brown sand with organic matter (peat?) & slag)			1	1												
BH22_2.2-2.3	21/08/2015	Fill	0.1	AFM (slag)	1		1	1						1	1					1
BH22_4.5-4.7	21/08/2015	Sandy Clay	26.7	Assess natural, PID	1		1	1												
SS01	29/08/2015	Fill	-	assess for asbestos (surface soil/fill)							1									
SS02	29/08/2015	Fill	-	assess for asbestos (surface soil/fill)							1									
SS04_Frag	29/08/2015	Fragment	-	assess for asbestos							1									
BH100_0.7-0.8	03/02/2020	Fill	0	AFM (brown-grey sand with FeSt, glass & ceramics)	1		1	1				1								
BH100_0.8-0.9	03/02/2020	Fill	0.6	AFM (orange-brown brittle fragments and sponge-like material)	1		1	1				1								
BH101_0.16-0.26	31/01/2020	Fill	NR	AFM (crushed SST with slag & FeSt), beneath slab					1											
BH101_0.7-0.8	31/01/2020	Fill	NR	AFM (sand with FeSt, glass & bricks)	1		1	1												
BH101_1.3-1.4	31/01/2020	Fill	0	AFM (sand with RB, ceramics, metal, glass & cotton buds)								1								
BH101_2.2-2.3	31/01/2020	Fill	0	AFM (sand with RB, brick, metal, ceramics & glass), GWE	1		1	1												
BH102_0.3-0.4	31/01/2020	Fill	0.3	AFM (orange-brown sand with SST, FeSt & glass)			1	1												
BH102_0.5-0.6	31/01/2020	Fill	0	AFM (brown sand with SST, FeSt & slag)	1		1	1				1			1	1	1			
BH103_0.15-0.25	03/02/2020	Fill	0.1	AFM (crushed sandstone), beneath slab	1		1	1				1								
BH103_0.85-0.95	03/02/2020	Fill	0.1	AFM (sand with FeSt & ceramics)			1	1												
BH103_2.0-2.1	03/02/2020	Fill	0	AFM (sand with RB, bricks & ceramics), GWE			1	1				1								
BH104_0.8-0.9	03/02/2020	Fill	0.1	AFM (black sand with RB & tiles)	1		1	1				1								
BH104_1.6-1.7	03/02/2020	Fill	0.2	AFM (black sand with RB, tiles & metal)	1		1	1				1								
BH104_2.0-2.2	03/02/2020	Fill	0.1	AFM (black sand with RB), GWE	1															
BH105_0.4-0.5	31/01/2020	Fill	0.1	AFM (black sand with RB & slag)	1		1	1				1								
BH105_0.85-0.95	31/01/2020	Fill	0.1	AFM (orange-brown sand with FeSt, glass, ash, charcoal & ceramics)	1		1	1							1	1				
BH105_1.7-1.8	31/01/2020	Fill	0.1	AFM (orange sand with FeSt)			1	1							1					1
BH106_0.2-0.3	28/01/2020	Fill	1.7	AFM (sand with FeSt & slag)	1		1	1	1			1			1	1				
BH106_4.0-4.1	28/01/2020	Sandy Clay	3.2	Assess natural	1		1	1												
BH107_0.4-0.5	29/01/2020	Fill	0.2	AFM (black-grey-orange sand with bricks)								1								
BH107_0.5-0.6	29/01/2020	Fill	0.3	AFM (sand with slag, brick & ceramics)	1		1	1												
BH107_1.5-1.7	29/01/2020	Fill	3.5	AFM (sand with glass, ash, ceramics & bricks), GWE	1		1	1							1			1		1
BH108_0.15-0.25	28/01/2020	Fill	1.7	AFM (sand with RB)								1								
BH108_0.35-0.45	28/01/2020	Fill	1.5	AFM (sand with RB, FeSt, ceramics & glass)			1	1				1								
BH108_1.3-1.4	28/01/2020	Fill	2.4	AFM (sand with ash & slag)	1		1	1				1			1			1	1	1
BH108_2.3-2.4	28/01/2020	Fill	0.7	AFM (red-orange sand with FeSt & slag)	1		1	1				1								
BH108_4.1-4.2	28/01/2020	Fill	3.8	AFM (red sand with FeSt & slag), PID	1															
BH109_0.3-0.4	29/01/2020	Fill	0.3	AFM (dark grey sand with brick, ceramics & FeSt)	1		1	1				1								
BH109_0.9-1.0	29/01/2020	Fill	0.4	AFM (crushed SST with glass, ceramics & slag)	1		1	1							1			1		1
BH110_0.35-0.36	29/01/2020	Fill	0.5	AFM (dark grey sand with FeSt & slag)	1		1	1	1			1								
BH110_0.4-0.6	29/01/2020	Fill	0.4	AFM (dark grey sand with FeSt, slag, metal, brick & glass)			1	1				1								
BH110_1.2-1.3	29/01/2020	Fill	0.7	AFM (dark grey sand with SST)			1	1												
BH111_0.3-0.4	30/01/2020	Fill	0.2	AFM (sand with FeSt, RB, slag & ceramics)	1		1	1				1								
BH111_0.65-0.75	30/01/2020	Fill	0.1	AFM (red-brown sand with FeSt & ceramics)			1	1				1			1					
BH113_0.2-0.3	29/01/2020	Fill	1.3	AFM (dark brown sand with slag & tiles)	1		1	1	1			1								

Table 1 - Sample Register

Sample Location & Depth	Sample Date	Sample Type	PID (ppm)	Rationale (fill description)	Analyses															
					TRH C6-C40, BTEXN	TRH C6-C10, BTEX(N)	PAH	Metals	OCP, OPP, PCB	Phenols	Asbestos	Asbestos (quant)	VHC	TCLP - As	TCLP - Pb	TCLP - B(a)P	TCLP - Hg	TCLP - Cr VI	TCLP - Cd	TCLP - Ni
BH113_0.6-0.7	29/01/2020	Fill	0.2	AFM (yellow/brown and orange sand with FeSt & glass)	1		1	1				1								
BH114_0.45-0.55	03/02/2020	Fill	0.1	AFM (black sand with FeSt, slag, bricks, ceramics & plastic)	1		1	1				1								
BH114_1.3-1.4	03/02/2020	Fill	0	AFM (brown sand with RB & FeSt), GWE	1		1	1										1		
BH115_0.6-0.7	29/01/2020	Fill	0.2	AFM (dark grey sand with FeSt and slag)	1		1	1	1			1								
BH115_2.5-2.6	29/01/2020	Fill	NR	AFM (brown sand with RB, slag & ceramics)	1		1	1						1	1					1
BH116_0.3-0.4	30/01/2020	Fill	0.2	AFM (brown sand with FeSt, brick & glass)	1		1	1	1			1								
BH116_0.6-0.65	30/01/2020	Fill	0.3	AFM (black sand with slag, FeSt, brick & SST)	1		1	1				1								
BH117_0.3-0.4	30/01/2020	Fill	0.1	AFM (orange & grey sand with FeSt & SST)			1	1				1								
BH117_1.3-1.4	30/01/2020	Fill	0.4	AFM (black sand with FeSt, metal & glass)			1	1				1								
BH117_2.2-2.3	30/01/2020	Fill	0.3	AFM (brown sand with RB, metal, glass & ceramics), GWE	1		1	1								1				
Subtotal, Primary Soil Samples					**63**	**0**	**72**	**88**	**17**	**3**	**18**	**28**	**3**	**3**	**11**	**6**	**2**	**5**	**1**	**6**
QC100	21/08/2015	Split	-	BH22_4.5-4.7	1		1	1												
QC201	21/08/2015	Split	-	BH07B_1.2-1.3	1		1	1	1	1			1							
QC105	29/01/2020	Split	-	BH107_0.5-0.6	1		1	1												
QC102	29/01/2020	Split	-	BH109_0.9-1.0	1		1	1												
QC106	29/01/2020	Split	-	BH113_0.2-0.3	1		1	1												
QC101	21/08/2015	Duplicate	-	BH09_4.0-4.2			1	1												
QC200	20/08/2015	Duplicate	-	BH05_1.0-1.1			1	1												
QC202	21/08/2015	Duplicate	-	BH21_0.7-0.8	1		1	1												
QC102	21/08/2015	Duplicate	-	BH01_3.8-3.9	1															
QC111	29/08/2015	Duplicate	-	BH03_1.0-1.2	1		1	1												
QC111	03/02/2020	Duplicate	-	BH104_1.6-1.7	1		1	1												
QC100	28/01/2020	Duplicate	-	BH106_0.2-0.3	1		1	1	1											
QC114	03/02/2020	Duplicate	-	BH114_0.45-0.55	1		1	1												
Sub-total, Split Duplicates					5	0	5	5	1	1	0	0	1	0	0	0	0	0	0	0
Sub-total, Duplicates					6	0	7	7	1	0	0	0	0	0	0	0	0	0	0	0
Total Soil Samples					**74**	**0**	**84**	**100**	**19**	**4**	**18**	**28**	**4**	**3**	**11**	**6**	**2**	**5**	**1**	**6**
MW01	31/08/2015	Primary	-	Assess Groundwater	1		1	1					1							
MW16	31/08/2015	Primary	-		1		1	1					1							
MW17	31/08/2015	Primary	-		1		1	1					1							
MW19	31/08/2015	Primary	-		1		1	1					1							
MW21	31/08/2015	Primary	-		1		1	1					1							
QC200	31/08/2015	Split	-	MW01	1		1	1					1							
Total Groundwater Samples, 2015 GME					6	0	6	6	0	0	0	0	6	0	0	0	0	0	0	0
MW01	12/02/2020	Primary	-	Assess Groundwater	1			1					1							
MW16	12/02/2020	Primary	-		1			1					1							
MW17	12/02/2020	Primary	-		1			1					1							
MW19	12/02/2020	Primary	-		1			1					1							
MW21	12/02/2020	Primary	-		1			1					1							
MW102	12/02/2020	Primary	-		1			1					1							
MW105	12/02/2020	Primary	-		1			1					1							
MW115	12/02/2020	Primary	-		1			1					1							
QC306	12/02/2020	Split	-	MW102	1			1					1							
Total Groundwater Samples, 2020 GME					9	0	0	9	0	0	0	0	9	0	0	0	0	0	0	0
TB	31/08/2015	TB	-	QC - groundwater sampling		1														
QC201	31/08/2015	Rinsate	-	QC - groundwater sampling	1															
QC300	28/01/2020	TB	-	QC - soil sampling		1														
QC302	30/01/2020	Rinsate	-	QC - soil sampling		1														
QC303	31/01/2020	Rinsate	-	QC - soil sampling		1														
QC304	03/02/2020	Rinsate	-	QC - soil sampling		1														
QC304	12/02/2020	Rinsate	-	QC - groundwater sampling		1														
QC305	12/02/2020	TB	-	QC - groundwater sampling		1														

Notes:
AFM = assess fill material TB = trip blank GWE = groundwater encountered
NR = not recorded FeSt = ironstone-like gravels (red-orange). Possible foundry/casting sands
RB = road base gravel SST = sandstone HCO = hydrocarbon odour

Table 2 - Groundwater Elevation

Well ID	Easting	Northing	Gauging Date	Total Well Depth	TOC Elevation	SWL	GWE
				(m btoc)	(mAHD)	(m btoc)	(mAHD)
MW01	331543.404	6245408.202	31/08/2015	3.454	2.12	1.096	1.024
MW16	331688.598	6245470.9	31/08/2015	4.441	4.15	3.16	0.990
MW17	331700.452	6245465.954	31/08/2015	4.091	4.04	3.065	0.975
MW19	331743.935	6245525.412	31/08/2015	3.920	3.44	2.449	0.991
MW21	331791.781	6245494.973	31/08/2015	3.895	3.04	2.026	1.014
MW01	331543.404	6245408.202	11/02/2020	3.275	2.12	0.677	1.443
MW16	331688.598	6245470.9	11/02/2020	4.22	4.15	2.749	1.401
MW17	331700.452	6245465.954	11/02/2020	3.99	4.04	2.647	1.393
MW19	331743.935	6245525.412	11/02/2020	3.425	3.44	2.034	1.406
MW21	331791.781	6245494.973	11/02/2020	3.415	3.04	1.643	1.397
MW102	331627.004	6245313.221	11/02/2020	4.42	2.3	0.941	1.359
MW105	331627.489	6245463.586	11/02/2020	4.39	3.202	1.811	1.391
MW115	331673.5	6245404.4	11/02/2020	4.42	2.843	1.438	1.405

Notes

m btoc = metres below top of casing
SWL = standing water level
TOC = top of casing
AHD = Australian Height Datum

Table 3 - Geochemical Parameters

Well ID	Date	Well Depth (m)	Pump Intake Depth (m)	Purge Volume (L)	DO (mg/L)	EC (µScm-1)	pH	Eh (mV)	Temp' (°C)	Comments
Development										
MW01	25/08/2015	3.454	3.2	10	0.48	1019	7.05	102.2	19.5	Clear at 3L water removed, paramaters stabilised at 10L water removed
MW16	25/08/2015	4.441	4.2	11	1.36	2415	6.94	152.9	22.0	Purged dry at 4L, wait for recharge and again at 8L (sample tubing blocked with PVC cuttings). Parameters stabilised and water clear at 11L water removed.
MW17	25/08/2015	4.091	3.9	9	0.18	1357	6.82	108.0	21.8	Parameters stabilised and water clear at 9L water removed
MW19	25/08/2015	3.92	3.7	9	0.28	1067	6.71	283.7	19.0	Parameters stabilised and water clear at 9L water removed
MW21	25/08/2015	3.895	3.6	8	0.96	957	7.04	160.1	17.7	Parameters stabilised and water clear at 8L water removed
MW102	7/02/2020	4.28	~4	80	0.20	1840	7.29	81.9	23.3	Parameters stabilised and water clear at 80L water removed
MW105	7/02/2020	4.39	~4.1	45	-	-	-	-	-	Parameters not measured due to high rainfall and potential for ingress of surface water into monitoring well. Turbidity decreased during purging.
MW115	7/02/2020	4.398	~4.1	60	0.54	909	6.74	146.6	23.4	Parameters stabilised and water clear at 60L water removed
Purging										
MW01	31/08/2015	3.454	NR	3	-	1000	6.79	140.0	19.6	Clear, low turbidity, no odour or sheen observed. DO probe malfunction
MW16	31/08/2015	4.441	NR	4	0.92	2206	6.88	222.6	21.7	Clear, low turbidity, no odour or sheen observed
MW17	31/08/2015	4.091	NR	3	-	1259	6.68	158.4	21.0	Clear, low turbidity, no odour or sheen observed. DO probe malfunction
MW19	31/08/2015	3.92	NR	4	0.02	820	6.58	268.4	18.4	Clear, low turbidity, no odour or sheen observed
MW21	31/08/2015	3.895	NR	4.0	0.07	806	6.73	216.2	16.9	Clear, low turbidity, no odour or sheen observed
MW01	12/02/2020	3.275	2.7	3.0	0.05	485.7	6.95	164.9	25.7	No odour, clear, low turbidity
MW16	12/02/2020	4.22	2.7	3.0	1.7	1385	6.54	316.4	24.1	No odour, clear, low turbidity
MW17	12/02/2020	3.99	3.5	2.0	0.21	1334	6.72	300.4	24	No odour, clear, low turbidity
MW19	12/02/2020	3.425	3	1.5	2.35	1655	6.73	297.9	24.8	No odour, clear, low turbidity
MW21	12/02/2020	3.415	2.9	4.0	1.3	549	6.87	213.7	24.8	No odour, clear, low turbidity
MW102	12/02/2020	4.42	3.9	5.5	0	3053	7.51	32.4	23	Hydrogen sulphide odour, light grey, low turbidity
MW105	12/02/2020	4.39	3.9	3.0	0.34	1403	6.59	204.1	24.6	No odour, clear, low turbidity
MW115	12/02/2020	4.42	4	2.5	0.14	1079	6.84	134.9	23.1	No odour, clear, low turbidity

Notes
DO = dissolved oxygen
EC = electrical conductivity
Eh = Redox potential
Redox Correction factor = +205 mV (applied to field readings)

Table 4 - Soil Results

Sample Location & Depth	Sample Date	Sample Type	PID	BTEX				TRH						PAH				Metals								OCP and OPP										VHC				Phenols		PCB
				Benzene	Toluene	Ethylbenzene	Xylenes	C6 - C10	C6 - C10 minus BTEX (F1)	>C10 - C16	>C10 - C16 minus Naphthalene (F2)	>C16 - C34 (F3)	>C34 - C40 (F4)	Naphthalene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (LOR)	Sum of PAH	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	Aldrin + Dieldrin	Chlordane	Endosulfan	Endrin	DDD + DDE + DDT	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Chlorpyrifos	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl chloride	Carbon Tetrachloride	Phenol	Pentachlorophenol	PCB
ASC NEPM 2013 - HIL D																40	4000	3000	900	3600	240000	1500	6000	400000	730	45	530	2000	100	3600	50	80	2500	2000					240000	660	7
HSL D, Vapour Intrusion (sand)			0-<1m	3	NL	NL	230		260		NL			NL																										
			1m-<2m	3	NL	NL	NL		370		NL			NL																											
			2m-<4m	3	NL	NL	NL		630		NL			NL																											
			> 4m	3	NL	NL	NL		NL		NL			NL																											
CRC Care IMW, DIRECT CONTACT				1100	280000	85000	230000		82000		62000	85000	120000	29000																										
CRC Care HSL D, DIRECT CONTACT				430	99000	27000	81000		26000		20000	27000	38000	11000																										
NSW EPA (2014) - GSW (CT1)				10	288	600	1000								0.8		200	100	20	100		100	40		4	<50	<50	60	<50	<50	<50	<50		4	14	10	4	10	288	<50	<50
NSW EPA (2014) - RSW (CT2)				40	1152	2400	4000								3.2		800	400	80	400		400	160		16	<50	<50	240	<50	<50	<50	<50		16	56	40	16	40	1152	<50	<50
BH01_1.0-1.1	21/08/2015	Fill	-	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	910	240	0.6	29.1	41.9	278	14	2	58	3040	1510	26	1560	2.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH01_3.8-3.9	21/08/2015	Sandy Clay	-	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5																							
QC102	21/08/2015	BH01_3.8-3.9		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100																											
RPD				nc	nc	nc	nc	nc	nc	nc	nc	nc	nc																											
BH02_0.4-0.5	29/08/2015	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	<5	<1	7	140	79	3	106	0.2														
BH02_2.0-2.1	29/08/2015	Fill	2.9															59	<1	33	783	1410	28	815	0.6															
BH02_3.0-3.1	29/08/2015	Silty Clay	14.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	380	160																											
BH03_0.2-0.3	29/08/2015	Fill	2.1											<0.5	0.9	1.7	10.7	<5	<1	8	228	338	6	279	1.0															
BH03_1.0-1.2	29/08/2015	Fill	19.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	380	110	0.6	6.9	10.1	94.0	6	<1	12	114	731	9	268	0.6															
QC111	29/08/2015	BH03_1.0-1.2		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	310	<100	<0.5	5.0	7.2	63.3	60	7	68	2240	2230	107	3460	1.0															
RPD				nc	nc	nc	nc	nc	nc	nc	nc	20	nc	nc	**32**	**34**	**39**	**164**	nc	**140**	**181**	**101**	**169**	**171**	**50**															
BH03_3.0-3.1	29/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100					17	<1	23	14	31	12	85	<0.1															
BH04_0.5-0.6	20/08/2015	Fill	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	100	<100	<0.5	1.6	2.6	15.7	52	2	28	218	1030	48	1590	1.0															
BH04_1.0-1.1	20/08/2015	Fill	0.6											0.8	13.4	19.8	158	311	1	105	293	10400	24	1170	1.6															
BH04_2.3-2.4	20/08/2015	Silty Clay	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	230	240					14	<1	26	17	67	4	46	<0.1															
BH05_0.5-0.6	20/08/2015	Fill	1.8	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	140	<100	<0.5	1.1	2.0	11.2	13	3	20	296	1470	26	4070	0.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.5	<0.5	<5	<0.5	<0.5	<2	<0.1
BH05_1.0-1.1	20/08/2015	Fill	0.4											<0.5	1.3	2.2	12.5	19	<1	70	321	1000	27	750	2.5															
QC200	20/08/2015	BH05_1.0-1.1												<0.5	<0.5	1.3	4.1	76	4	69	634	3180	42	890	15.2															
RPD														nc	nc	**51**	**101**	**120**	nc	1	**66**	**104**	43	17	**144**															
BH05_2.3-2.4	20/08/2015	Sandy Silt	0.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	210	<100					12	<1	14	86	113	4	522	<0.1															
BH06_1.0-1.1	21/08/2015	Fill	0.2															13	<1	8	71	313	6	366	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH07A_0.5-0.6	20/08/2015	Fill	0.1											<0.5	0.6	1.3	3.0	84	13	121	4410	6310	80	20400	0.7	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<1.0	<0.25							<0.1
BH07B_1.2-1.3	21/08/2015	Fill	0.9	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	850	180	<0.5	1.9	3.0	16.0	8	2	128	85	7530	13	1120	6.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
QC201	21/08/2015	BH07B_1.2-1.3		<0.2	<0.5	<1	<2	<25	<25	<50	<50	730	170	<0.1	1.6	2.2	12	25	3	180	430	14000	30	2600	15	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<1	<1	<1	<5		<0.1
RPD				nc	nc	nc	nc	nc	nc	nc	nc	15	6	nc	17	**31**	29	**103**	40	34	**134**	**60**	**79**	**80**	**83**	nc	nc	nc	nc	nc	nc	nc	nc	nc							
BH07B_2.3-2.4	21/08/2015	Silty Clay	0.4	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	360	100					26	1	19	183	372	22	1460	0.6															
BH08_0.17-0.18	20/08/2015	Fill	0.5															19	1	24	1020	1060	23	1010	0.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH08_1.0-1.1	20/08/2015	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	350	<100	<0.5	0.7	1.5	8.9	52	3	33	396	1930	39	2630	0.7															
BH08_2.5-2.6	20/08/2015	Fill	0.3											<0.5	1.4	2.9	25.2	42	3	200	1280	1470	51	4830	3.4															
BH08_3.7-3.8	20/08/2015	Silty Sand	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	380	<100					18	<1	20	447	85	17	348	6.0															
BH09_0.25-0.35	21/08/2015	Fill	0.1											<0.5	<0.5	1.2	<0.5	<5	<1	6	7	6	<2	30	<0.1															
BH09_4.0-4.2	21/08/2015	Fill	0.4											<0.8	<0.8	1.2	<0.5	218	25	435	4340	3710	240	14200	2.7															
QC101	21/08/2015	BH09_4.0-4.2												<0.5	<0.5	1.2	<0.5	80	9	106	3150	3480	214	4780	0.8															
RPD														nc	nc	0	nc	**93**	**94**	**122**	32	6	11	**99**	**109**															
BH09_4.5-4.6	21/08/2015	Sandy Clay	390.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.8	<0.8	1.2	<0.5	19	<1	31	10	13	10	21	<0.1										<0.5	<0.5	<5	<0.5	<0.8	<2	
BH10_0.15-0.25	21/08/2015	Fill	0.1																							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH10_4.0-4.1	21/08/2015	Clayey Sand	20.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100					26	<1	31	69	189	16	417	<0.1															
BH11_0.2-0.3	20/08/2015	Fill	0.1											<0.5	0.9	1.7	10.4	26	2	39	482	3480	96	1540	0.5															
BH11_2.3-2.4	20/08/2015	Fill	0.8	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	150	<100	<0.5	<0.5	1.2	<0.5	56	5	125	23300	2590	226	6980	0.1															
BH11_3.3-3.4	20/08/2015	Sandy Silt	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	650	310					22	<1	23	78	142	15	550	0.3															
BH12_0.15-0.25	21/08/2015	Fill	0.1											<0.5	1.1	2.0	11.1	41	6	36	2460	2290	75	5200	1.7															
BH12_1.0-1.1	21/08/2015	Fill	0.1															34	2	47	12400	1530	57	2040	1.0															
BH12_3.6-3.7	21/08/2015	Fill	3.5	<0.2	<0.5	<0.5	<0.5	<10	<10	70	70	1660	430					385	9	36	576	2770	37	5750	0.9															
BH13_0.4-0.5	20/08/2015	Fill	0.1											<0.5	1.6	2.6	16.0	35	10	258	971	1420	58	3040	0.9															
BH13_3.6-3.7	20/08/2015	Silty Sand	6.6																							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH14_0.45-0.55	21/08/2015	Fill	-																							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH14_1.8-1.9	21/08/2015	Fill	0.6											<0.5	<0.5	1.2	<0.5	30	3	29	298	478	23	2060	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH14_4.0-4.1	21/08/2015	Sandy Clay	150.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100																						<0.5	<0.5	<5	<0.5	<0.5	<2	
BH15_0.4-0.5	21/08/2015	Fill	0.1											<0.5	<0.5	1.2	<0.5	<5	<1	100	28	5	89	46	<0.1															
BH16_0.7-0.8	21/08/2015	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	49	15	429	5480	2250	520	11600	0.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH16_2.0-2.1	22/08/2015	Fill	0.9	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	370	220					136	19	109	3520	3290	167	7710	20.4															
BH16_3.0-3.1	22/08/2015	Fill	4.3															71	10	182	7430	4370	254	14000	1.7															
BH17_1.0-1.1	21/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100					62	16	54	26400	6060	1320	21400	0.1															
BH17_2.0-2.1	22/08/2015	Fill	15.2	<0.2	<0.5	<0.5	<0.5	16	16	2610	2610	22300	1620	<0.5	<0.5	1.2	8.7	62	4	607	12200	1150	738	2560	0.1															
BH18_0.7-0.8	29/08/2015	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<50	<0.5	1.2	<0.5	20	2	28	476	469	68	704	0.1															
BH18_2.0-2.1	29/08/2015	Fill	0.2												<0.5	1.2	<0.5	48	<1	63	294	1610	45	2240	<0.1															
BH19_2.0-2.2	22/08/2015	Fill	1.9	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	440	270					54	1	33	299	559	21	5700	0.7															
BH20_0.5-0.6	29/08/2015	Fill	0.2												<0.5	1.2	<0.5	<5	<1	8	10	29	6	53	<0.1															
BH20_1.0-1.1	29/08/2015	Fill	0.4												<0.5	1.2	<0.5	116	4	9	208	2030	41	4290	<0.1															
BH20_2.0-2.1	29/08/2015	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	140	140	3940	780	4860																										
BH21_0.7-0.8	21/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	7440	7400	**47500**	10100	57.3	102	159	2170	31	1	12	155	234	23	367	0.3															
QC202	21/08/2015	BH21_0.7-0.8		<0.2	<0.5	<0.5	<0.5	<10	<10	3740	3720	**31900**	6230	50.0	106	158	2320	39	1	10	140	201	33	382	0.3															
RPD				nc	nc	nc	nc	nc	nc	**66**	**66**	**39**	**47**	14	4	1	7	23	0	18	10	15	36	4	0															
BH21_2.7-2.8	22/08/2015	Fill	0.2	0.9	<0.5	<0.5	<0.5	<10	<10	80	80	960	500					28	3	244	337	4430	86	3170	3.2															
BH21_3.0-3.1	22/08/2015	Sand	2.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	150	<100	<0.5	<0.5	1.2	<0.5	<5	<1	7	11	42	6	90	<0.1															
BH22_0.8-0.9	21/08/2015	Fill	0.1											4.6	50.9	64.1	699	357	1	19	444	554	12	862	0.8															
BH22_2.2-2.3	21/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	119	3	29	550	6300	2700	14500	0.3															
BH22_4.5-4.7	21/08/2015	Sandy Clay	26.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	13	<1	20	6	14	7	26	<0.1															
QC100	21/08/2015	BH22_4.5-4.7		<0.2	<0.5	<1	<2	<25	<25	<50	<50	<100	<100	<0.1	<0.05	<0.5	<0.1	9	<0.4	11	8	29	6	64	<0.1															
RPD				nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	36	nc	**58**	29	**70**	15	**84**	nc															
BH100_0.7-0.8	03/02/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	230	<100	<0.5	3.6	5.2	40.2	32	<1	116	180	1230	23	593	1.7															
BH100_0.8-0.9	03/02/2020	Fill	0.6	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	12	3	8	265	278	11	428	2.5															
BH101_0.16-0.26	31/01/2020	Fill	NR																							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH101_0.7-0.8	31/01/2020	Fill	NR	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	230	<100	<0.5	0.7	1.5	6.2	59	4	50	1310	2490	81	2410	1.2															
BH101_2.2-2.3	31/01/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	280	110	<0.5	2.0	3.1	18.7	56	6	153	1440	2430	138	3410	9.5															
BH102_0.3-0.4	31/01/2020	Fill	0.3											<0.5	<0.5	1.2	<0.5	<5	<1	5	23	71	3	49	0.1															
BH102_0.5-0.6	31/01/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	200	<100	<0.5	3.3	4.7	32.3	9	<1	19	367	2010	12	712	56.4															
BH103_0.15-0.25	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	<5	<1	6	10	19	3	31	<0.1															
BH103_0.85-0.95	03/02/2020	Fill	0.1											<0.5	4.6	6.5	50.8	40	<1	9	93	319	12	304	0.7															
BH103_2.0-2.1	03/02/2020	Fill	0.1											<0.5	3.4	5.1	31.8	66	13	34	2540	1090	39	17500	1.4															
BH104_0.8-0.9	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	580	<100	<0.5	2.3	3.5	25.6	10	<1	8	53	171	19	170	0.7															
BH104_1.6-1.7	03/02/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	1000	210	<0.5	3.6	5.2	36.5	31	5	42	540	1610	66	3720	1.1															
QC111	03/02/2020	BH104_1.6-1.7		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	620	180	<0.5	3.1	4.6	29.9	35	4	32	685	1900	65	3350	1.2															
RPD				nc	nc	nc	nc	nc	nc	nc	nc	**47**	15	nc	15	12	20	12	22	27	24	17	2	10	9															

Table 4 - Soil Results

Sample Location & Depth	Sample Date	Sample Type	PID	BTEX				TRH						PAH				Metals								OCP and OPP										VHC				Phenols		PCB
				Benzene	Toluene	Ethylbenzene	Xylenes	C6 - C10	C6 - C10 minus BTEX (F1)	>C10 - C16	>C10 - C16 minus Naphthalene (F2)	>C16 - C34 (F3)	>C34 - C40 (F4)	Naphthalene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (LOR)	Sum of PAH	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	Aldrin + Dieldrin	Chlordane	Endosulfan	Endrin	DDD + DDE + DDT	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Chlorpyrifos	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl chloride	Carbon Tetrachloride	Phenol	Pentachlorophenol	PCB
ASC NEPM 2013 - HIL D																40	4000	3000	900	3600	240000	1500	6000	400000	730	45	530	2000	100	3600	50	80	2500	2000					240000	660	7
HSL D, Vapour Intrusion (sand)			0-<1m	3	NL	NL	230		260		NL			NL																									
			1m-<2m	3	NL	NL	NL		370		NL			NL																										
			2m-<4m	3	NL	NL	NL		630		NL			NL																										
			> 4m	3	NL	NL	NL		NL		NL			NL																										
CRC Care IMW, DIRECT CONTACT				1100	280000	85000	230000		82000		62000	85000	120000	29000																										
CRC Care HSL D, DIRECT CONTACT				430	99000	27000	81000		26000		20000	27000	38000	11000																										
NSW EPA (2014) - GSW (CT1)				10	288	600	1000								0.8		200	100	20	100		100	40		4	<50	<50	60	<50	<50	<50	<50		4	14	10	4	10	288	<50	<50
NSW EPA (2014) - RSW (CT2)				40	1152	2400	4000								3.2		800	400	80	400		400	160		16	<50	<50	240	<50	<50	<50	<50		16	56	40	16	40	1152	<50	<50
BH104_2.0-2.2	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	930	200	<1																										
BH105_0.4-0.5	31/01/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	210	140	<0.5	<0.5	1.2	<0.5	8	<1	16	336	606	20	676	0.1														
BH105_0.85-0.95	31/01/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	330	150	<0.5	3.4	5.3	31.2	25	3	20	2130	2260	135	4890	0.4														
BH105_1.7-1.8	31/01/2020	Fill	0.1											<0.5	<0.5	1.2	<0.5	66	7	76	431	11800	283	1320	0.3														
BH106_0.2-0.3	28/01/2020	Fill	1.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	180	<100	<0.5	1.9	2.9	14.8	6	2	9	86	232	12	426	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
QC100	28/01/2020	BH106_0.2-0.3		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	170	<100	<0.5	3.1	4.5	28.9	6	<1	8	46	113	10	106	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
RPD				nc	nc	nc	nc	nc	nc	nc	nc	6	nc	nc	**48**	**43**	**65**	0	nc	12	**61**	**69**	18	**120**	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc							nc
BH106_4.0-4.1	28/01/2020	Sandy Clay	3.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	8	<1	6	7	18	3	111	<0.1														
BH107_0.5-0.6	28/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	150	<100	<0.5	<0.5	1.2	<0.5	8	6	29	785	280	179	307	0.6														
QC 105	29/01/2020	BH107_0.5-0.6		<0.2	<0.5	<1	<3	<25	<25	<50	<50	140	<100	<0.1	0.1	<0.5	1.6	7	4.4	22	530	260	170	350	0.4														
RPD				nc	nc	nc	nc	nc	nc	nc	nc	7	nc	nc	nc	nc	nc	13	**31**	27	**39**	7	5	13	**40**														
BH107_1.5-1.7	28/01/2020	Fill	3.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	94	2	180	986	5350	185	1110	1.0														
BH108_0.35-0.45	28/01/2020	Fill	1.5											<0.5	<0.5	1.2	<0.5	6	<1	46	171	255	95	238	<0.1														
BH108_1.3-1.4	28/01/2020	Fill	2.4	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	30	96	320	15500	3160	823	23400	<0.1														
BH108_2.3-2.4	28/01/2020	Fill	0.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	48	5	300	5050	3880	65	4280	<0.1														
BH108_4.1-4.2	28/01/2020	Fill	3.8	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100																										
BH109_0.3-0.4	28/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	160	<100	<0.5	<0.5	1.2	<0.5	9	1	16	369	435	49	820	0.4														
BH109_0.9-1.0	28/01/2020	Fill	0.4	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	28	13	241	10800	3780	241	12400	2.2														
QC 102	29/01/2020	BH109_0.9-1.0		<0.2	<0.5	<1	<3	<25	<25	<50	<50	<100	<100	<0.1	<0.05	<0.5	<0.05	44	10	260	42000	4500	230	12000	2.8														
RPD				nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	**44**	26	8	**118**	17	5	3	24														
BH110_0.35-0.36	28/01/2020	Fill	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	740	340	<0.5	1.8	2.9	19.2	18	5	30	395	2520	71	4030	0.4	1.32	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH110_0.4-0.6	28/01/2020	Fill	0.4											<0.5	<0.5	1.2	6.3	48	6	60	1260	3960	91	2120	1.4														
BH110_1.2-1.3	28/01/2020	Fill	0.7											<0.5	2.8	4.1	25.7	32	2	20	336	1350	16	828	0.2														
BH111_0.3-0.4	30/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	41	7	210	3350	4530	337	3400	<0.1														
BH111_0.65-0.75	30/01/2020	Fill	0.1											<0.5	<0.5	1.2	<0.5	102	12	120	4920	8960	179	14000	<0.1														
BH113_0.2-0.3	29/01/2020	Fill	1.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	46	2	28	776	4840	69	1160	1.0	0.34	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
QC 106	29/01/2020	BH113_0.2-0.3		<0.2	<0.5	<1	<3	<25	<25	<50	<50	210	<100	<0.1	0.5	0.7	4.5	12	1	16	110	330	17	450	0.4														
RPD				nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	**53**	nc	**117**	**67**	**55**	**150**	**174**	**121**	**88**	**86**														
BH113_0.6-0.7	29/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	240	<100	<0.5	<0.5	1.2	1.5	18	1	22	732	336	21	752	0.4														
BH114_0.45-0.55	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	390	110	<0.5	0.6	1.4	3.6	30	16	186	1190	4520	592	2890	1.0														
QC114	03/02/2020	BH114_0.45-0.55		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	290	<100	<0.5	<0.5	1.2	2.1	33	55	234	1570	6150	456	3310	1.3														
RPD				nc	nc	nc	nc	nc	nc	nc	nc	29	nc	nc	nc	15	**53**	10	**110**	23	28	**31**	26	14	26														
BH114_1.3-1.4	3/02/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	240	<100	<0.5	<0.5	1.2	<0.5	55	23	1240	2870	4600	885	9880	2.8														
BH115_0.6-0.7	29/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	170	<100	<0.5	<0.5	1.2	1.0	45	1	90	407	522	160	776	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH115_2.5-2.6	29/01/2020	Fill	NR	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	117	13	38	872	6390	145	2930	<0.1														
BH116_0.3-0.4	30/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	1.2	<0.5	23	<1	11	83	192	20	217	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							<0.1
BH116_0.6-0.65	30/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	180	<100	<0.5	0.6	1.3	3.2	32	<1	26	384	1280	28	915	0.6														
BH117_0.3-0.4	30/01/2020	Fill	0.1											<0.5	<0.5	1.2	<0.5	<5	<1	6	6	30	8	21	<0.1														
BH117_1.3-1.4	30/01/2020	Fill	0.4											<0.5	6.6	9.6	62.3	27	2	51	964	2260	55	1430	2.0														
BH117_2.2-2.3	30/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	1310	260	<0.5	8.7	12.6	95.5	52	7	90	1250	2240	64	3720	1.0														
n samples				74				74						84				100								19										4				4		19
n > criteria				0				n/a	0	n/a	0	**2**	0	0	n/a	**4**	0	0	0	0	0	**46**	0	0	0	0										n/a				0		0
minimum				<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100	<0.5	<0.5	<0.5	<0.5	<5	<0.4	6	6	5	<2	21	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.5	<0.5	<1	<0.5	<0.5	<2	<0.1
maximum				0.9	<0.5	<1	<2	<25	16	7440	7400	47500	10100	4860	106	159	2320	385	96	1240	42000	14000	2700	23400	56.4	1.32	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.25	<1	<1	<5	<1	<5	<2	<0.1

Notes
Results = mg/kg
LOR = limit of reporting
< # = not detected above LOR
RPD = Relative Percent Difference
nc = not calculated, result(s) < LOR
Bold RPD = RPD > DQI
HSL D / HIL D = commercial/industrial land use
Shade + Bold = result > criteria
NL = not limiting

Table 5 - Asbestos

Sample Location_Depth	Sample Date	Sample Type	Asbestos Detected	Asbestos (trace)(fibres)	Asbestos Type	Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	Asbestos (Fines and Fibrous FA+AF)	Description
ASC NEPM 2013 - HSL D						**0.05**	**0.001**	
		Units	g/kg	Fibres		% w/w	% w/w	
		LOR	0.1	5		0.01	0.001	
BH01_0.3-0.4	21/08/2015	Fill	**Yes**		Ch			One loose bundle of friable asbestos fibres approximately 3 x 1 x 0.5mm.
BH02_0.4-0.5	29/08/2015	Fill	No					
BH03_0.2-0.3	29/08/2015	Fill	No					
BH03_1.0-1.2	29/08/2015	Fill	**Yes**		Ch			Several friable asbestos fibre bundles approx 5 x 2 x 2mm
BH06_1.0-1.1	21/08/2015	Fill	No					
BH07A_0.5-0.6	20/08/2015	Fill	**Yes**		Ch			One loose bundle of friable asbestos fibres approximately 4 x 1 x 0.5mm.
BH07B_1.2-1.3	21/08/2015	Fill	No					
BH12_1.8-1.9	21/08/2015	Fill	No					
BH15_0.4-0.5	21/08/2015	Fill	No					
BH18_0.7-0.8	29/08/2015	Fill	No					
BH20_0.5-0.6	29/08/2015	Fill	No					
BH20_1.0-1.1	29/08/2015	Fill	No					
BH21_0.7-0.8	21/08/2015	Fill	**Yes**		Ch			Several pieces of heavily degraded and friable asbestos fibre board approximately 60 x 30 x 3mm. Soil debris containing several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5mm.
BH22_0.3-0.4	21/08/2015	Fill	**Yes**		Ch, Am			Two pieces of bonded abestos cement sheeting approximately 45 x 35 x 5mm plus several pieces of friable asbestos cement sheeting approximately 4 x 4 x
BH22_0.45	21/08/2015	Fragment	**Yes**		Ch, Am			One piece of bonded asbestos cement sheeting approx 90 x 60 x 5 mm.
SS01	29/08/2015	Fill	**Yes**		Ch, Am			Two pieces of friable asbestos fibre board approx 4 x 3 x 2 mm and several loose bundles of friable asbestos fibres approx 2 x 1 x 0.5 mm.
SS02	29/08/2015	Fill	**Yes**		Ch, Cr			Four pieces of bonded asbestos cement sheeting approx 40 x 40 x 5 mm, several pieces of friable asbestos cement sheeting approx 7 x 6 x 4 mm and several loose bundles of friable asbestos fibres approx 2 x 1 x 0.5 mm.
SS04-FRAG	29/08/2015	Fragment	**Yes**		Ch, Am			Five pieces of bonded asbestos cement sheeting approx 50 x 30 x 5 mm.
BH100_0.7-0.8	03/02/2020	Fill	No	No		<0.01	<0.001	
BH100_0.8-0.9	03/02/2020	Fill	No	No		<0.01	<0.001	
BH101_1.3-1.4	31/01/2020	Fill	**Yes**	No	Ch	<0.01	**0.031**	Many large asbestos fibre bundles approximately 10x4x2mm.
BH102_0.5-0.6	31/01/2020	Fill	No	No		<0.01	<0.001	
BH103_0.15-0.25	03/02/2020	Fill	No	No		<0.01	<0.001	
BH103_2.0-2.1	03/02/2020	Fill	No	No		<0.01	<0.001	
BH104_0.8-0.9	03/02/2020	Fill	No	No		<0.01	<0.001	
BH104_1.6-1.7	03/02/2020	Fill	No	No		<0.01	<0.001	
BH105_0.4-0.5	31/01/2020	Fill	No	No		<0.01	<0.001	
BH106_0.2-0.3	28/01/2020	Fill	No	No		<0.01	<0.001	
BH107_0.4-0.5	28/01/2020	Fill	**No***	No	Ch	<0.01	**0.002**	One fragment of degraded asbestos fibre board approximately 10x5x2 mm.
BH108_0.15-0.25	28/01/2020	Fill	No	No		<0.01	<0.001	
BH108_0.35-0.45	28/01/2020	Fill	No	No		<0.01	<0.001	
BH108_1.3-1.4	28/01/2020	Fill	No	No		<0.01	<0.001	
BH108_2.3-2.4	28/01/2020	Fill	No	No		<0.01	<0.001	
BH109_0.3-0.4	28/01/2020	Fill	**Yes**	No	Ch, Am, Cr	<0.01	**0.029**	Many fragments of degraded asbestos cement sheeting and large loose asbestos fibre bundles approximately 10x5x2 mm.

Table 5 - Asbestos

Sample Location_Depth	Sample Date	Sample Type	Asbestos Detected	Asbestos (trace)(fibres)	Asbestos Type	Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	Asbestos (Fines and Fibrous FA+AF)	Description
ASC NEPM 2013 - HSL D						**0.05**	**0.001**	
		Units	g/kg	Fibres		% w/w	% w/w	
		LOR	0.1	5		0.01	0.001	
BH110_0.35-0.36	28/01/2020	Fill	**Yes**	No	Ch, Am, Cr	**0.50**	**0.020**	Two pieces of asbestos cement sheeting approximately 40x30x5 mm, one fragment of asbestos cement debris approximately 10x5x2 mm and loose asbestos fibre bundles.
BH110_0.4-0.6	28/01/2020	Fill	**Yes**	Yes	Ch, Am, Cr	0.03	**0.038**	Two pieces of asbestos cement sheeting approximately 20x15x2 mm and plenty of loose asbestos fibre bundles throughout.
BH111_0.3-0.4	30/01/2020	Fill	No	No		<0.01	<0.001	
BH111_0.65-0.75	30/01/2020	Fill	No	No		<0.01	<0.001	
BH113_0.2-0.3	29/01/2020	Fill	**Yes**	No	Ch	<0.01	**0.012**	Several fragments of degraded asbestos fibre board debris and several loose asbestos fibre bundles.
BH113_0.6-0.7	29/01/2020	Fill	No	No		<0.01	<0.001	
BH114_0.45-0.55	03/02/2020	Fill	**Yes**	No	Ch, Am	**0.20**	**0.110**	One piece of fibrous asbestos fibre board approximately 20x10x5 mm, several pieces of asbestos cement sheeting approximately 30x30x5 mm and plenty of smaller fragments of fibrous asbestos fibre board.
BH115_0.6-0.7	29/01/2020	Fill	**Yes**	No	Ch, Am	<0.01	**0.011**	One piece of asbestos rope-like material approximately 15x2x2 mm and one piece of asbestos cement sheeting approximately 5x5x2 mm with loose asbestos fibre bundles.
BH116_0.3-0.4	30/01/2020	Fill	No	No		<0.01	<0.001	
BH116_0.6-0.65	30/01/2020	Fill	No	No		<0.01	<0.001	
BH117_0.3-0.4	30/01/2020	Fill	No	No		<0.01	<0.001	
BH117_1.3-1.4	30/01/2020	Fill	**No***	No	Ch	<0.01	<0.001	One asbestos fibre bundle approximately 5x1x0.5 mm.

Notes
LOR = limit of reporting
< # = not detected above LOR
HSL D = commercial/industrial land use
Shade + Bold = result > HSL D
Not applicable due to the laboratory method
Ch = chrysotile, Cr = crocidolite, A = amosite
No* = asbestos present at concentrations below the LOR

n samples	28	28
n > criteria	**2**	**8**

NB: n samples and results > criteria applies to 2020 samples only

Table 6 - MLs and ESLs

Sample Location & Depth	Sample Date	Sample Type	PID	BTEX				TRH					
				Benzene	Toluene	Ethylbenzene	Xylenes	C6 - C10	C6 - C10 minus BTEX (F1)	>C10 - C16	>C10 - C16 minus Naphthalene (F2)	>C16 - C34 (F3)	>C34 - C40 (F4)
ESL - coarse soil (C/I)				**75**	**135**	**165**	**180**		**215**		**170**	**1700**	**3300**
Management Limits - coarse soil (C/I)									**700**		**1000**	**3500**	**10000**
BH01_1.0-1.1	21/08/2015	Fill	-	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	910	240
BH01_3.8-3.9	21/08/2015	Sandy Clay	-	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
QC102	21/08/2015	BH01_3.8-3.9		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH02_0.4-0.5	29/08/2015	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH02_3.0-3.1	29/08/2015	Silty Clay	14.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	380	160
BH03_3.0-3.1	29/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH03_1.0-1.2	29/08/2015	Sandy Clay	19.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	380	110
QC111	29/08/2015	BH03_1.0-1.2		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	310	<100
BH04_0.5-0.6	20/08/2015	Fill	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	100	<100
BH04_2.3-2.4	20/08/2015	Silty Clay	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	230	240
BH05_0.5-0.6	20/08/2015	Fill	1.8	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	140	<100
BH05_2.3-2.4	20/08/2015	Sandy Silt	0.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	210	<100
BH07B_1.2-1.3	21/08/2015	Fill	0.9	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	850	180
QC201	21/08/2015	BH07B_1.2-1.3		<0.2	<0.5	<1	<2	<25	<25	<50	<50	730	170
BH07B_2.3-2.4	21/08/2015	Silty Clay	0.4	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	360	100
BH08_1.0-1.1	20/08/2015	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	350	<100
BH08_3.7-3.8	20/08/2015	Silty Sand	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	380	<100
BH09_4.5-4.6	21/08/2015	Sandy Clay	390.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH10_4.0-4.1	21/08/2015	Clayey Sand	20.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH11_2.3-2.4	20/08/2015	Fill	0.8	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	150	<100
BH11_3.3-3.4	20/08/2015	Sandy Silt	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	650	310
BH12_3.6-3.7	21/08/2015	Fill	3.5	<0.2	<0.5	<0.5	<0.5	<10	<10	70	70	1660	430
BH14_4.0-4.1	21/08/2015	Sandy Clay	150.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH16_0.7-0.8	21/08/2015	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH16_2.0-2.1	22/08/2015	Fill	0.9	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	370	220
BH17_1.0-1.1	21/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH17_2.0-2.1	22/08/2015	Fill	15.2	<0.2	<0.5	<0.5	<0.5	16	16	2610	**2610**	**22300**	1620
BH18_0.7-0.8	29/08/2015	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH19_2.0-2.2	22/08/2015	Fill	1.9	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	440	270
BH20_2.0-2.1	29/08/2015	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	140	140	**3940**	780
BH21_0.7-0.8	21/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	7440	**7400**	**47500**	**10100**
QC202	21/08/2015	BH21_0.7-0.8		<0.2	<0.5	<0.5	<0.5	<10	<10	3740	**3720**	**31900**	**6230**
BH21_2.7-2.8	22/08/2015	Fill	0.2	0.9	<0.5	<0.5	<0.5	<10	<10	80	80	960	500
BH21_3.0-3.1	22/08/2015	Sand	2.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	150	<100
BH22_2.2-2.3	21/08/2015	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH22_4.5-4.7	21/08/2015	Sandy Clay	26.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
QC100	21/08/2015	BH22_4.5-4.7		<0.2	<0.5	<1	<2	<25	<25	<50	<50	<100	<100
BH100_0.7-0.8	03/02/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	230	<100
BH100_0.8-0.9	03/02/2020	Fill	0.6	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH101_0.7-0.8	31/01/2020	Fill	NR	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	230	<100
BH101_2.2-2.3	31/01/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	280	110
BH102_0.5-0.6	31/01/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	200	<100
BH103_0.15-0.25	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH104_0.8-0.9	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	580	<100
BH104_1.6-1.7	03/02/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	1000	210
QC111	03/02/2020	BH104_1.6-1.7		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	620	180
BH104_2.0-2.2	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	930	200
BH105_0.4-0.5	31/01/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	210	140
BH105_0.85-0.95	31/01/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	330	150
BH106_0.2-0.3	28/01/2020	Fill	1.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	180	<100
QC100	28/01/2020	BH106_0.2-0.3		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	170	<100
BH106_4.0-4.1	28/01/2020	Sandy Clay	3.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH107_0.5-0.6	28/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	150	<100
QC 105	29/01/2020	BH107_0.5-0.6		<0.2	<0.5	<1	<3	<25	<25	<50	<50	140	<100
BH107_1.5-1.7	28/01/2020	Fill	3.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH108_1.3-1.4	28/01/2020	Fill	2.4	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH108_2.3-2.4	28/01/2020	Fill	0.7	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100

Table 6 - MLs and ESLs

Sample Location & Depth	Sample Date	Sample Type	PID	BTEX				TRH					
				Benzene	Toluene	Ethylbenzene	Xylenes	C6 - C10	C6 - C10 minus BTEX (F1)	>C10 - C16	>C10 - C16 minus Naphthalene (F2)	>C16 - C34 (F3)	>C34 - C40 (F4)
ESL - coarse soil (C/I)				**75**	**135**	**165**	**180**		**215**		**170**	**1700**	**3300**
Management Limits - coarse soil (C/I)									**700**		**1000**	**3500**	**10000**
BH108_4.1-4.2	28/01/2020	Fill	3.8	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH109_0.3-0.4	28/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	160	<100
BH109_0.9-1.0	28/01/2020	Fill	0.4	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
QC 102	29/01/2020	BH109_0.9-1.0		<0.2	<0.5	<1	<3	<25	<25	<50	<50	<100	<100
BH110_0.35-0.36	28/01/2020	Fill	0.5	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	740	340
BH111_0.3-0.4	30/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH113_0.2-0.3	29/01/2020	Fill	1.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
QC 106	29/01/2020	BH113_0.2-0.3		<0.2	<0.5	<1	<3	<25	<25	<50	<50	210	<100
BH113_0.6-0.7	29/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	240	<100
BH114_0.45-0.55	03/02/2020	Fill	0.1	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	390	110
QC114	03/02/2020	BH114_0.45-0.55		<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	290	<100
BH114_1.3-1.4	03/02/2020	Fill	0	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	240	<100
BH115_0.6-0.7	29/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	170	<100
BH115_2.5-2.6	29/01/2020	Fill	NR	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH116_0.3-0.4	30/01/2020	Fill	0.2	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
BH116_0.6-0.65	30/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	180	<100
BH117_2.2-2.3	30/01/2020	Fill	0.3	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	1310	260

Notes	**n samples**	74				74					
Results = mg/kg	**n > ESL**	0	0	0	0	n/a	0	n/a	**3**	**4**	**2**
LOR = limit of reporting	**n > ML**	n/a	n/a	n/a	n/a	n/a	0	n/a	**3**	**4**	**1**
< # = not detected above LOR	**minimum**	<0.2	<0.5	<0.5	<0.5	<10	<10	<50	<50	<100	<100
Shade + Bold = result > criteria	**maximum**	0.9	<0.5	<1	<3	16	16	7440	7400	47500	10100

ESL: apply to 2 m. low reliability, except F1 & F2 (moderate reliability)

Table 7 - TCLP Results

Sample ID_Depth	NSW EPA (2014) Waste Classification						BH04_1.0-1.1		BH16_2.0-2.1		BH17_2.0-2.1		BH21_0.7-0.8		BH22_2.2-2.3		BH102_0.5-0.6	
Sample Type							Soil	TCLP	Soil	TCLP	Soil	TCLP	Soil	TCLP	Soil	TCLP	Soil	TCLP
Material Type	GSW			RSW			Fill		Fill		Fill		Fill		Fill		Fill	
Date Sampled	CT1	TCLP1	SCC1	CT2	TCLP2	SCC2	20/08/2015		22/08/2015		22/08/2015		21/08/2015		21/08/2015		31/01/2020	
Units	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L
Arsenic	100	5	500	400	20	2000	311	0.4	136		62		31		119	<0.1	9	
Cadmium	20	1	100	80	4	400	1		19		4		1		3		<1	
Chromium	100	5	1900	400	20	7600	105		109		607	<0.05	12		29		19	
Copper	-	-	-	-	-	-	293		3520		12200		155		550		367	
Lead	100	5	1500	400	20	6000	**10400**	15.9	**3290**		**1150**		234		**6300**	**47.1**	2010	0.9
Nickel	40	2	1050	160	8	4200	24		**167**		**738**		23		2700	0.6	12	
Zinc	-	-	-	-	-	-	1170		7710		2560		367		14500		712	
Mercury	4	0.2	50	16	0.8	200	1.6		20.4	<0.001	0.1		0.3		0.3		56.4	<0.0010
Benzo(a)pyrene	0.8	0.04	10	3.2	0.16	23	13.4	<0.0005			<0.5		**102**	<0.0005	<0.5		3.3	<0.0005
Sum of reported PAH	-	-	200	-	-	800	158				8.7		**2170**		<0.5		32.3	
Asbestos													**Yes**				No	
TPH C6-C9			650			2600			<10		<10		<10		<10		<10	
TPH C10-C36			10000			40000			450		25400		**58500**		<50		250	
Benzene	10	0.5	18	40	2	72			<0.2		<0.2		<0.2		<0.2		<0.2	
Toluene	288	14.4	518	1152	57.6	2073			<0.5		<0.5		<0.5		<0.5		<0.5	
Ethylbenzene	600	30	1080	2400	120	4320			<0.5		<0.5		<0.5		<0.5		<0.5	
Xylenes	1000	50	1800	4000	200	7200			<0.5		<0.5		<0.5		<0.5		<0.5	
Scheduled Chemicals			<50			<50												
PCB			<50			<50												

Notes:
mg/kg = milligrams per kilogram.
mg/L = milligrams per litre
< = not detected above LOR
- = not analysed and/or no criteria
Shading = Interpreted Classification
Red = interpreted Hazardous Waste

Table 7 - TCLP Results

Sample ID_Depth	NSW EPA (2014) Waste Classification						BH105_0.8-0.95		BH105_1.7-1.8		QC100 (BH106_0.2-0.3)		BH107_1.5-1.7		BH108_1.3-1.4		BH109_0.9-1.0	
Sample Type							Soil	TCLP	Soil	TCLP	Soil	TCLP	Soil	TCLP	Soil	TCLP	Soil	TCLP
Material Type	GSW			RSW			Fill		Fill		Fill		Fill		Fill		Fill	
Date Sampled	CT1	TCLP1	SCC1	CT2	TCLP2	SCC2	31/01/2020		31/01/2020		28/01/2020		28/01/2020		28/01/2020		28/01/2020	
Units	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L
Arsenic	100	5	500	400	20	2000	25		66		6		94		30		28	
Cadmium	20	1	100	80	4	400	3		7		<1		2		96	1.73	13	
Chromium	100	5	1900	400	20	7600	20		76		8		180	0.02	320	<0.01	241	<0.01
Copper	-	-	-	-	-	-	2130		431		46		986		15500		10800	
Lead	100	5	1500	400	20	6000	2260	8.6	**11800**	**20.6**	113	0.2	5350	8.7	3160	**33.7**	3780	2.3
Nickel	40	2	1050	160	8	4200	135		283	0.2	10		185	<0.1	823	2.0	241	0.6
Zinc	-	-	-	-	-	-	4890		1320		106		1110		23400		12400	
Mercury	4	0.2	50	16	0.8	200	0.4		0.3		<0.1		1.0		<0.1		2.2	
Benzo(a)pyrene	0.8	0.04	10	3.2	0.16	23	3.4	<0.0005	<0.5		3.1	<0.0005	<0.5		<0.5		<0.5	
Sum of reported PAH	-	-	200	-	-	800	31.2		<0.5		28.9		<0.5		<0.5		<0.5	
Asbestos											No				No			
TPH C6-C9			650			2600	<10				<10		<10		<10		<10	
TPH C10-C36			10000			40000	400				110		<50		<50		<50	
Benzene	10	0.5	18	40	2	72	<0.2				<0.2		<0.2		<0.2		<0.2	
Toluene	288	14.4	518	1152	57.6	2073	<0.5				<0.5		<0.5		<0.5		<0.5	
Ethylbenzene	600	30	1080	2400	120	4320	<0.5				<0.5		<0.5		<0.5		<0.5	
Xylenes	1000	50	1800	4000	200	7200	<0.5				<0.5		<0.5		<0.5		<0.5	
Scheduled Chemicals			<50			<50												
PCB			<50			<50												

Notes:
mg/kg = milligrams per kilogram.
mg/L = milligrams per litre
< = not detected above LOR
- = not analysed and/or no criteria
Shading = Interpreted Classification
Red = interpreted Hazardous Waste

Table 7 - TCLP Results

Sample ID_Depth	NSW EPA (2014) Waste Classification						BH111_0.65-0.75		BH114_1.3-1.4		BH115_2.5-2.6		BH117_2.2-2.3	
Sample Type							Soil	TCLP	Soil	TCLP	Soil	TCLP	Soil	TCLP
Material Type	GSW			RSW			Fill		Fill		Fill		Fill	
Date Sampled	CT1	TCLP1	SCC1	CT2	TCLP2	SCC2	30/01/2020		3/02/2020		29/01/2020		30/01/2020	
Units	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L
Arsenic	100	5	500	400	20	2000	102		55		117	<0.1	52	
Cadmium	20	1	100	80	4	400	12		23		13		7	
Chromium	100	5	1900	400	20	7600	120		1240	<0.01	38		90	
Copper	-	-	-	-	-	-	4920		2870		872		1250	
Lead	100	5	1500	400	20	6000	**8960**	**32.9**	**4600**		**6390**	**54.1**	**2240**	
Nickel	40	2	1050	160	8	4200	**179**		**885**		145	0.2	64	
Zinc	-	-	-	-	-	-	14000		9880		2930		3720	
Mercury	4	0.2	50	16	0.8	200	<0.1		2.8		<0.1		1.0	
Benzo(a)pyrene	0.8	0.04	10	3.2	0.16	23	<0.5		<0.5		<0.5		8.7	<0.0005
Sum of reported PAH	-	-	200	-	-	800	<0.5		<0.5		<0.5		95.5	
Asbestos							No							
TPH C6-C9			650			2600			<10		<10		<10	
TPH C10-C36			10000			40000			280		<50		1450	
Benzene	10	0.5	18	40	2	72			<0.2		<0.2		<0.2	
Toluene	288	14.4	518	1152	57.6	2073			<0.5		<0.5		<0.5	
Ethylbenzene	600	30	1080	2400	120	4320			<0.5		<0.5		<0.5	
Xylenes	1000	50	1800	4000	200	7200			<0.5		<0.5		<0.5	
Scheduled Chemicals			<50			<50								
PCB			<50			<50								

Notes:
mg/kg = milligrams per kilogram.
mg/L = milligrams per litre
< = not detected above LOR
- = not analysed and/or no criteria
Shading = Interpreted Classification
Red = interpreted Hazardous Waste

Table 8 - Groundwater Results

Sample Location	Sample Type	Sample Date	SWL (m)	BTEXN							TRH							Metals								PAH	VHC							
				Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	C6 - C10	C6 - C10 minus BTEX (F1)	>C10 - C16	>C10 - C16 minus Naphthalene (F2)	>C16 - C34	>C34 - C40	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	B(a)P	Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,2-Dichloroethene (1,2-DCE)	1,1-Dichloroethene (1,1-DCE)	Chloroethene (Vinyl chloride)	Tetrachloromethane (carbon tetrachloride)	Hexachlorobutadiene
ASC NEPM HSL D (SAND 2-<4m)				5000	NL	NL			NL	NL		6000		NL																			
ASC NEPM Marine Water GIL				500						50								5.5	27	1.3	4.4	70	15	0.1									
ASC NEPM Drinking Water GIL				1	800	300			600								10	2	50	2000	10	20		1	0.01	50		60	30	0.3	3	0.7
MW01	Primary	31/08/2015	1.096	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	6	<0.1	<1	<1	<1	3	**92**	<0.1	<0.5	<5	<5	<5	<5	<1	<5	<5
QC200	MW01	31/08/2015		<1	<1	<1	<2	<1	<2	<1	<10	<10	<50	<50	<100	<100	5	<0.1	<1	<1	<1	2	**80**	<0.05	<1	<1	<1	<1	<1	<0.3	<1	<1
RPD				nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	**40**	14	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
MW16	Primary	31/08/2015	3.16	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	8	<0.1	<1	**2**	4	7	**291**	<0.1	<0.5	<5	<5	<5	<5	<1	<5	<5
MW17	Primary	31/08/2015	3.065	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	9	0.2	<1	**2**	4	**26**	**889**	<0.1	<0.5	<5	<5	<5	<5	<1	<5	<5
MW19	Primary	31/08/2015	2.449	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	9	**6.1**	<1	**153**	**9**	**128**	**4180**	<0.1	<0.5	<5	<5	<5	<5	<1	<5	<5
MW21	Primary	31/08/2015	2.026	<1	<2	<2	<2	<2	<2	8	<20	<20	170	160	120	<100	1	0.2	<1	1	<1	4	**66**	<0.1	<0.5	<5	<5	<5	<5	<1	<5	<5
QC201	Rinsate	31/08/2015		<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100																	
TB	Trip Blank	31/08/2015		<1	<2	<2	<2	<2	<2	<5	<20	<20																					
MW01	Primary	12/02/2020	0.677	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	2	<0.1	<1	<1	<1	2	**87**	<0.1		<5	<5	<5	<5	<1	<5	<5
MW16	Primary	12/02/2020	2.749	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	<1	**2.6**	2	**231**	**8**	**45**	**2560**	<0.1		<5	<5	<5	<5	<1	<5	<5
MW17	Primary	12/02/2020	2.647	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	<1	0.6	<1	**32**	1	**39**	**1280**	<0.1		<5	<5	<5	<5	<1	<5	<5
MW19	Primary	12/02/2020	2.034	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	**139**	**4.2**	4	**247**	**5**	**294**	**3360**	<0.1		<5	<5	<5	<5	<1	<5	<5
MW21	Primary	12/02/2020	1.643	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	<1	<0.1	10	<1	<1	2	**59**	<0.1		<5	<5	<5	<5	<1	<5	<5
MW102	Primary	12/02/2020	0.941	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	2	<0.1	<1	<1	<1	2	6	<0.1		<5	<5	<5	<5	<1	<5	<5
QC306	MW102	12/02/2020		<1	<1	<1	<2	<1	<2	<1	<10	<10	<50	<50	<100	<100	5	<0.1	<1	<1	<1	1	5	<0.05		<1	<1	<1	<1	<0.3	<1	<1
RPD				nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	**86**	nc	nc	nc	nc	**67**	18	nc		nc	nc	nc	nc	nc	nc	nc
MW105	Primary	12/02/2020	1.811	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	3	0.7	<1	<1	3	**29**	**1760**	<0.1		<5	<5	<5	<5	<1	<5	<5
MW115	Primary	12/02/2020	1.438	<1	<2	<2	<2	<2	<2	<5	<20	<20	<100	<100	<100	<100	**18**	<0.1	<1	<1	4	**23**	**455**	<0.1		<5	<5	<5	<5	<1	<5	<5
QC304	Rinsate	12/02/2020		<1	<2	<2	<2	<2	<2	<5	<20	<20																					
QC305	Trip Blank	12/02/2020		<1	<2	<2	<2	<2	<2	<5	<20	<20																					

Notes

µg/L = micrograms per litre
All results and criteria = µg/L
LOR = Limit of Reporting
RPD = Relative Percentage Difference
nc = not calculated, result(s)<LOR
NL - Not Limiting – A vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario.
< denotes result less than LOR
Marine water GIL for Cadmium and Nickel: ANZG (2018) DGV, 95% protection level
Bold/Italic = RPD>30%
ES2005113: sample MW11S is MW115 (mislabelled by laboratory)
Shading/bold = result > HSL D or GIL

Table 9 - Soil QC

Sample ID	Sample Type	Sample Date	C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
		Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
QC300	TB	28/01/2020	<20	<20	<1	<2	<2	<2	<5
QC302	RB	30/01/2020	<20	<20	<1	<2	<2	<2	<5
QC303	RB	31/01/2020	<20	<20	<1	<2	<2	<2	<5
QC304	RB	03/02/2020	<20	<20	<1	<2	<2	<2	<5

TB = trip blank
RB = rinsate blank

Appendix C

Data Validation

1.0 Introduction

This appendix describes the data quality objectives (DQOs) and data quality indicators (DQIs) developed for the Phase I and II ESA (ESA).

2.0 Data Quality Objectives

The seven-step DQO approach, endorsed in the NSW EPA (2017) *Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme (3rd Edition)* were adopted. The DQOs have set quality assurance and quality control parameters for the field and laboratory programs to ensure data of appropriate reliability were used to assess the environmental condition of the Site, as summarised in the following sections.

Step 1: State the problem (project objective)

The ESA was undertaken to assess Site suitability for commercial/industrial land use.

Step 2: Identification of the goals (decisions)

Project decisions include:

- Does the fill or natural soil contain concentrations of the contaminants of potential concern (CoPC) above NSW EPA endorsed assessment criteria for commercial/industrial land use.
- Does the groundwater contain concentrations of the CoPC above NSW EPA endorsed assessment criteria for commercial/industrial land use.
- Is there sufficient information on the distribution and characteristics of soil, fill and groundwater to properly characterise contamination at the Site.
- Are the data reliable.

Step 3: Identify inputs to the Decision

The primary inputs required to make the above decisions listed in Step 2 are as follows:

- Defining sample locations at the Site through survey data, maps and plans. Survey data is presented in this Appendix.
- Reviewing Site history and condition data (i.e. geology, hydrogeology, soil, previous reports etc).
- Using appropriate sampling techniques, to obtain samples representative of Site conditions.
- Using appropriate analytical techniques (i.e. NATA certified) with limits of reporting (LOR) below the adopted assessment criteria.
- Appropriate NSW guideline documents.
- Concentrations of CoPC in different fill/soil types and groundwater.
- Quality Assurance and Quality Control (QA/QC) data.

Step 4: Define the study boundaries

The study boundaries included:

- The Site boundary as presented on Figure 2.
- Subsurface boundaries included assessment to at least 0.5 m into natural soils (wherever possible) and shallow groundwater.
- Constraints related to the presence of subsurface utilities and Site operational requirements.

Step 5: Develop a decision rule

The following decision rules were applied:

- If it is determined that the data generated through this investigation is reliable and suitably characterises soil and groundwater contamination, it will be compared against the adopted assessment criteria.
- If comparison of the data generated through this investigation meets the adopted assessment criteria, then Site will be considered to be generally suitable for commercial/industrial land use.
- If it is determined that the data generated through this investigation is not reliable and/or does not suitably characterise soil and groundwater contamination as required, then further investigations may be recommended prior to comparison against the site assessment criteria and/or the development of a management and treatment options.

Step 6: Specify Limits of Decision Error

The acceptable limits on decision errors is described by the DQIs adopted for both the fieldwork and laboratory analysis. A description of the DQIs and assessment of attainment of the DQIs is presented in this Appendix. The DQIs include Precision (P), Accuracy (A), Representativeness (R), Comparability (C) and Completeness (C), collectively known as PARCC parameters.

Step 7: Develop the Plan for Obtaining the Data

The collection of data was optimised by the development of an appropriate sampling and analytical strategy. Attainment of the DQOs has been assessed by reference to the DQIs, presented below.

3.0 DQIs

The DQIs (PARCC parameters) have been established to set acceptance limits on field and laboratory data. The DQIs are presented in Table 1.

Table 1 Data Quality Indicators

DQI	Field	Laboratory	Acceptable Limits
P	SOPs[1] appropriate and complied to. Collection of Intra- and Inter-laboratory duplicate samples	Analysis of: Intra-laboratory duplicate samples (1 in 20 samples) Inter-laboratory duplicate samples[4] (1 in 20 samples) Laboratory duplicate samples	 RPD of < 30% RPD of < 30% Result < 10xLOR: no limit Result 10-20xLOR: 0-50% Result >20xLOR: 0-20%
A	SOPs appropriate and complied with Collection of rinsate blanks	Analysis of: Field/trip blanks (1/day) Method blanks Matrix spikes Surrogate spikes Laboratory control spikes Laboratory prepared spikes	 Non-detect for CoPC Non-detect for CoPC Laboratory specific limits[3] Laboratory specific limits [3] Laboratory specific limits [3] Laboratory specific limits [3]
R	Appropriate media sampled	All critical samples analysed per the sampling and analytical strategy	Appropriate samples analysed
C	Sample SOPs used on each occasion Experienced sampler Same types of samples collected	Same analytical methods used Sample LOR[2] Same laboratories (NATA accredited) Consistent reported units of measurement	As per ASC NEPM (2013) < nominated criteria
C	All critical locations sampled All samples collected SOPs appropriate and complied with Experienced sampler Documentation correct	All critical samples analysed and for the CoPC Appropriate methods implemented Appropriate LORs Sample documentation complete Sample holding times complied	As per ASC NEPM (2013) < nominated criteria As per ASC NEPM (2013)

Notes: 1 = (AECOM) Standard Operating Procedures.
2 = laboratory limit of reporting (LOR).
3 = Reference will be made to the laboratory Analyte Specific Acceptance Criteria (ASAC), calculated on the basis of historical database (i.e. statistically derived limits. These are updated regularly and each laboratory report may have slightly different limits. The limits will be assessed on a batch by batch basis).
4 = referred to as Splits in this Appendix.

The following sections assess the achievement of the DQOs in consideration of the DQIs.

4.0 Data Evaluation

4.1 Field

Field Staff

All samples were collected by suitably qualified and experienced AECOM Environmental Scientists. Sampling was undertaken with reference to Standard Operating Procedures for each task and field briefs prepared by the project manager.

Soil Sampling

The adopted sampling methodologies are presented in the Report text.

Samples were collected by gloved hand, with a new pair of disposable gloves worn for each sample collection event. The samples were placed directly into laboratory prepared jars/containers with Teflon-lined lids, which were filled to minimise the headspace within the jars. Samples for asbestos analyses were placed into snap-lock plastic bags.

Soil sub-samples were collected and placed into snaplock plastic bags and the vapour headspace in the bag samples was measured in the field for volatile organic compounds (VOC) using a calibrated photoionisation detector (PID). The PID calibration record is included in this **Appendix** and the readings are presented in **Appendix F**.

Groundwater Sampling

Eight Class 18 (50 mm diameter) uPVC groundwater monitoring wells were installed. Preparation of the wells for sampling (i.e. development and purging) is discussed in the report. Groundwater geochemical parameters were measured by a calibrated water quality meter (WQM) during development and purging.

Sampling was completed by low flow methodology once geochemical parameters stabilised. Samples were collected by gloved hand, with a new pair of disposable gloves worn for each sample collection event.

Calibration records for the WQM and the field worksheets are provided in this **Appendix**.

Sample Handling & Preservation

The soil samples were placed immediately into laboratory prepared and supplied, acid washed and solvent jars with screw top Teflon-lined lids. Sample jars were filled so that no headspace remained. The groundwater samples were decanted immediately into laboratory prepared and supplied bottles. All samples were placed in a chilled, insulated cooler (*i.e.* esky) with crushed ice between sampling and analysis.

Samples were preserved for the various contaminants of concern in accordance with the requirements of the ASC NEPM as detailed in Table 2:

Table 2: Sample Containment and Preservation

Matrix	Analyte	Container
Soil	All CoPC	250 mL glass jar, Teflon-lined plastic lids.
	Asbestos	Plastic snap-lock bags
Water	TRH C6-C10, BTEXN, VOC	4 x 40 mL glass vials with sulfuric acid preservative.
	TRH C_{10}-C_{40}, PAH	100 ml glass amber bottle, unpreserved
	Dissolved metals	60 ml plastic with nitric acid preservative and field filtered (0.45µm Inline™ filter)

Sample numbers, depths, preservation and analytical requirements were recorded on the chain of custody (CoC) documentation, which accompanied the samples to the laboratory. Signed copies of the COCs are provided with the laboratory reports in **Appendix G**.

Calibration

The field equipment (monitors, meters etc) was calibrated by the supplier(s) prior to use by AECOM. All calibration results were satisfactory. Calibration records are included in this **Appendix**.

Field Duplicates

The purpose of field duplicate samples is to estimate the variability of a given characteristic or contaminant associated with a population (*i.e.* measure the precision of the sampling, sample preparation and sample analysis process). Inter-laboratory duplicates (Split duplicates) are utilised to assess the accuracy of the primary laboratory data.

The field duplicated soil samples were obtained from similar soils of an identical depth and immediately adjacent to the primary sample by placing approximately equal portions of the primary sample into two sample jars. Duplicated groundwater samples were collected by filling replicated sample jars from the low flow pump outlet tubing.

Duplicate samples were labelled to conceal their relationship to the primary sample from the laboratory and the key to the duplicate samples was recorded in the field note book.

It is common that significant variation in duplicate results is often observed (particularly for solid matrix samples) due to sample heterogeneity and/or low reported concentrations near the laboratory limit of reporting (LOR). The overall precision of field duplicates (including Splits and laboratory duplicates) is assessed by their Relative Percent Difference (RPD), given by:

$$RPD = \frac{|C1-C2|}{(C1+C2)/2} \times 100$$

(where C1 = primary sample result
C2 = duplicate sample result)

The RPD between the primary and duplicated sample results have been compared to the acceptance criteria of < 30%. A summary of the primary and field duplicated sample results are presented on **Tables 4** and **6** (**Appendix B**). The rate of duplicate and split sample analyses is summarised on Table 3:

Table 3 Field Duplicate Summary

CoPC	Primary samples	Duplicate samples	Split duplicate samples
Soils		**(rate %)**	**(rate %)**
TRH, BTEXN	63	6 (9.5)	5 (8)
PAH	72	7 (9.7)	5 (7)
Metals	88	7 (8)	5 (5.6)
OCP, OPP	17	1 (5.8)	1 (5.8)
PCB	17	1 (5.8)	1 (5.8)
Asbestos	46	0	0
Phenols	3	0	1 (33)
VHC	3	0	1 (33)
Groundwater		**(rate %)**	**(rate %)**
TRH, BTEXN	13	0	2 (15)
PAH	13	0	2 (15)
Metals	13	0	2 (15)
VHC	13	0	2 (15)

The rate of duplicate and split sample analyses generally met the DQI of 1 in 20 primary samples (i.e. 5%). Where a small number of primary samples were analysed for a particular CoPC, Split duplicate samples were analysed in preference to duplicates to evaluate laboratory comparability. AECOM

considers that the rate of duplicate and split sample analyses is satisfactory for the purpose of this assessment.

The RPD of field duplicate and split samples met the DQI, with the following exceptions:

- BH03_1.0-1.2/QC111: elevated RPDs for PAH and metals are attributed to sample heterogeneity (fill material). The data are considered to be acceptably accurate.
- BH05_1.0-1.1/QC200: elevated RPDs for PAH and metals are attributed to sample heterogeneity (fill material). Elevated RPDs for PAH are also attributed to low detected concentrations. The data are considered to be acceptably accurate.
- BH07B_1.2-1.3/QC201: elevated RPDs for PAH and metals are attributed to sample heterogeneity (fill material). Elevated RPDs for PAH are also attributed to low detected concentrations. The data are considered to be acceptably accurate.
- BH09_4.0-4.2/QC101: elevated RPDs for metals are attributed to sample heterogeneity (fill material). The data are considered to be acceptably accurate.
- BH21_0.7-0.8/QC202: elevated RPDs for TRH are attributed to sample heterogeneity (fill material). It is noted the results were the same order of magnitude and confirmed the presence of impacts. The data are considered to be acceptably accurate.
- BH22_4.5-4.7/QC100: elevated RPDs for metals are attributed to low concentrations. The data are considered to be acceptably accurate.
- BH104_1.6-1.7/QC111: elevated RPD for TRH F3 is attributed to low concentrations. The data are considered to be acceptably accurate.
- BH106_0.2-0.3/QC100: elevated RPDs for PAH and metals are attributed to sample heterogeneity (fill material). The data are considered to be acceptably accurate.
- BH107_0.5-0.6/QC105: elevated RPDs for metals are attributed to sample heterogeneity (fill material) and/or low concentrations. The data are considered to be acceptably accurate.
- BH109_0.9-1.0/QC102: elevated RPDs for metals are attributed to sample heterogeneity (fill material). The data are considered to be acceptably accurate.
- BH113_0.2-0.3/QC106: elevated RPDs for metals are attributed to sample heterogeneity (fill material) and/or low concentrations. The data are considered to be acceptably accurate.
- BH114_0.45-0.55/QC114: elevated RPDs for PAH and metals are attributed to sample heterogeneity (fill material) and/or low concentrations. The data are considered to be acceptably accurate.
- MW01/QC200: elevated RPD for nickel is attributed to low detected concentrations. The data are considered to be acceptably accurate.
- MW102/QC306: elevated RPD for arsenic and nickel are attributed to low detected concentrations. The data are considered to be acceptably accurate.

AECOM concludes that the precision of the data is sufficient for the purposes of the project.

Decontamination and Rinsate Blanks

Soil samples were collected directly from the hand auger cutting head, push tube core or where unavoidable, lead auger (the tools). The tools were decontaminated prior to use and after each sampling location by brushing off adhered soil and then washing in potable water.

An oil water interface (IF) probe was used to obtain measurements of standing water levels and total well depths in the monitoring wells. The IF probe was decontaminated prior to use and between monitoring well locations by washing the IF probe head and tape in a phosphate free detergent solution, rinsing in potable water and drying with clean paper towel.

Low-flow sampling equipment (peristaltic pump) was used for groundwater sampling. New sample and pump tubing were used at each monitoring well location. The tubing was the only pump component to be in contact with groundwater and therefore decontamination was not required.

Rinsate samples were collected by pouring laboratory prepared deionised water over the decontaminated tools and IF probe head and collecting the 'rinse' into sample containers.

Analysis results for the soil rinsate samples are presented on **Table 9** in **Appendix B**. CoPC concentrations were below the laboratory LOR. AECOM considers that appropriate decontamination procedures were adopted.

Trip Blanks

A trip blank assesses the potential for cross contamination during transit from the Site to the laboratory. Samples are typically analysed for the same contaminants targeted as part of the assessment.

The results for the groundwater and soil trip blank samples (refer Table **8** and **9**, respectively) were less than the laboratory LOR and indicated that cross contamination was unlikely to have occurred during sample storage and transit.

4.2 Laboratory QA/QC

Laboratories

Samples were submitted to the following laboratories:

- ALS (primary laboratory, soil and groundwater samples): NATA accreditation number is 825 and its analytical procedures are based on established internationally-recognised procedures.
- Envirolab (secondary laboratory, groundwater samples): NATA accreditation numbers are 13535 and 1261 and its analytical procedures are based on established internationally-recognised procedures.

Analytical Methods

The laboratory analytical methods for the primary laboratories are summarised in Table 4.

Table 4: Analytical Methods

CoPC	Matrix	Method	LOR	Criteria
Metals	Soil	USEPA 6010 ICP/AES	0.1-5	>5
TRH (C6-C10)		USEPA 5030/8260 P&T/HS/GC/MS	10	n/a
TRH (>C10-C40)		USEPA 3510/8015 GC/FID	50-100	>100
PAH		USEPA 3510/8270	0.5	>0.5
BTEXN plus F1, F2		USEPA 5030/8260 GC/MS	0.2-1	>1
OCP, OPP		USEPA 8270B	0.05–0.2	>0.2
Asbestos		AS 4964 – 2004	0.01 w/w 0.001 w/w	0.05 w/w 0.001 w/w
PCB		USEPA 3510/8270	0.1	>0.1
TRH (C6-C10) BTEXN	Water	USEPA 5030/8260 P&T/HS/GC/MS	10 1-2	n/a 3
TRH (>C10-C40)		USEPA 3510/8015 GC/FID	50-100	n/a
VHC		USEPA 5030/8260	1-5	n/a

The laboratory LORs were below the adopted assessment criteria.

Laboratory (Method) Blanks

Laboratory or control blanks consist of reagents specific to each individual analytical method and are prepared and analysed by laboratories in the same manner as regular samples. The preparation and analysis of laboratory blanks enables the measurement of contamination within the laboratory.

Laboratory blanks are typically analysed at a frequency of 1 in 20, with a minimum of one analysed per batch. A review of the laboratory reports indicated the rate of analysis and results met the DQI.

Laboratory Duplicates

Laboratory duplicate samples are prepared in the laboratory by splitting a field sample and analysing it as two independent samples. The analysis of laboratory duplicate samples provides an indication of analytical precision and may be influenced by sample heterogeneity. The laboratory duplicate RPDs are used to assess laboratory precision.

Laboratory duplicates are analysed at a frequency of 1 in 20, with a minimum of one analysed per batch, when the batch size exceeds five samples. A review of the laboratory reports indicated that the frequency of duplicate analyses and the RPDs met the DQI, with the exception of:

- ES1529109: BH22_0.8-0.9, lead RPD of 21 %. This is attributed to sample matrix (fill).
- ES1529109: BH04_0.5-0.6, lead RPD of 72 % and nickel RPD of 36.4%. This is attributed to sample matrix (fill).
- ES1529109: TRH >C10-C16 RPD of 32 %. This is attributed to sample matrix (fill).

The data is considered acceptably precise.

Laboratory Control Spikes

Laboratory control spikes (LCS) are prepared within the laboratory by spiking an aliquot of an appropriate clean matrix reagent with known concentrations of specific analytes. The LCS is then analysed and the results are used to assess the laboratory performance on sample preparation and analysis procedure. Accuracy is assessed by calculation of percent recovery (PR).

LCS are typically analysed at a frequency of 1 in 20, with a minimum of one analysed per analytical batch. Review of the laboratory reports indicated that the frequency of LCS and the PRs met the DQI.

Matrix Spikes

Matrix spikes are samples prepared within the laboratory by adding a known concentration (i.e. a spike) of a contaminant into the sample. The sample is then analysed and the amount of spike recovered is measured to assess the effects of the sample matrix on the accuracy and precision of the analytes. Essentially, spikes are used to confirm that the laboratory method is recovering the analyte that is being tested. Accuracy is assessed by the calculation of the PR.

Matrix spike PR results met the DQI with the exception of:

- ES1529109: Matrix spike recoveries for metals, TRH and/or PAH in nine samples were not calculated due to background concentrations.
- ES1529109: Matrix spike recovery for TRH >C10-C16 was 158 % compared to the DQI of 73-137% in sample QC202. Given that the primary and duplicate results were the same order of magnitude and confirmed the presence of impacts, the data are considered to be acceptable.
- ES1529728: matrix spike recovery for zinc in sample MW19 was not calculated due to background concentrations.

The data is considered to be acceptably accurate.

Surrogates

Surrogates are compounds which are similar to the organic analytes of interest in chemical composition, extraction and chromatographic behaviour but which are not normally found in field samples. Surrogates are generally spiked into all sample aliquots prior to preparation and analysis by chromatographic methods. Essentially, surrogates are used to test the laboratory method.

PRs are calculated for each surrogate, providing an indication of analytical accuracy. US EPA methodology (SW846) requires that surrogate testing be performed whenever analysing by Gas Chromatography or HPLC (i.e. for organics).

Review of the laboratory reports indicated that the PRs for surrogates met the DQI.

The data is considered to be acceptably accurate.

Holding Times

The ASC NEPM, APHA 20th Edition and AS2031.1-1986 provide recommended technical holding times (THT) for various analyses in samples which must be met in order to consider the results valid, as presented on Table 5. The holding times may vary slightly depending on the document referenced.

Table 5 Holding Times

CoPC	Matrix	THT
TRH C6-C10, BTEXN	Soil / Water	14 days / 7 days
TRH > C10-C40	Soil / Water	14 days / 7 days
PAH	Soil / Water	14 days / 7 days
OCP, OPP, PCB	Soil / Water	14 days / 7 days
Metals	Soil / Water	6 months
Mercury	Soil / Water	28 days
Asbestos	Soil	Indefinite
VHC	Soil / Water	14 days / 7 days

Review of the laboratory documentation indicated that the THT have been met for all analyses, with the exception of:

- ES2004680: TCLP analysis for B(a)P on sample QC100 was one day overdue.
- ES2004682: TCLP analysis for B(a)P on samples BH102_0.5-0.6 and BH105_0.85-0.95 were one day overdue.

The THT exceedances on the TCLP samples are not considered to compromise data integrity.

Sample Receipt Temperatures

Guidance documents recommend that soil and water samples analysed for VOC and semi volatile organic compounds are cooled to <6^{0}C. The laboratory issued sample receipt forms indicated that the following batches recorded elevated temperatures:

- ES1529729 (18.2^{0}C): samples received with ice.
- 235771 (17^{0}C): samples received with ice.
- 236880 (18^{0}C): samples received with ice.
- ES2002766 (6.8^{0}C): samples received with ice.
- ES2003147 (13.1^{0}C): samples received with ice.

Given that the primary and duplicated soil and groundwater sample analysis data indicated acceptable comparability, the elevated sample receipt temperatures are not considered to compromise data integrity.

5.0 Data Validation

The overall assessment of the quality of the data with respect to the DQIs is summarised in Table 6:

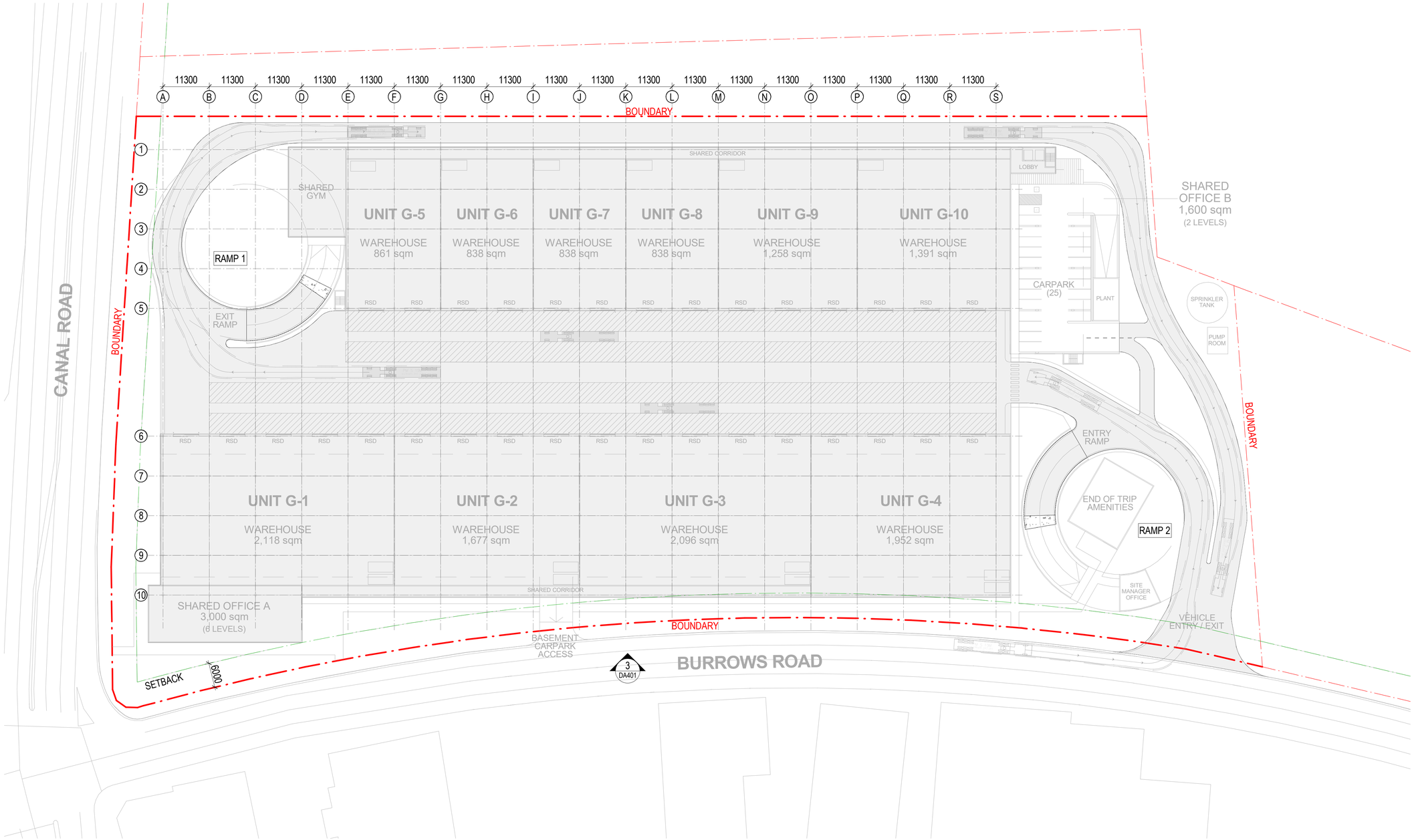
Table 6 Data Validation

DQI	Description	Compliance
P	**Precision** is a quantitative measure of the variability (or reproducibility) of data.	All work was conducted in accordance with AECOM SOPs. Precision or variability of the data was assessed by determining RPDs between the original and duplicate samples analysed. Based on the results discussed, AECOM considers that the data is acceptably precise.
A	**Accuracy** is a quantitative measure of the closeness of reported data to the true value.	All work was conducted in accordance with AECOM SOPs. Accuracy of the data was mainly assessed through review of the laboratory QA/QC results. Based on the results discussed, AECOM considers the data is acceptably accurate.
R	**Representativeness** is the confidence (expressed qualitatively) that data are representative of each media present on the site.	Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of parameter variations at sampling points or environmental conditions. Based on the sampling and analytical regime undertaken, the results obtained are considered to be representative of the soil and groundwater conditions at the locations tested.
C	**Comparability** is the confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event.	Comparability expresses the confidence with which one data set can be compared with another. In order to assess comparability, field sampling procedures, laboratory sample preparation procedures, analytical procedures, and reporting units must be known and similar to established protocols, as was the case during this project. Qualitatively, data subjected to strict QA/QC procedures will be deemed more reliable and therefore more comparable, than other data. The sampling was conducted by AECOM environmental scientists in accordance with documented SOPs and field briefs prepared by the project manager. Each analyte was analysed by the same analytical laboratory using identical methods and laboratory LORs were consistent over each laboratory batch. Additionally, check laboratories were used to assess variability. Based on the above, the data obtained for the project are considered to be suitably comparable.
C	**Completeness** is a measure of the amount of usable data (expressed as %) from a data collection activity.	The completeness of data is defined as the percentage of analytical results that are considered valid. Valid chemical data are values that have been identified as acceptable or acceptable as qualified during the data validation process. The completeness is a comparison of the total number of samples accepted against the total number of samples, calculated as a percentage. The project goal for completeness is 95%. Completeness also includes checking that all entries in the data tables are correct, properly entered, and that any typographical errors are corrected and the data are re-entered properly, as required. All samples collected and analysed complied with the DQOs and DQIs except where discussed and considered to be reliable, as such the data obtained is considered to be sufficiently quantitative and complete for the purposes of this project (i.e. >95%).

Based on an assessment of field and laboratory QA/QC data, the reported analytical results are considered, by achievement of the DQIs, to be reliable and representative of concentrations of the chemical contaminants of concern analysed at the locations sampled.

Indicative development plan

Goodman



1 GROUND 1 : 500

PRELIMINARY

SBA ARCHITECTS

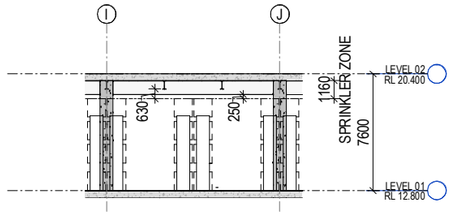
Burrows Industrial Estate — Multilevel Industrial Facility

1 - 3 Burrows Road, Alexandria

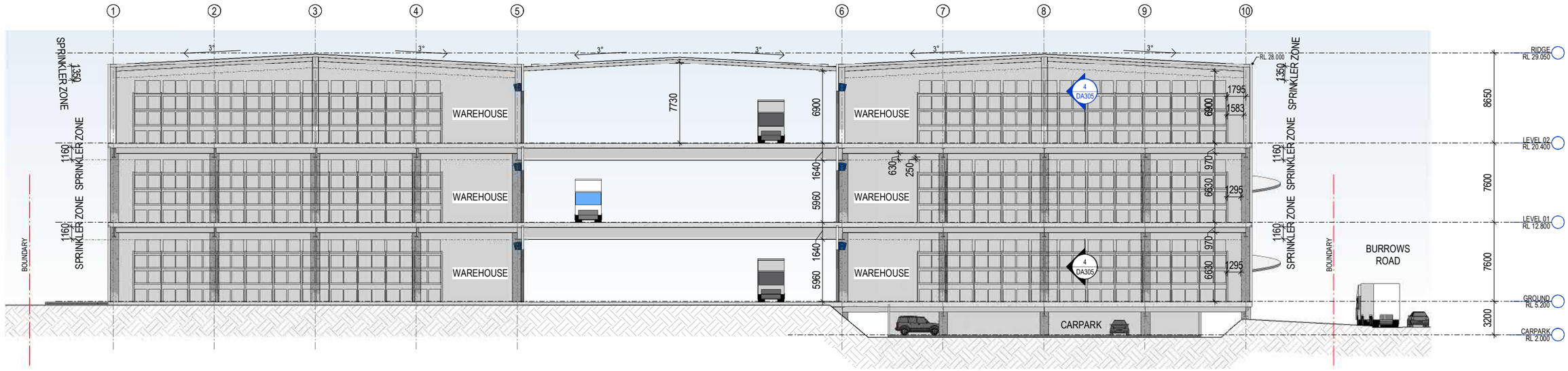
GROUND FLOOR

1:500 @ A1
1:1000 @ A3
Date 1

DA201 (1)
Job No 19211



4 RACKING SECTION 1 : 200



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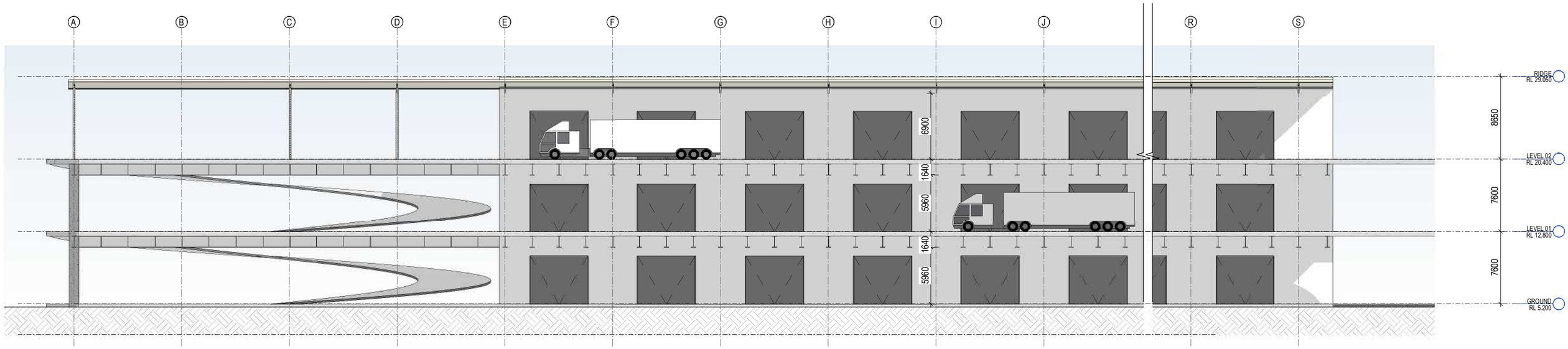


2 SECTION 2 1 : 200

SBA ARCHITECTS

Burrows Industrial Estate — Multilevel Industrial Facility

1 - 3 Burrows Road, Alexandria

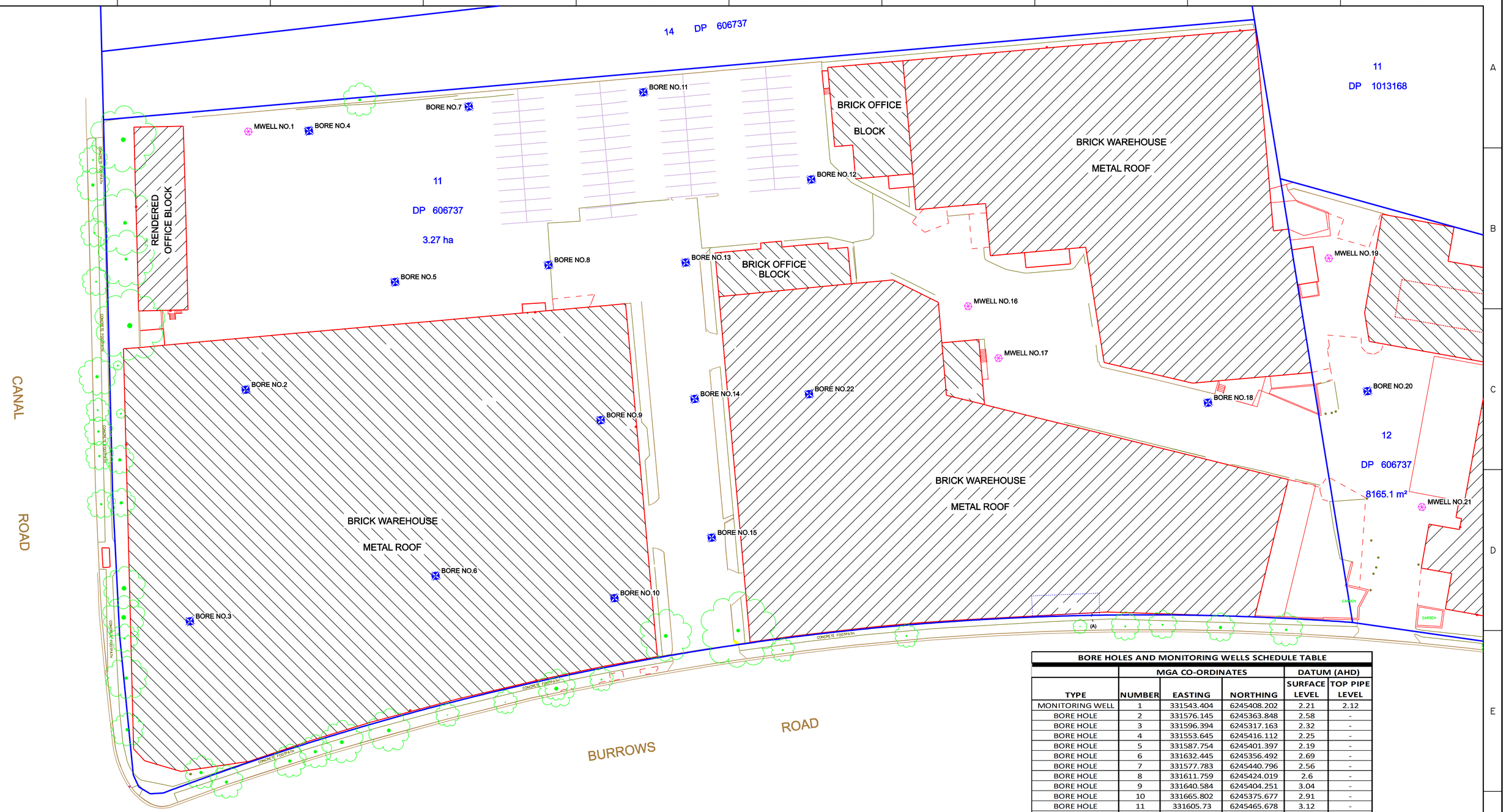
SECTIONS

02/08/19

DA305 (3)

Job No 19211

Survey Data



BORE HOLES AND MONITORING WELLS SCHEDULE TABLE					
		MGA CO-ORDINATES		DATUM (AHD)	
TYPE	NUMBER	EASTING	NORTHING	SURFACE LEVEL	TOP PIPE LEVEL
MONITORING WELL	1	331543.404	6245408.202	2.21	2.12
BORE HOLE	2	331576.145	6245363.848	2.58	-
BORE HOLE	3	331596.394	6245317.163	2.32	-
BORE HOLE	4	331553.645	6245416.112	2.25	-
BORE HOLE	5	331587.754	6245401.397	2.19	-
BORE HOLE	6	331632.445	6245356.492	2.69	-
BORE HOLE	7	331577.783	6245440.796	2.56	-
BORE HOLE	8	331611.759	6245424.019	2.6	-
BORE HOLE	9	331640.584	6245404.251	3.04	-
BORE HOLE	10	331665.802	6245375.677	2.91	-
BORE HOLE	11	331605.73	6245465.678	3.12	-
BORE HOLE	12	331645.559	6245472.364	3.62	-
BORE HOLE	13	331634.823	6245442.06	2.96	-
BORE HOLE	14	331653.883	6245419.946	2.93	-
BORE HOLE	15	331674.617	6245398.482	2.7	-
MONITORING WELL	16	331688.598	6245470.9	4.23	4.15
MONITORING WELL	17	331700.452	6245465.954	4.13	4.04
BORE HOLE	18	331741.891	6245485.266	3.42	-
MONITORING WELL	19	331743.935	6245525.412	3.51	3.44
BORE HOLE	20	331767.618	6245507.731	3.24	-
MONITORING WELL	21	331791.781	6245494.973	3.12	3.04
BORE HOLE	22	331672.77	6245435.465	3.37	-

NOTE:
TOPOGRAPHICAL SURVEY INFORMATION DERIVED FROM CARDNO DRAWING 117708001-00

DIAL BEFORE YOU DIG www.1100.com.au

IMPORTANT NOTE:
This plan is prepared for AECOM from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose.
The title boundaries shown hereon were not marked by the author at the time of survey and have been determined by plan dimensions only and not by field measurement.

A services search of the area surveyed above has not been undertaken.
Visible services shown hereon have been located where possible by field survey.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.
This note is an integral part of this plan.

REVISION	DATE	DESCRIPTION	CCAD REF	APPROVED
00	04-09-2015	ORIGINAL ISSUE	117740AA	MC

SCALE: HORZ. NOT TO SCALE VERT. — A1
CONTOUR INTERVAL: MAJOR 0.2 MINOR 0.1
HORIZONTAL ORIGIN
COORD. SYSTEM: MGA
MARK ADOPTED: SSM 59268
COORDINATES: E 331 608.285 N 6 245 274.426
VERTICAL DATUM
DATUM: AHD
BM ADOPTED: PM 14328
RL: 2.818

Cardno Hard&Forester
Shaping the Future
23-25 Frederick Street
PO Box 175
Rockdale NSW 2216
t: (02) 9597 9700
f: (02) 9599 2146
e: survey@hardforester.com.au w: www.hardforester.com.au

SURVEYED	DRAWN	CHECKED	PASSED
JJ	JC	JJ	MC

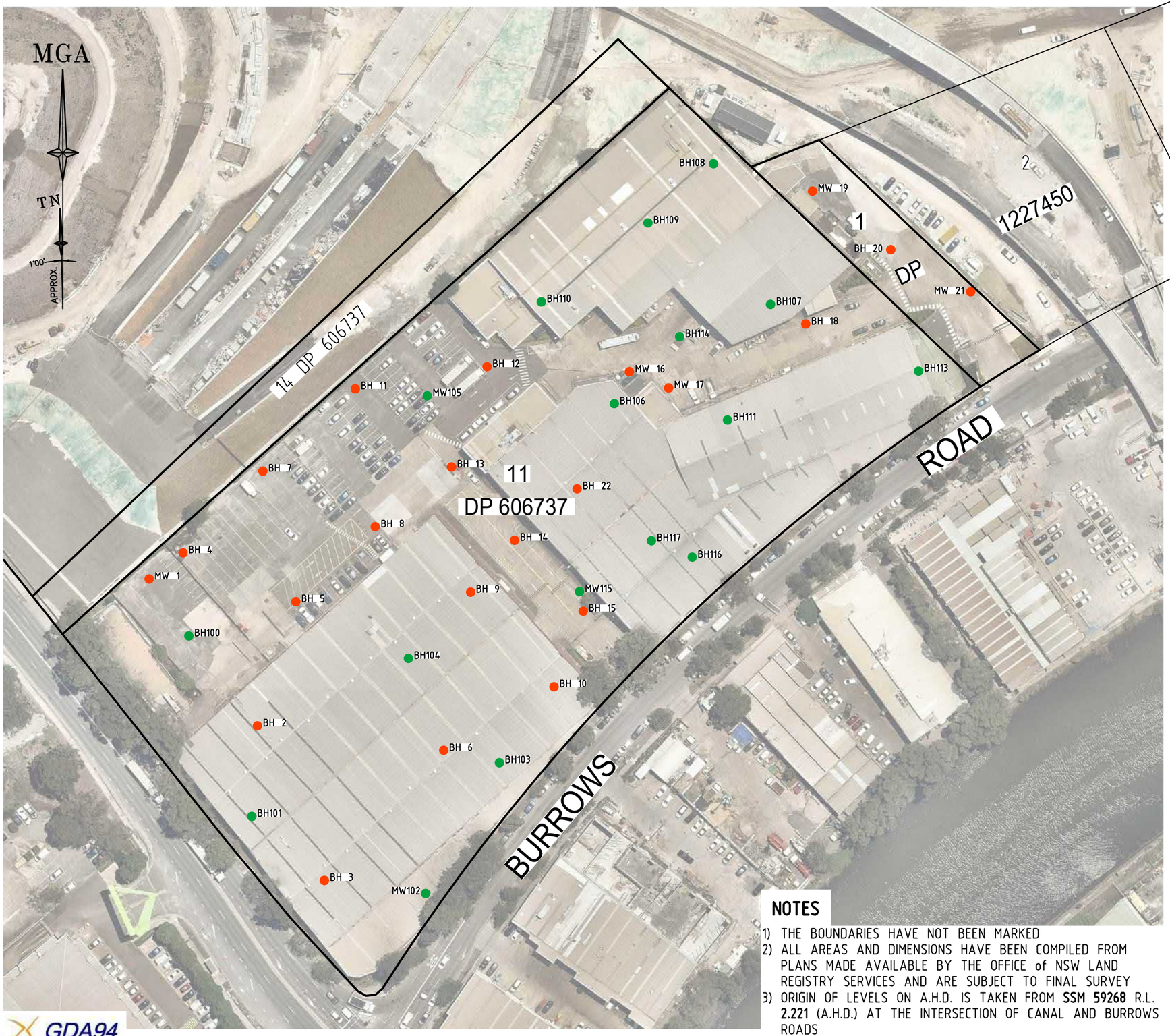
PROJECT:
1-3 BURROWS ROAD ALEXANDRIA

PLAN SHOWING BORE HOLE AND MONITORING WELLS LOT 11 & 12 DP 606737

AECOM

SHEET 1 OF 1

DRAWING NUMBER	REV
117740001	00



LEGEND

BORE HOLE 2015	BH
MONITORING WELL 2015	MW
BORE HOLE 2020	BH
MONITORING WELL 2020	MW

2015 Bore Hole & Monitoring Wells

Code	Easting	Northing	RL (AHD)
MW 1	331543.404	6245408.202	2.21
MW 19	331743.935	6245525.412	3.51
MW 21	331791.781	6245494.973	3.12
BH 18	331741.891	6245485.266	3.42
BH 20	331767.618	6245507.731	3.24
BH 22	331672.77	6245435.465	3.37
BH2	331576.145	6245363.848	2.58
BH 3	331596.394	6245317.163	2.32
BH4	331553.645	6245416.112	2.25
BH5	331587.754	6245401.397	2.19
BH6	331632.445	6245356.492	2.69
BH7	331577.783	6245440.796	2.56
BH8	331611.759	6245424.019	2.6
BH9	331640.584	6245404.251	3.04
BH10	331665.802	6245375.677	2.91
BH11	331605.73	6245465.678	3.12
BH12	331645.559	6245472.364	3.62
BH13	331634.823	6245442.06	2.96
BH14	331653.883	6245419.946	2.93
BH15	331674.617	6245398.482	2.7

2020 Bore Holes & Monitoring Wells

Code	Easting	Northing	RL(AHD)	Description
BH100	331555.408	6245391.019	2.035	
BH101	331574.416	6245336.499	2.422	
MW102	331627.004	6245313.221	2.385	Road Cover
			2.3	PVC Casing
BH103	331649.295	6245352.702	2.786	
BH104	331621.782	6245384.239	2.852	
MW105	331627.489	6245463.586	3.287	Road Cover
			3.202	PVC Casing
BH106	331684.03	6245461.203	3.467	
BH107	331731.264	6245491.173	4.32	
BH108	331714.016	6245533.699	4.935	
BH109	331694.186	6245515.801	4.924	
BH110	331661.963	6245491.955	4.888	
BH111	331718.244	6245456.264	3.455	
BH113	331776.03	6245471.041	3.473	
BH114	331703.793	6245481.454	4.335	
MW115	331673.5	6245404.4	2.883	Road Cover
			2.843	PVC Casing
BH116	331707.577	6245414.797	3.382	
BH117	331695.246	6245419.79	3.367	

NOTES

1) THE BOUNDARIES HAVE NOT BEEN MARKED
2) ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY THE OFFICE of NSW LAND REGISTRY SERVICES AND ARE SUBJECT TO FINAL SURVEY
3) ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM **SSM 59268** R.L. **2.221** (A.H.D.) AT THE INTERSECTION OF CANAL AND BURROWS ROADS

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	00/00/00	-	00

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

Registered Surveyor NSW

Client AECOM AUSTRALIA PTY LTD

Drawing title
PLAN OF BORE HOLE & MONITORING WELL LOCATIONS OVER LOT 11 DP 606737 AND LOT 1 DP 1227450 AT No.1-3 BURROWS ROAD, ALEXANDRIA

datum AHD
site Area N/A
LGA SYDNEY

reference number 50937 001MON
scale 1:1250 @A3
date of survey 07/02/20
SHEET 1 OF 1

Calibration Records, 2015 Investigation

Gas Calibration Certificate

Instrument MX6
Serial No. 14042SE-015
Sensors CO, O2, H2S, CH4, PID

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
Pump	Operation		
	Filter		
	Flow		
	Valves, Diaphragm		
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	CO	✓	
	O2	✓	
	H2S	✓	
	CH4		
	PID		
Alarms	Beeper	✓	
	Settings	✓	
Software	Version		
Datalogger	Operation		
Download	Operation		
Other tests:			

Low	High	TWA	STEL
90ppm	400ppm	30ppm	60ppm
20%	24%	N/A	N/A
30ppm	50ppm	10ppm	15ppm
N/A	N/A	N/A	N/A
50ppm	100ppm	10ppm	25ppm

Certificate of Calibration

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

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
CO		100ppm CO	NIST	SY74	100ppm
O2		20.9% Fresh Air		Fresh Air	20.9%
H2S		25ppm H2S	NIST	SY74	25ppm
CH4		60% Methane	NIST	SY23	60% CH4
PID		100ppm Isobutylene	NIST	SY64	100ppm

Calibrated by: Anne Rutlidge

Calibration date: 28/08/2015

Next calibration due: 24/02/2016

Oil / Water Interface Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument Geotech Interface Meter (30M)
Serial No. 4441

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: **Sophie Boler**

Calibration date: **24/08/2015**

Next calibration due: **23/10/2015**

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-105435

airmet

Air-Met Scientific Pty Ltd
1300 137 067

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

Low	High	TWA	STEL
50ppm	100ppm	N/A	N/A

Certificate of Calibration

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

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY64		101.3ppm

Calibrated by: Joanna Wong

Calibration date: 19/08/2015

Next calibration due: 18/09/2015

Oil / Water Interface Meter

Instrument Geotech Interface Meter (30M)
Serial No. 3983

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: **Sophie Boler**

Calibration date: **27/08/2015**

Next calibration due: **26/10/2015**

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-105892

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY64		99.7ppm

Calibrated by: **Joanna Wong**

Calibration date: **19/08/2015**

Next calibration due: **18/09/2015**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 10E101052

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH 7.00		LE1408	pH 7.00
2. pH 10.00		pH 10.00		MH1685	pH 10.04
3. pH 4.00		pH 4.00		MG1348	pH 3.88
4. mV		231.9mV		ML1823/ML1824	231.7mV
5. EC		2.76mS		LK2419	2.76mS
6. D.O		0.00ppm		2810	0.00ppm
7. Temp		21.0°C		MultiTherm	20.9°C

Calibrated by: SB **Sophie Boler**

Calibration date: **24/08/2015**

Next calibration due: **23/09/2015**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 13C100783

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH 7.00		LE1048	pH 7.02
2. pH 10.00		pH 10.00		MH1685	pH 9.96
3. pH 4.00		pH 4.00		MG1348	pH 3.95
4. mV		230.7mV		ML1823/ML1824	230.3mV
5. EC		2.76mS		LH1691	2.76mS
6. D.O		0 ppm		2810	0.00ppm
7. Temp		21.5°C		MultiTherm	21.5°C

Calibrated by: SB **Sophie Boler**

Calibration date: **27/08/2015**

Next calibration due: **23/02/2016**

AECOM

16;#Australia New Zealand|a541b326-6e42-45fc-a7d5-d797f3cb72ce

PID Calibration Form

Q4AN(EV)-336-FM12

Project Name	BURRONS INDUSTRIAL
Project Number	60438840
Frequency	☑ Daily on User ☐ Twice Daily

PID Serial No.	Date/Time	Hired Equipment Y/N (if yes, attach calibration sheet)	Fresh Air Cal. OK Y/N	Gas	Calibrate OK Y/N	Filter Change Required Y/N	Pump Clean Required Y/N	Charging Required Y/N	Comments	Name (print)	Signature
T-105892	22/8/15	y	y	Isobutylene	y	N	N	N		K. PIGRAM	K Pigram

Calibration Records, Drilling

Calibration & Service Report
PID

Company:	Active Environmental Solutions Hire	**Manufacturer:**	RAE Systems	**Serial #:**	592-905200
Contact:	William Pak/Milenko Sisic	**Instrument:**	MiniRAE 3000	**Hire #:**	986
Address:	Unit 16, 191 Parramatta Road	**Model:**	PGM 7320	**Client:**	Kurtis Wathen
	AUBURN NSW 2144	**Configuration:**	PID (10.6eV)	**Company:**	AECOM Australia
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Wireless:**	-	**Project #:**	60623599 Task 1.1
Email:	hire@aesolutions.com.au	**Network ID:**	-	**Notes:**	

Item	Test	Pass/Fail	Comments
Battery	Li Ion	✓	
Charger	Charger, Power supply	✓	
	Cradle	✓	
Pump	Flow	✓	>500 mL/min
Filter	Filter, fitting, etc	✓	
Alarms	Audible, visual, vibration	✓	
Display	Operation	✓	
PCB	Operation	✓	
Connectors	Condition	✓	
Firmware	Version	✓	2.16
Datalogger	Operation	✓	
Monitor Housing	Condition	✓	
Case	Condition/Type	✓	
Sensors			
PID	Lamp	✓	
PID	Sensor	✓	
THP	Sensor	✓	

Engineer's Report

Setup, service and calibration for hire

Calibration Certificate

Sensor	Type	Serial No:	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
Oxygen								
LEL								
PID	10.6eV	-	Isobutylene	100ppm	A0442963	1.00	0	100ppm
Toxic 1								
Toxic 2								
Toxic 3								
Toxic 4								
Toxic 5								

Calibrated/Repaired by: William Pak

Date: 22.01.2020

Next due: 22.07.2020

Calibration Records, MW Development

Calibration & Service Report
Water Quality Meter

Company:	Active Environmental Solutions Hire	**Manufacturer:**	Heron	**Serial #:**	01- 7622
Address:	Unit 16, 191 Parramatta Road AUBURN NSW 2144	**Instrument/Model:**	H.OIL Interface Probe 30 m	**Tape Length:**	30m
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Client Company:**		**Client Email:**	
Email:	hire@aesoultions.com.au	**Client Name:**		**Client Phone:**	

Equipment Check

30 m Heron Interface Probe

Customer:		**Manufacturer:**	Heron	
Contact:		**Instrument:**	H.OIL Interface Probe	
Order:		**Serial #:**	01-7622	
		Cable length:	30 m	
Item	**Test**	**Pass**	**Comments**	
Battery	Voltage (9v battery)	✓	Voltage above 7.9v	
	Fuses, circuit board	✓		
Probe	Decontaminated	✓		
	Condition	✓	Good, clean	
	Operation	✓	Responding	
Connectors	Condition	✓		
Tape Check	Decontaminated	✓		
	Checked for cuts	✓	Good condition	
Speaker	Operation	✓		
Light	Operation	✓		
Instrument Test	Water	✓	Surface level using tap water	
	Oil	✓	Surface level using Petrol and tap water	
This is to certify that the above instrument has been checked and is in good working order.				

Checked By: Milenko Sisic

Check Date: 05/02/2020 **Due for Check:** 05/08/2020

Calibration & Service Report
Water Quality Meter

Company:	Active Environmental Solutions Hire	**Manufacturer:**	YSI	**Serial #:**	18C104584
Address:	Unit 16, 191 Parramatta Road AUBURN NSW 2144	**Instrument/Model:**	WQM Professional Plus w/ Quatro Cable	**Cable Length:**	1m
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Client Company:**		**Client Email:**	
Email:	hire@aesoultions.com.au	**Client Name:**		**Client Phone:**	

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 60 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	
pH slope		✓	55 to 60 mV/pH; ideal 59mV
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	Variance range ± 20mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	Galvanic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

Instrument Readings

Parameter	Standards	Reference	Calibration Point	Before	After	Units
Temperature	Center 370 Thermometer	Room Temp.	23.9	N/A	24.0	°C
pH	pH 4.00	336722	4.01	4.24	4.01	pH
pH	pH 7.00	329744	7.00	7.21	7.00	pH
Conductivity	2760 µs/cm at 25°C	332208	2760	2761	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	340526 & 340529	233.3	251.8	233.3	mV
Zero Dissolved Oxygen	NaSO3 in distilled water	5928	0.0	1.9	0.0	%
100% Dissolved Oxygen	100% Air Saturation	Fresh Air	100.0	87.8	100.0	%

Calibrated By: Milenko Sisic

Calibration Date: 05/02/2020 **Calibration Due:** 05/08/2020

Calibration Records, Gas Monitor

CERTIFICATION OF CALIBRATION

4533

Date Of Calibration: 11-Mar-2019

Certificate Number: G505789_1/22717

Issued by: QED Environmental Systems Ltd.

Customer: **Thermo Fisher Scientific Australia Pty L**
5 Caribbean Drive PO Box 9092 Scoresby
VIC 3179 AUSTRALIA

Description: Gas Analyser

Model: GA5000

Serial Number: G505789

UKAS Accredited results:

Results after adjustment :

Methane (CH_4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.41
15.0	14.9	0.64
49.9	49.5	0.94

Carbon Dioxide (CO_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.0	0.43
15.0	14.9	0.70
50.1	50.2	1.1

Oxygen (O_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.3	21.3	0.31

The inwards assessment was carried out 11-Dec-2018.

The maximum adjustment is larger than the inwards assessment uncertainty.

Inwards assessment data is available if requested.

All concentrations are molar.

CH_4, CO_2 readings recorded at : 32.6 °C ± 2.5 °C

O2 readings recorded at : 22.4 °C ± 2.5 °C

Barometric Pressure : 1013 mbar ± 4 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure LP004.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance:101 IGC Instance:101

www.qedenv.com +44 (0) 333 800 0088 sales@qedenv.co.uk

QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

CERTIFICATION OF CALIBRATION

4533

Date Of Calibration: 11-Mar-2019

Certificate Number: G505789_1/22717

Issued by: QED Environmental Systems Ltd.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrations marked 'Non-UKAS Accredited results' on this certificate have been included for completeness.

Non-UKAS accredited results after adjustment:

Barometer (mbar)	
Reference	**Instrument Reading**
1013	1014

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	507	515
H_2S	251	251

Internal Flow	
Applied (l/hr)	**Instrument Reading (l/hr)**
5	5.2
10	10.1

Date of Issue : 12-Mar-2019 **Approved by Signatory**

Dawn Hemings

Laboratory Inspection

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance: 101 IGC Instance: 101

www.qedenv.com +44 (0) 333 800 0088 sales@qedenv.co.uk

QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

Calibration & Service Report
Gas Monitor

Company: Active Environmental Solutions Hire

Contact: Aleks Todorovic
Address: 2 Merchant Avenue
Thomastown Vic 3074
Phone: 03 9464 2300 | **Fax**: 03 9464 3421
Email: Hire@aesolutions.com.au

Manufacturer:	Geotechnical Instruments Ltd	**Serial #:**	G505789
Instrument:	Portable Gas Analyser	**Asset #:**	-
Model:	GA5000	**Part #:**	-
Configuration:	CH4; CO2: O2; H2S; CO	**Sold:**	-
Wireless:	-	**Last Cal:**	-
Network ID:	-	**Job #:**	-
Unit ID:	-	**Cal Spec:**	Std

Item	Test	Pass/Fail	Comments
Battery	Li Ion	✓	
Charger	Charger, Power supply	✓	
Internal Flow Pod	Zeroed	✓	
Pump	Flow	✓	>600 mL/min
Filter	Filter, fitting, etc	✓	
Tubing	Set of 3 tubes	✓	
Display	Operation	✓	
PCB	Operation	✓	
Connectors	Condition	✓	
Firmware	Version	✓	1.14.12
Datalogger	Operation	✓	
Monitor Housing	Condition	✓	
Case	Condition/Type	✓	
Sensors			
Oxygen		✓	
CH4		✓	
CO2		✓	
H2S		✓	
CO		✓	
Toxic 3		-	
Toxic 4		-	
Toxic 5		-	

Engineer's Report- Calibration Certificate

Setup, service and calibration for hire

Sensor	Span Gas	Concentration	Traceability Lot #	CF	Reading
					Span
Oxygen	Nitrogen	99.99% N2 (0 % O2)	WO213376-2	1	0.0%
	Fresh air	20.9	Fresh Air	1	20.9%
CH4	Nitrogen	99.99% N2 (0% CH4)	WO213376-2	1	0.0%
	Methane	60%	2174-1-2	1	60.0%
CO2	Nitrogen	99.99% N2 (0% CO2)	WO213376-2	1	0.0%
	Carbon Dioxide	40%	2174-1-2	1	40.0%
CO	Nitrogen	99.99% N2 (0 PPM CO)	WO213376-2	1	0 PPM
	Carbon Monoxide	100 PPM	WO183929-19	1	100 PPM
H2S	Nitrogen	99.99% N2 (0 PPM H2S)	WO213376-2	1	0 PPM
	Hydrogen Sulfide	25 PPM	WO183929-19	1	25 PPM

Calibrated/Repaired by: Milenko Sisic

Date: 18/02/2020 Next due: 18/08/2020

Calibration Records, GME

Calibration & Service Report
Water Quality Meter

Company:	Active Environmental Solutions Hire	**Manufacturer:**	Geotech	**Serial #:**	5008
Address:	Unit 16, 191 Parramatta Road AUBURN NSW 2144	**Instrument/Model:**	51350021	**Cable Length:**	4.5m
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Client Company:**		**Client Email:**	
Email:	hire@aesoultions.com.au	**Client Name:**		**Client Phone:**	

Equipment Check

Geopump Peristaltic Pump

Customer:		**Manufacturer:**	Geotech
Contact:	Milenko	**Instrument:**	Peristaltic Pump
Order:		**Serial #:**	5008
		Head Serial #:	D18003992
		Cable length:	4.5m

Item	Test	Pass	Comments
Battery	12 Voltage	✓	Voltage above 13 V
	Fuses	✓	
	Capacity	✓	
Pump	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
	0.5 m Silicon Tubing	✓	New Tubing
Charger	Condition	✓	
Hard Case	Condition	✓	
Instrument Test	Operation checked	✓	
Instruction manual	Included	✓	

Comments

New Unit.

This is to certify that the above instrument has been checked and is in good working order.

Checked By: Milenko Sisic

Check Date: 11/02/2020 **Due for Check:** 11/08/2020

Calibration & Service Report
Water Quality Meter

Company:	Active Environmental Solutions Hire	**Manufacturer:**	Solinst	**Serial #:**	312417
Address:	Unit 16, 191 Parramatta Road AUBURN NSW 2144	**Instrument/Model:**	122 Interface Probe 30m	**Tape Length:**	30m
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Client Company:**		**Client Email:**	
Email:	hire@aesoultions.com.au	**Client Name:**		**Client Phone:**	

Equipment Check

Oil/Water Interface Meter - Solinst 122 Interface Meter

Customer:		**Manufacturer:**	Solinst Interface Meter
Contact:	Milenko	**Instrument:**	Model 122
Order:		**Serial #:**	312417
		Tape length:	30m

Item	Test	Pass	Comments
Battery	Voltage (2 x 9v battery)	✓	Voltage above 7.9v
	Fuses	✓	
	Capacity	✓	
Probe	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	At surface level	✓	Tap water and Citronella oil
Speaker	Operation	✓	

Comments

Spare batteries included.

This is to certify that the above instrument has been checked and is in good working order.

Checked By: Milenko Sisic

Check Date: 11/02/2020 **Due for Check:** 11/08/2020

Calibration & Service Report
Water Quality Meter

Company:	Active Environmental Solutions Hire	**Manufacturer:**	YSI	**Serial #:**	15H103057
Address:	Unit 16, 191 Parramatta Road AUBURN NSW 2144	**Instrument/Model:**	WQM Professional Plus w/ Quatro Cable	**Cable Length:**	1m
Phone:	02 9716 5966 | **Fax**: 02 9716 5988	**Client Company:**		**Client Email:**	
Email:	hire@aesoultions.com.au	**Client Name:**		**Client Phone:**	

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 60 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	New probe fitted
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	
pH slope		✓	55 to 60 mV/pH; ideal 59mV
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	New probe fitted
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	Variance range ± 20mV
Conductivity			
Condition		✓	Good, Clean.
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	New probe fitted
DO sensor in use		✓	Polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

				Instrument Readings		
Parameter	**Standards**	**Reference**	**Calibration Point**	**Before**	**After**	**Units**
Temperature	Center 370 Thermometer	Room Temp.	21.7	N/A	21.8	°C
pH	pH 4.00	336722	4.01	3.98	4.01	pH
pH	pH 7.00	329744	7.00	6.95	7.00	pH
Conductivity	2760 µs/cm at 25°C	332208	2760	2759	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	340526 & 340529	235.3	233.4	235.3	mV
Zero Dissolved Oxygen	NaSO3 in distilled water	5928	0.0	-0.1	0.0	%
100% Dissolved Oxygen	100% Air Saturation	Fresh Air	100.0	114.2	100.0	%

Calibrated By: Milenko Sisic

Calibration Date: 11/02/2020 **Calibration Due:** 11/08/2020

MW Development & GME Field Sheets

AECOM

Site Contamination Analysis – Water Quality Sampling Form

WELL DEVELOPMENT

Project Name:	BULLOWS INDUSTRIAL	Project Number: 60438840	Well No: MW21
Recorded By:	KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date:	25.08.15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC): 3.895	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 2.024	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC): 3.600
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☒ Other PARAMETER STABILISATION	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(____ - ____) x (____/2)^2 x 0.00314] + [0.2 x (0.00314 x ____^{2} x ____) – 0.2 x (0.00314 x ____^{2} x ____)] = ____

TD WL D borehole radius TD-WL well radius TD-WL 1 BV (L)

Start Time:	Stop Time:	Elapsed Time:	Initial depth to water: (with pump in well)	Final depth to water: (after sampling, with pump in well)
0838	0905			

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
0841		1.0	0.10	2444	7.03	-82.5	18.3	2.025	
0844		2.0	0.19	1879	7.01	-60.1	18.1	2.026	
0847		3.0	0.31	1808	7.10	-63.4	17.8	2.026	→ Beginning slightly turbid
0850		4.0	0.34	1190	7.12	-61.6	17.9	2.025	
0853		5.0	0.80	1040	7.11	-45.7	17.8	2.025	
0856		6.0	0.64	995	7.08	-51.1	17.8	2.026	→ Becoming clear slight brown tinge v. slight turbidity
0859		7.0	0.86	969	7.04	-48.2	17.7	2.025	
0902		8.0	0.96	957	7.04	-44.9	17.7	2.026	
		↓ clear @ 8L							
Groundwater equilibrium reached at			± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): D. grey/brown, moderate-highly turbid

Observations during sampling (turbidity, colour, odour, sheen): As above moderately turbid >1L

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☐ Same as purge method ☐ Other: very soft hose

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

WELL DEVELOPMENT

Project Name: BURROWS INDUSTRIAL	Project Number: 60438840	Well No: MW19
Recorded By: KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 25-8-15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC): 3.920	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 2.464	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC): 3.700
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☒ Other PARAMETER	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

SIMULATION

[(____ - ____) x (____/2)^2 x 0.00314] + [0.2 x (0.00314 x ____^{2} x ____) – 0.2 x (0.00314 x ____^{2} x ____)] = ____

TD WL D borehole radius TD-WL well radius TD-WL 1 BV (L)

Start Time: 0920 Stop Time: 0950 Elapsed Time: Initial depth to water: (with pump in well) Final depth to water: (after sampling, with pump in well)

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
0923		1.0	0.28	1145	6.77	29.9	19.4	2.465	
0926		2.0	0.42	1154	6.75	29.2	19.3	2.465	
0929		3.0	0.25	1072	6.73	77.5	19.0	2.465	⇒ Becoming clear, V. slight turbidity
0932		4.0	0.23	1078	6.72	79.4	19.1	2.465	
0935		5.0	0.49	1063	6.73	60.7	19.2	2.464	
0938		6.0	0.28	1086	6.71	71.6	19.0	2.466	
0941		7.0	0.40	1076	6.71	74.8	19.0	2.465	
0944		8.0	0.29	1067	6.71	78.3	19.0	2.466	
0947		9.0	0.28	1067	6.71	78.7	19.0	2.466	
Groundwater equilibrium reached at		± 10%		± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): Brown, slight-moderate turbidity, no odour, no sheen

Observations during sampling (turbidity, colour, odour, sheen): Becoming clearer, slight turbidity

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☐ Same as purge method ☐ Other: soft hose

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

WELL DEVELOPMENT

Project Name: BURROWS INDUSTRIAL	Project Number: 60438840	Well No: MW17
Recorded By: DAEP	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 25.8.15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☐50 ☐100 ☐Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC): 4.091	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 3.061	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC): 3.900
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☒ Other PARAMETER	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(____ - ____) x (____/2)^2 x 0.00314] + [0.2 x (0.00314 x ____^{2} x ____) – 0.2 x (0.00314 x ____^{2} x ____)] = ____

TD WL D borehole radius TD-WL well radius TD-WL 1 BV (L)

Start Time: 1026 Stop Time: 1055 Elapsed Time: Initial depth to water: (with pump in well) Final depth to water: (after sampling, with pump in well)

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
1029		1.0	0.01	1560	6.97	-132.8	21.4	3.174	
1032		2.0	0.08	1761	6.88	-115.3	22.4	3.177	
1035		3.0	0.06	1653	6.87	-110.4	22.0	3.168	→ clear v
1038		4.0	0.08	1509	6.85	-105.2	21.6	3.174	slightly
1041		5.0	0.09	1423	6.83	-102.3	21.9	3.168	turbid
1044		6.0	0.10	1385	6.83	-103.8	22.0	3.172	
1047		7.0	0.13	1367	6.83	-102.7	21.8	3.174	
1050		8.0	0.15	1363	6.82	-99.0	21.6	3.174	
1053		9.0	0.18	1357	6.82	-97.0	21.8	3.176	
Groundwater equilibrium reached at		± 10%		± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): D. grey/brown, highly turbid, no odour, no

Observations during sampling (turbidity, colour, odour, sheen): As above, becoming moderate – sheen & highly turbid

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☐ Same as purge method ☐ Other: slightly soft base

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

Project Name: BURRONS INDUSTRIAL	Project Number: 60538840	Well No: MW16
Recorded By: KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 25.08.15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC): 4.491	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 3.171	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC): 4.200
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☒ Other PARAMETER STABILISATION	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(_____ - _____) x (_____/2)^2 x 0.00314] + [0.2 x (0.00314 x _____^{2} x _____) – 0.2 x (0.00314 x _____^{2} x _____)] = _____

TD WL D borehole radius TD-WL well radius TD-WL 1 BV (L)

Start Time: 1103	Stop Time: 1150	Elapsed Time:	Initial depth to water: (with pump in well)	Final depth to water: (after sampling, with pump in well)

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
1106		1.0	0.26	1830	7.09	-10.1	22.3	3.470	
1109		2.0	0.27	2013	6.91	-31.5	22.4	3.704	
1112		3.0	1.20	2379	6.84	-46.8	22.5	3.913	
1115		4.0	0.05	2538	6.90	-48.0	22.5	4.173 → DRY	
~~1118~~ 1125		5.0	1.03	2982	6.96	-39.7	22.6	3.726	WAIT FOR RECHARGE
~~1121~~ 1128		6.0	1.34	2720	6.91	-48.8	22.6	3.924	
~~1124~~ 1134		7.0	1.36	2708	6.91	-46.7	22.6	3.665	
~~1127~~ 1137		8.0	1.08	2686	6.91	-48.4	22.7	3.645 → DRY	
~~1130~~ 1140		9.0	0.09	2190	6.90	-57.9	22.8	3.710	WAIT FOR RECHARGE
1143		10.0	1.35	2440	6.94	-54.1	22.1	3.921	
1146		11.0	1.36	2415	6.94	-52.1	22.0	4.103	PULL UP TUBING
		↳ WELL DRY @ 11.5L							
Groundwater equilibrium reached at			± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): D grey/brown highly turbid, no odour, no sheen

Observations during sampling (turbidity, colour, odour, sheen): decreasing turbidity ↓ clear @ 9L

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

PVC CUTTINGS

Well Sampling

Sampling Method ☐ Same as purge method ☐ Other:.....

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

WELL DEVELOPMENT

Project Name: BURROWS INDUSTRIAL	Project Number: 60438840	Well No: MW1
Recorded By: KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 25.8.15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC): 3.454	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 1.030	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC): 3.200
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☒ Other PARAMETER STABILISATION	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(TD - WL) x (D/2)^2 x 0.00314] + [0.2 x (0.00314 x borehole radius^2 x TD-WL) – 0.2 x (0.00314 x well radius^2 x TD-WL)] = 1 BV (L)

Start Time: 1155 Stop Time: 1227 Elapsed Time: Initial depth to water: (with pump in well) Final depth to water: (after sampling, with pump in well)

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
1158		1.0	0.22	1204	7.13	-105.5	19.9	1.045	
1201		2.0	0.23	1177	7.02	-111.4	19.8	1.040	
1204		3.0	0.30	1159	7.03	-112.4	19.7	1.042	⇒ clear, no turbidity
1207		4.0	0.41	1106	7.07	-116.5	19.6	1.043	
1210		5.0	0.56	1021	7.12	-116.5	19.7	1.039	
1213		6.0	0.58	989	7.12	-113.8	19.7	1.037	
1216		7.0	0.57	990	7.12	-111.9	19.7	1.037	
1219		8.0	0.53	1006	7.08	-106.8	19.6	1.037	
1222		9.0	0.50	1015	7.06	-104.3	19.5	1.038	
1225		10.0	0.48	1019	7.05	-102.8	19.5	1.037	
Groundwater equilibrium reached at			± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): Grey/brown, slightly turbid, no odour, no

Observations during sampling (turbidity, colour, odour, sheen): Becoming clear to slight grey/brown tinge

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☐ Same as purge method ☐ Other: Water in rainbow, very soft base

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

Project Name: BULLOWS INDUSTRIAL	Project Number: 60738840	Well No: MW21
Recorded By: KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 31.8.15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC):	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 2.026	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC):
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(____ - ____) x (____/2)^2 x 0.00314] + [0.2 x (0.00314 x ____^{2} x ____) – 0.2 x (0.00314 x ____^{2} x ____)] = ____

TD WL D borehole radius TD-WL well radius TD-WL 1 BV (L)

Start Time:	Stop Time:	Elapsed Time:	Initial depth to water: (with pump in well)	Final depth to water: (after sampling, with pump in well)
0815	0840			

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
0818		0.5	0.17	1293	6.83	17.0	17.2	2.034	
0821		1.0	0.10	1263	6.72	5.3	17.3	2.035	
0824		1.5	0.04	1216	6.70	7.1	17.1	2.034	
0827		2.0	0.02	1198	6.71	2.8	17.2	2.034	
0830		2.5	0.09	1125	6.74	3.5	17.1	2.034	
0833		3.0	0.06	932	6.75	9.4	16.8	2.035	
0836		3.5	0.06	841	6.74	10.6	16.9	2.035	
0839		4.0	0.07	806	6.73	11.2	16.9	2.035	
Groundwater equilibrium reached at		± 10%		± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): brown, slightly turbid, no odour, no sheen

Observations during sampling (turbidity, colour, odour, sheen): becoming clear, no turbidity, no odour, no sheen

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☒ Same as purge method ☐ Other:.....

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments
MW21	2xv; 1x1	TRH, BTEXN, PAH	H_2SO_4; Nil	ALS	
MW21	1bp	metals	HNO_3	ALS	Field filtered

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

SAMPLE BOTTLE TIME = 0900

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

Project Name: BURDONS INDUSTRIAL	Project Number: 60438840	Well No: MW19
Recorded By: KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 31.8.15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC):	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 2.449	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC):
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(____ (TD) - ____ (WL)) x (____ (D) /2)^2 x 0.00314] + [0.2 x (0.00314 x ____ (borehole radius)^2 x ____ (TD-WL)) – 0.2 x (0.00314 x ____ (well radius)^2 x ____ (TD-WL))] = ____ 1 BV (L)

Start Time: 0856	Stop Time:	Elapsed Time:	Initial depth to water: (with pump in well)	Final depth to water: (after sampling, with pump in well)

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
0859		0.5	0.34	812	6.50	72.7	17.7	2.450	
0902		1.0	0.17	828	6.55	67.4	18.3	2.452	
0905		1.5	0.07	827	6.59	65.5	18.3	2.454	
0908		2.0	0.07	815	6.58	64.6	18.0	2.454	
0911		2.5	0.04	816	6.51	66.4	18.0	2.455	
0914		3.0	0.03	820	6.52	66.8	18.3	2.456	
0917		3.5	0.03	822	6.58	63.9	18.5	2.456	
0920		4.0	0.02	820	6.58	63.4	18.4	2.456	
Groundwater equilibrium reached at			± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): clear, no turbidity, no odour, no sheen

Observations during sampling (turbidity, colour, odour, sheen): As above

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☒ Same as purge method ☐ Other:.....

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments
MW19	2x; 1x250	TPH, BTEXN, PAHs	H_2SO_4; Nil	AIS	
MW19	1x500	Metals	HNO_3	AIS	Field Filtered

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

SAMPLE BOTTLE TIME = 0945

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

Project Name: BULONG INDUSTRIAL	Project Number: 60438840	Well No: MW16
Recorded By: KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 31.8.15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC):	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 3.160	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC):
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(____ (TD) - ____ (WL)) x (____ (D)/2)^2 x 0.00314] + [0.2 x (0.00314 x ____ (borehole radius)^2 x ____ (TD-WL)) – 0.2 x (0.00314 x ____ (well radius)^2 x ____ (TD-WL))] = ____ 1 BV (L)

Start Time	Stop Time	Elapsed Time	Initial depth to water: (with pump in well)	Final depth to water: (after sampling, with pump in well)
1037				

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
1040		0.5	0.29	2224	6.88	72.1	21.5	3.420	
1043		1.0	0.09	2189	6.89	63.5	21.4	3.540	
1046		1.5	0.07	2062	6.88	41.1	21.5	3.730	
1049		2.0	0.18	2100	6.88	30.7	21.5	3.820	
1052		2.5	0.27	2110	6.87	22.3	21.6	3.913	
1055		3.0	0.63	2135	6.87	20.2	21.7	4.006	
1058		3.5	0.86	2134	6.88	18.1	21.7	4.113	
1101		4.0	0.92	2206	6.88	17.6	21.7		
Groundwater equilibrium reached at			± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): clear, no turbidity, no odour, no sheen

Observations during sampling (turbidity, colour, odour, sheen): As above

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☒ Same as purge method ☐ Other:.....

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments
MW16	2xV; 1xL	TRH, BTEXN, PAHs	H_2SO_4; Nil	AIS	
MW16	1xP	Metals	HNO_3	AIS	Field filtered

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

SAMPLE BOTTLE TIME = 1115

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

AECOM

Site Contamination Analysis – Water Quality Sampling Form

Project Name: BULLENS INDUSTRIAL	Project Number: 60438840	Well No: MW17
Recorded By: KATE P	Well Type: ☒ Monitor ☐ Extractor ☐ Other	
Date: 31-8-15	Well Material: ☒ PVC ☐ SS ☐ Other	

Well Purging

Well Details	Purge Method
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other:	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other:
Total Depth of Well (TD in m BTOC):	☒ Pump – Type: ☐ Submersible ☐ Bladder ☒ Other: PERISTALTIC
Water Level Depth (WL in m BTOC): 3.065	**Pump Intake Setting**
Number of bore volumes (BV) to be purged (# VOLS)	Depth pump set (m BTOC):
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Screen Interval (m BTOC) Top : Bottom:

Purge Volume Calculation: (accounting for porosity of packing material surrounding well in bore hole)

[(_____ - _____) x (_____/2)^2 x 0.00314] + [0.2 x (0.00314 x _____^{2} x _____) – 0.2 x (0.00314 x _____^{2} x _____)] = _____

TD WL D borehole radius TD-WL well radius TD-WL 1 BV (L)

Start Time: 1108	Stop Time:	Elapsed Time:	Initial depth to water: (with pump in well)	Final depth to water: (after sampling, with pump in well)

Field Parameter Measurements

Actual Time	Elapsed minutes	Purge Vol (L)	DO (mg/L)	EC. (µS/cm)	pH	Redox (mV)	Temp (°C)	SWL (m BTOC)	Pump setting (rate)
1111		0.5	0.18	1600	6.86	-56.6	21.7	3.076	
1114		1.0	0.06	1522	6.81	-57.9	21.5	3.084	
1117		1.5	0.02	1349	6.73	-52.6	21.3	3.089	
1120		2.0	0.00	1279	6.72	-51.3	21.3	3.089	-0.1 L/M
1123		2.5	—	1201	6.69	-48.4	21.1	3.089	-0.2 L/M
1126		3.0	—	1259	6.68	-46.6	21.0	3.089	
Groundwater equilibrium reached at			± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	(3 consecutive measurements)	

Observations in first 1L purged (turbidity, colour, odour, sheen): clear, slight grey/brown tinge, no odour, no sheen

Observations during sampling (turbidity, colour, odour, sheen): becoming clear, no turbidity, sheen

Discharge water disposal: ☒ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☐ Other

Well Sampling

Sampling Method ☒ Same as purge method ☐ Other:.....

Sample Distribution Sample Series:

Sample No.	Vol/Cont.	Analysis	Preservatives	Lab	Comments
MW17	2x V; 1x d	TPH, BTEX, PAHs	HCl; NC	AIS	
MW17	1x p	Metals	HNO3	AIS	field filtered

Quality Control Samples

QA/QC Sample ID	Sample Type (duplicate, etc)	Parent Sample ID

Sampling notes: well condition, weather, change in pump depth, equipment difficulties

SAMPLE BOTTLE TIME = 1145

Do ECs need review? ☐ Yes ☐ No Are salinity corrections warranted?: ☐ Yes ☐ No

Note: m BTOC = m below top of casing

Soil Bore Log

AECOM

FIELD LOG OF BORING NO. SB - _____ / MONITOR WELL NO. MW - _____

Project Number: _____ Project Name: _____ Logged By: _____

Date Completed: ____/____/____ Drill Rig Type: _____ Drilling Contractor: _____

Depth (metres)	Groundwater Encountered	PID (ppm)	SPT COUNTS (150 mm, 150 mm, 150 mm)	Sample Type (see below)	SOIL TYPE: C = clay, M = silt, S = sand, G = gravel; eg. silty sand = MS	USCS Group Symbol	CONSISTENCY: CLAY (v.soft, soft, medium stiff, stiff, v.stiff, hard) / SAND (v.loose, loose, m.dense, dense, v.dense)	MOISTURE: S = saturated, V = very moist, M = moist, sl = slightly moist, X = dry	PLASTICITY: VH = v.high, H = high, M = medium, L = low	COLOUR eg. black, grey, red, orange, yellow - dark, pale, mottled	MINOR COMPONENTS & COMMENTS eg. odours, PSH, ash, slag, gravel	Sampling Interval
SURFACE COVER: [ ] CONCRETE____(mm) [ ] BITUMEN____(mm) [ ] GRAVEL [ ] GRASS [ ] OTHER: _____												
Start		1146				SM		1.096				
		MW01										
Time		(L)	DO		EC		pH	Redox		Temp	SW	
1149		0.5	0.07		1039		6.90	-78.0		20.0	1.096	
1152		1.0	0.01		1032		6.82	-73.9		20.0	1.096	
1155		1.5	—		1013		6.77	-68.4		19.7	1.096	-0.2/1.00
1158		2.0	—		1009		6.77	-69.8		19.7	1.096	-0.2/1.00
1201		2.5	—		1004		6.78	-65.4		19.6	1.096	-0.2/1.00
1204		3.0	—		1000		6.79	-65.0		19.6	1.096	-0.3/1.00
grey/brown, slightly turbid, no odour, no sheen												
clear from 1.5L												

DRILLING METHOD: [ ] Solid Flight Augers: ____(mm) dia. [ ] Hollow Flight Augers: ____(mm) dia. Hand Auger____(mm) dia. [ ] Push Tube [ ] Test Pit

BOREHOLE ABANDONMENT: [ ] Backfill & Compact [ ] Resurface (Concrete/ColdMix) [ ] Monitor Well [ ] Other: _____

WELL CONSTRUCTION DETAILS:	Well diameter: [ ] 50mm [ ] 100mm [ ] other: ____ Well Depth: _____(m) Screen from: _____(m) up to _____ (m) Riser from: _____(m) up to _____ (m) Well Cover: [ ] Flush mounted [ ] Stickup [ ] Padlocked	Gravel Pack from: _____ (m) up to _____ (m) Type: _____ Bentonite Seal from: _____ (m) up to _____ (m) Pellet Size: _____(mm) Backfill from: _____ (m) up to _____ (m) Type: _____ Grout from: _____ (m) up to _____ (m) Type: _____
WELL DEVELOPMENT DETAILS:	Development Method: _____ Developed By: _____ Date: ____/____/____	
ADDITIONAL COMMENTS:	BOTTLE TIME = 1230 QC200 dup MW01 QC201 Lysate	

Sample Type Symbols: X = Auger I = SPT/Push Tube G = grab sample

TB Trip Blank

FIELDWORK QUALITY MANUAL

MW02

FQM-5.05-F1 – GROUNDWATER SAMPLING AND PURGING RECORD

Bore ID:

Project Name:	Goodman Einasleigh	Project Number:	G06235ag	PM Name:	A L.	Sample Date:	7/2
Client:	Goodman	Project Location:	1-3 Bypass Rd	Fieldwork Staff:	R Panozzo	Well Development or Well Sampling Event? (circle)	

GENERAL BORE INFORMATION

Date of GW Level:	7-2-20	Bore Radius (mm):	50
Depth to GW (m-pvc):	1.145	Screen Interval (m):	
Bore Depth (m-pvc):	4.28	Casing Radius (mm):	
Depth to Product (m-pvc):		Cover Type (gatic/stickup):	
Product Thickness (m):		Bore Locked (YES/NO):	
		Key Type (if applicable):	Allen
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)	

PARAMETER INFO.

Chem Kit Serial No.:	17C10 46847
Chem Kit Model:	YSI Pro
Corrected Redox:	Y / (N)
(The correction to apply is probe dependent)	
Parameter method:	☐ Downhole ☑ Retrieved

DECONTAMINATION

- ☑ Decontaminated
- ☐ Dedicated
- ☐ Disposable
- ☐ Other (specify)

SAMPLING METHOD:

Low Flow: Pump rate:

Intake depth:

- ☐ Bailer ☐ Hydrasleeve
- ☐ Peristaltic Pump ☐ Waterra
- ☐ Other (specify)

Total purged volume (L):

HYDRASLEEVE INFO.

Hydrasleeve Size:	Monitoring sequence followed (number in order):
Hydrasleeve Type:	
Sampling Depth (m-pvc):	Gauging
Hydrasleeve Install time:	Hydrasleeve in
Sampling Start Time:	Hydrasleeve out
	Parameters

# of purge volumes removed:

WATER QUALITY PARAMETERS

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
1133	0.5	[illegible]		0	1147	7.41	-99.3	23.4	Black / dark grey NOIS M turbidity
1135	[illegible]	1.145		0.12	1325	7.25	-85.3	23.3	"
1137	[illegible]	1.145		0	1707	7.34	-127.4	23.1	"
1140	20	1.145		0	1401	7.30	-125.4	23.3	Grey NOIS, m-M turbidity
1142	25	1.149		0	1416	7.26	-126.4	23.4	clearing, NOIS L-m turbidity
1143	30	1.145		0	1500	7.34	-132.4	23.1	Grey, NOIS m-M turbid
1145	35	1.145		0	2160	7.24	-130.4	23.3	
				[illegible]					
1152	40	1.145		0.29	2066	7.20	-131.7	23.1	
1156	45	1.142		0	1414	7.24	-121.5	23.2	Clear, NOIS, M turbidity, grey
1159	55	1.141		0	1446	7.24	-130.0	23.3	"
	60	1.141		0.01	1447	7.24	-131.1	23	"
1213	65	1.141		0.01	1430	7.30	-101.2	23.2	"
		Acceptable Parameter Range:		± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

ANALYTES SAMPLED FOR:

Field Filtered:

Unfiltered:

BOTTLES COLLECTED

	x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)
	x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic

QA/QC INFORMATION

FIELD COMMENTS

Bore volume calculation, bore condition, fate of tubing, redox correction etc..

Approval and Distribution

Fieldwork Staff Signature	Date 7/2	Checker Name and Signature	Date
Project Manager Signature	Date	Distribution: Project Central File	

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FIELDWORK QUALITY MANUAL

MW102

FQM-5.05-F1 – GROUNDWATER SAMPLING AND PURGING RECORD

Bore ID:

Project Name:		Project Number:	60623509	PM Name:	AL	Sample Date:	7/12
Client:	Goodman	Project Location:	1-3 Burrows Rd	Fieldwork Staff:	R. Panozzo	Well Development or Well Sampling Event? (circle)	

GENERAL BORE INFORMATION		PARAMETER INFO.	DECONTAMINATION	SAMPLING METHOD:	HYDRASLEEVE INFO.	
Date of GW Level: 7/12	Bore Radius (mm):	Chem Kit Serial No.: 18C109C889	☐ Decontaminated	Low Flow: Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 1.141	Screen Interval (m):	Chem Kit Model: YSI pro	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 4.28	Casing Radius (mm):	Corrected Redox: Y / ~~N~~	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole ☑ Retrieved		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):					Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

WATER QUALITY PARAMETERS

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
1215	70	1.138		0.01	1399	7.24	-110.9	23	Grey NOIS, m turbidity
1217	75	1.138		0.01	1426	7.29	-123.1	23.3	dark grey, NOIS m-turbidity - clearing
1220	80	1.138		0.2	1440	7.29	-125.1	23.3	light grey, NOIS m turbidity
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

ANALYTES SAMPLED FOR:		BOTTLES COLLECTED						QA/QC INFORMATION
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic	

FIELD COMMENTS

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

80L purged.
DW 1.14m
TD 4.4m

Approval and Distribution

R Panozzo — Fieldwork Staff Signature — 7/12. — Date — Checker Name and Signature — Date

Project Manager Signature — Date — Distribution: Project Central File

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FIELDWORK QUALITY MANUAL

BH1MW103

FQM-5.05-F1 – GROUNDWATER SAMPLING AND PURGING RECORD

Bore ID:

Project Name:		Project Number:	60623599	PM Name:	AC	Sample Date:	
Client:	Goodman	Project Location:	1-3 Burrows Rd	Fieldwork Staff:	R.Pagazzi	Well Development or Well Sampling Event? (circle)	

GENERAL BORE INFORMATION		PARAMETER INFO.	DECONTAMINATION	SAMPLING METHOD:	HYDRASLEEVE INFO.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	Low Flow: Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

WATER QUALITY PARAMETERS

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
									Dark grey becomes grey, NOIS. H-M turbidity
									May require further purging.
Acceptable Parameter Range:			± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C		± 10% turbidity (if using a turbidity meter)

ANALYTES SAMPLED FOR:		BOTTLES COLLECTED						QA/QC INFORMATION
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic	

FIELD COMMENTS

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

45 L removed.
unable to take parameters dere to high rainfall and aw well flooding

~~Purged dry - to be sent back~~

Approval and Distribution

Fieldwork Staff Signature	Date: 9/12	Checker Name and Signature	Date
Project Manager Signature	Date	Distribution: Project Central File	

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FIELDWORK QUALITY MANUAL

FQM-5.05-F1 – GROUNDWATER SAMPLING AND PURGING RECORD

Bore ID: BH/MW115

Project Name:	Goodman; Burrows Rd	Project Number:	60623594	PM Name:	AL	Sample Date:	
Client:	Goodman	Project Location:	1-3 Burrows rd	Fieldwork Staff:	N. Panozzo	Well Development or Well Sampling Event? (circle)	

GENERAL BORE INFORMATION		PARAMETER INFO.	DECONTAMINATION	SAMPLING METHOD:	HYDRASLEEVE INFO.	
Date of GW Level: 7/2/20	Bore Radius (mm): 50	Chem Kit Serial No.: 18C104689	☐ Decontaminated	Low Flow: Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 1.68	Screen Interval (m):	Chem Kit Model: YSI pro	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 4.348	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole ☑ Retrieved		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable): Allen					Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

WATER QUALITY PARAMETERS

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
8 50	5	1.685		0.07	1100	6.35	31	23	Dark brown/grey, NOS, H-turbidity
8 52	10	1.68		0.01	1015	6.46	26.6	23.6	clearing, L. grey
9 01	15	1.68		0.77	1025	6.60	-8.0	23.1	"
9 03	20	1.68		0.70	1018	6.63	-22	23.5	"
9 05	25	1.683		0.69	1062	6.66	-29.5	23.5	"
9 08	30	1.685		0.65	1027	6.62	-32.5	23.5	Dark grey
9 08	35	1.68		0.44	1028	6.73	-45.6	23.4	Dark grey
9 10	40	1.68		0.42	998	6.72	-44.5	23.3	clearing, Light Grey, NOS, H-T
9 11	45	1.68		0.41	999	6.72	-44.5	23.5	clearing grey, NOS
9 25	50	1.68		0.74	925	6.72	-53.2	23.5	light grey
9 20	55	1.68		0.54	915	6.72	-57.2	23.6	light grey
9 28	60	1.69		0.54	904	6.74	-58.4	23.61	light grey
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

ANALYTES SAMPLED FOR:		BOTTLES COLLECTED						QA/QC INFORMATION
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic	

FIELD COMMENTS

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Developed;
Parameters stable.
GOL removed

Approval and Distribution

Fieldwork Staff Signature	Date 7/2/20	Checker Name and Signature	Date
Project Manager Signature	Date	Distribution: Project Central File	

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Burrows IE - field data, groundwater sampling

Well ID	Date	Time	Pump Speed	Vol (L)	SWL	DO (PPM or mg/L)	EC (µS/cm)	pH	Eh/Redox (mV)	Temp (°C)	Turbidity	Water Colour	Odour	water Sampling.Daer Sampling		Groundwater Sampling.Pump Category	Pump Type	Time	Depth to Water	Well Depth
MW105	12/02/2020	07:16:32	Slow	0.5	1.813	0.07	1398	6.39	16.8	24	Turbid	Grey / Brown	No odour	12/02/2020	07:15:42	Low Flow	Peristaltic	07:12:47	1.811	4.39
MW105	12/02/2020	07:23:04	Slow	1	1.813	0.12	1400	6.46	5.9	24	Clearing	Light Grey	No odour	12/02/2020	07:15:42	Low Flow	Peristaltic	07:12:47	1.811	4.39
MW105	12/02/2020	07:26:19	Slow	1.5	1.813	0.65	1400	6.51	10.6	24.2	Low	Clear	No odour	12/02/2020	07:15:42	Low Flow	Peristaltic	07:12:47	1.811	4.39
MW105	12/02/2020	07:30:05	Slow	2	1.813	0.35	1405	6.55	6.7	24.4	Low	Clear	No odour	12/02/2020	07:15:42	Low Flow	Peristaltic	07:12:47	1.811	4.39
MW105	12/02/2020	07:32:37	Slow	2.5	1.813	0.32	1404	6.57	2.7	24.5	Low	Clear	No odour	12/02/2020	07:15:42	Low Flow	Peristaltic	07:12:47	1.811	4.39
MW105	12/02/2020	07:35:22	Slow	3	1.813	0.34	1403	6.59	-0.9	24.6	Low	Clear	No odour	12/02/2020	07:15:42	Low Flow	Peristaltic	07:12:47	1.811	4.39
MW16	12/02/2020	08:06:36	Slow	0.5	2.75	0.24	1526	6.63	31.4	23.8	Clearing	Light Grey	No odour	12/02/2020	07:59:44	Low Flow	Peristaltic	07:57:30	2.749	4.22
MW16	12/02/2020	08:09:07	Slow	1	2.75	0.21	1482	6.54	49.9	23.8	Low	Clear	No odour	12/02/2020	07:59:44	Low Flow	Peristaltic	07:57:30	2.749	4.22
MW16	12/02/2020	08:12:04	Slow	1.5	2.75	0.37	1429	6.49	86.6	23.8	Low	Clear	No odour	12/02/2020	07:59:44	Low Flow	Peristaltic	07:57:30	2.749	4.22
MW16	12/02/2020	08:15:53	Slow	2	2.75	0.62	1401	6.5	103.1	24	Low	Clear	No odour	12/02/2020	07:59:44	Low Flow	Peristaltic	07:57:30	2.749	4.22
MW16	12/02/2020	08:18:06	Slow	2.5	2.75	1.1	1396	6.52	107.9	24.1	Low	Clear	No odour	12/02/2020	07:59:44	Low Flow	Peristaltic	07:57:30	2.749	4.22
MW16	12/02/2020	08:21:04	Slow	3	2.75	1.7	1385	6.54	111.4	24.1	Low	Clear	No odour	12/02/2020	07:59:44	Low Flow	Peristaltic	07:57:30	2.749	4.22
MW17	12/02/2020	09:06:48	Slow	0.5	2.647	2.3	1307	6.72	101.6	23.7	Low	Clear	No odour	12/02/2020	09:01:31	Low Flow	Peristaltic	08:55:33	2.647	3.99
MW17	12/02/2020	09:09:14	Slow	1	2.647	0.13	1304	6.72	100.2	23.8	Low	Clear	No odour	12/02/2020	09:01:31	Low Flow	Peristaltic	08:55:33	2.647	3.99
MW17	12/02/2020	09:12:06	Slow	1.5	2.647	0.13	1304	6.72	97.6	23.8	Low	Clear	No odour	12/02/2020	09:01:31	Low Flow	Peristaltic	08:55:33	2.647	3.99
MW17	12/02/2020	09:15:05	Slow	2	2.647	0.21	1334	6.72	95.4	24	Low	Clear	No odour	12/02/2020	09:01:31	Low Flow	Peristaltic	08:55:33	2.647	3.99
MW115	12/02/2020	09:42:59	Slow	0.5	1.439	0.49	1124	6.87	-17.2	23	Medium	Light Grey	No odour	12/02/2020	09:35:27	Low Flow	Peristaltic	09:31:59	1.438	4.42
MW115	12/02/2020	09:45:41	Slow	1	1.439	0.07	1110	6.86	-59.4	23	Low	Clear	No odour	12/02/2020	09:35:27	Low Flow	Peristaltic	09:31:59	1.438	4.42
MW115	12/02/2020	09:48:13	Slow	1.5	1.439	0.04	1109	6.86	-70.6	23.1	Low	Clear	No odour	12/02/2020	09:35:27	Low Flow	Peristaltic	09:31:59	1.438	4.42
MW115	12/02/2020	09:51:03			1.439	0.06	1102	6.85	-74.8	23.3	Low	Clear	No odour	12/02/2020	09:35:27	Low Flow	Peristaltic	09:31:59	1.438	4.42
MW115	12/02/2020	09:54:39	Slow	2.5	1.439	0.14	1079	6.84	-70.1	23.3	Low	Clear	No odour	12/02/2020	09:35:27	Low Flow	Peristaltic	09:31:59	1.438	4.42
MW21	12/02/2020	10:25:08	Slow	0.5	1.64	0.02	749	7.14	-57	23.6	Turbid	Grey / Brown	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW21	12/02/2020	10:28:27	Slow	1	1.642	0.02	737	7.14	-79.6	23.6	Clearing	Light Grey	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW21	12/02/2020	10:31:27	Slow	1.5	1.642	0.34	661	7.06	-68.4	24.6	Low	Clear	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW21	12/02/2020	10:34:15	Slow	2	1.642	0.94	596	6.9	-34	24.7	Low	Clear	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW21	12/02/2020	10:37:09	Slow	2.5	1.642	1.14	567	6.87	-15.4	24.7	Low	Clear	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW21	12/02/2020	10:40:09	Slow	3	1.642	1.2	558	6.87	-3.3	24.7	Low	Clear	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW21	12/02/2020	10:43:05	Slow	3.5	1.642	1.29	555	6.87	3.1	24.7	Low	Clear	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW21	12/02/2020	10:46:07	Slow	4	1.642	1.3	549	6.87	8.7	24.8	Low	Clear	No odour	12/02/2020	10:20:11	Low Flow	Peristaltic	10:17:23	1.643	3.415
MW19	12/02/2020	11:13:48	Slow	0.5	2.125	2.57	1656	6.71	84.1	24.6	Low	Clear	No odour					11:07:31	2.034	3.425
MW19	12/02/2020	11:16:19	Slow	1	2.116	2.34	1654	6.71	87.8	24.7	Low	Clear	No odour					11:07:31	2.034	3.425
MW19	12/02/2020	11:19:11	Slow	1.5	2.112	2.35	1655	6.73	92.9	24.8	Low	Clear	No odour					11:07:31	2.034	3.425
MW01	12/02/2020	12:00:58	Slow	0.5	0.677	0.15	492	7.03	-14.8	24.1	Low	Clear	No odour	12/02/2020	11:54:44	Low Flow	Peristaltic	11:53:08	0.677	3.275
MW01	12/02/2020	12:03:19	Slow	1	0.677	0.09	488.1	6.99	23.6	24.4	Low	Clear	No odour	12/02/2020	11:54:44	Low Flow	Peristaltic	11:53:08	0.677	3.275
MW01	12/02/2020	12:06:06	Slow	1.5	0.677	0.06	477.2	6.96	-23.6	25.1	Low	Clear	No odour	12/02/2020	11:54:44	Low Flow	Peristaltic	11:53:08	0.677	3.275
MW01	12/02/2020	12:09:07	Slow	2	0.677	0.06	472.8	6.96	-25.9	25.6	Low	Clear	No odour	12/02/2020	11:54:44	Low Flow	Peristaltic	11:53:08	0.677	3.275
MW01	12/02/2020	12:12:05	Slow	2.5	0.677	0.05	479.1	6.96	-35.9	25.7	Low	Clear	No odour	12/02/2020	11:54:44	Low Flow	Peristaltic	11:53:08	0.677	3.275
MW01	12/02/2020	12:14:12	Slow	3	0.677	0.05	485.7	6.95	-40.1	25.7	Low	Clear	No odour	12/02/2020	11:54:44	Low Flow	Peristaltic	11:53:08	0.677	3.275
MW102	12/02/2020	12:46:23	Slow	0.5	0.841	0.5	8739	6.96	-43.3	23.1	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	12:49:22	Slow	1	0.942	0.02	7229	7.13	-104.4	22.8	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	12:52:05	Slow	1.5	0.942	0	5545	7.27	-126.4	22.8	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	12:55:26	Slow	2	0.942	0	4453	7.39	-143.7	22.9	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	12:59:39	Slow	2.5	0.947	0.02	4179	7.43	-143.7	22.9	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	13:05:05	Slow	3	0.947	0.08	5133	7.35	-130.7	22.9	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	13:08:17	Slow	4	0.947	0	3188	7.53	-169.9	22.8	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	13:11:10	Slow	4.5	0.947	0	3066	7.52	-170.6	23	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	13:13:53	Slow	5	0.947	0	3064	7.51	-171.7	23	Low	Light Grey	No odour	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42
MW102	12/02/2020	13:15:05	Slow	5.5	0.947	0	3053	7.51	-172.6	23	Low	Light Grey	Hydrogen Sulph	12/02/2020	12:42:51	Low Flow	Peristaltic	12:41:15	0.941	4.42

Ground Gas Monitoring Field Sheets

FQM - Landfill Gas - Sub Services and Structures Survey Data Sheet

Project Name:	Burrows Industrial Estate	Project Number:	60623599	PM Name:	AL	Date:	21/12/20
Client:	Goodman	Project Location:	1-3 Burrows Road, St Peters	Fieldwork Staff:	KW	Monitoring Instrument and Serial Number:	GA5000

Location ID	Type	GPS		Stabilised Reading										
(Building, Service or Structure)		Easting	Northing	Time	CH_4 % v/v	CH_4 Peak % v/v	CO_2 % v/v	CO_2 Peak % v/v	O_2 % v/v	O_2 Minimum %	Balance % v/v	H_2S ppmv	CO ppmv	Pressure Barometric (mb)
Unit 7	Building			8:00	0.0		0.1		20.8		79.1	0	0	1015
Unit 7	" "			8:02	0.0		0.1		20.8		79.1	0	0	1015
Unit 7	" "			8:04	0.0		0.1		20.8		79.1	0	0	1015
Unit 9	Building			8:06	0.0		0.1		21.0		78.9	0	0	1016
Unit 9	" "			8:08	0.0		0.1		21.0		78.9	0	0	1016
Unit 9	" "			8:10	0.0		0.1		21.0		78.9	0	0	1016
Unit 3	Building			9:00	0.0		0.1		21.0		78.9	0	0	1016
Unit 3	" "			9:02	0.0		0.1		21.1		78.9	0	0	1016
Unit 3	" "			9:04	0.0		0.1		21.1		78.9	0	0	1016
Unit 2	Building			8:45	0.0		0.1		21.0		78.9	0	0	1016
Unit 2	" "			8:47	0.0		0.1		21.0		79.0	0	0	1016
Unit 2	" "			8:49	0.0		0.1		21.0		79.0	0	0	1016

Approval and Distribution

Fieldwork Staff Signature	Date	Project Manager Signature	Date
[signature]	21/12/20		

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FQM - Landfill Gas - Soil and Gas Bores Survey Sheet

1/2

Project Name:	Burrows Industrial Estate	Project Number:	60623599	PM Name:	AL	Date:	21/12/20
Client:	Goodman	Project Location:	1-3 Burrows Road, St Peters	Fieldwork Staff:	KW	Monitoring Instrument and Serial Number:	GA5000

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW21	7:16	Ambient	0.1		0.1		20.7		79.2	0	0	-	1015	-0.34	
	7:18	~~Pre-purge~~	0.0		0.1		20.5		79.3	0	0	-	1015	-0.36	well opened
	7:20	~~1 min~~	0.0		0.1		20.6		79.3	0	0	-	1015	-0.36	
	7:22	~~2 min~~	0.0		0.1		20.6		79.3	0	0	-	1015	-0.36	
	7:24	~~3 min~~	0.0		0.1		20.6		79.3	0	0	-	1015	-0.36	stabilised
		Unstable- (Fluctuation or direction & rate of change in 10 secs)										-			

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW19	7:26	Ambient	0.0		0.1		20.6		79.3	0	0		1015	-0.24	
	7:27	~~Pre-purge~~	0.0		1.8		19.7		79.6	0	0		1015	-0.24	well opened
	7:29	~~1 min~~	0.0		0.1		20.4		79.4	0	0		1015	-0.24	
	7:31	~~2 min~~	0.0		0.1		20.5		79.4	0	0		1015	-0.24	
	7:33	~~3 min~~	0.0		0.1		20.5		79.4	0	0		1015	-0.24	stabilised
		Unstable- (Fluctuation or direction & rate of change in 10 secs)													

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW17	7:40	Ambient	0.0		0.1		20.7		79.2	0	0		1015	-0.24	
	7:41	Pre-purge	0.0		4.2		15.4		78.4	0	0		1015	-0.24	well opened
	7:43	1 min	0.0		0.1		20.6		79.3	0	0		1015		
	7:45	2 min	0.0		0.1		20.6		79.3	0	0		1015		stabilised
	~~7:47~~	3 min													
		Unstable- (Fluctuation or direction & rate of change in 10 secs)													

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW16	7:49	Ambient	0.0		0.1		20.7		79.2	0	0	-	1015	-0.24	
	7:50	Pre-purge	0.0		1.2		19.4		79.7	0	0	-	1015		
	7:51	1 min	0.0		0.1		20.6		79.3	0	0	-	1015		
	7:53	2 min	0.0		0.1		20.6		79.3	0	0	-	1015		stabilised
		3 min													
		Unstable- (Fluctuation or direction & rate of change in 10 secs)													

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Project Manager Signature _____ Date _____

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AECOM

ANZ

FQM - Landfill Gas - Soil and Gas Bores Survey Sheet

Q4AN(EV)-703-FM1

Project Name:	Burrows Industrial Estate	Project Number:	60623599	PM Name:	AL	Date:	21/2/20
Client:	Goodman	Project Location:	1-3 Burrows Road, St Peters	Fieldwork Staff:	KW	Monitoring Instrument and Serial Number:	GA5000

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW105	8:14	Ambient	0.0		0.1		21.1		78.8	0	0	–	1015	-0.26	
	8:15	~~Pre-purge~~	0.0		0.4		20.3		78.4	0	0	–	1015	-0.26	well opened
	8:17	~~1 min~~	0.0		0.5		19.4		79.1	0	0	–	1015	-0.26	
	8:19	~~2 min~~	0.0		0.1		20.8		79.1	0	0	–	1015	-0.26	
	8:21	~~3 min~~	0.0		0.1		20.8		79.1	0	0	–	1015	-0.26	stabilised
		Unstable- (Fluctuation or direction & rate of change in 10 secs)													

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW115	8:23	Ambient	0.0		0.1		20.9		79.0	0	0	–	1016	-0.22	
	8:24	~~Pre-purge~~	0.1		0.1		20.9		79.0	0	0	–	1016	-0.22	well opened
	8:26	~~1 min~~	0.4		0.2		20.6		78.9	0	0	–	1016	-0.22	
	8:28	~~2 min~~	0.1		0.1		20.8		79.0	0	0	–	1016	-0.22	
	8:30	~~3 min~~	0.1		0.1		20.8		79.0	0	0	–	1016	-0.22	stabilised
		Unstable- (Fluctuation or direction & rate of change in 10 secs)													

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW01	8:35	Ambient	0.1		0.1		21.0		78.9	0	1	–	1016	-0.24	
	8:37	~~Pre-purge~~	0.6		0.9		19.8		78.4	0	0	–	1016	-0.24	well opened
	8:39	~~1 min~~	0.2		0.3		20.3		79.2	0	0	–	1016	-0.24	
	8:41	~~2 min~~	0.2		0.2		20.5		79.2	0	0	–	1016	-0.24	
	8:43	~~3 min~~	0.2		0.2		20.5		79.2	0	0	–	1016	-0.24	stabilised
		Unstable- (Fluctuation or direction & rate of change in 10 secs)													

Purging Details			CH_4		CO_2		O_2		Balance	H_2S	CO	Flow	Pressure		Comments
ID	Time	Time	% v/v	Peak % v/v	% v/v	Peak % v/v	% v/v	Minimum %	% v/v	ppmv	ppmv	L/hour	Barometric (mb)	Relative (mb)	
MW102	8:50	Ambient	0.0		0.1		20.8		79.1	1	0	–	1016	-0.24	
	8:51	~~Pre-purge~~	0.0		0.1		20.6		79.2	0	0	–	1016	-0.24	well opened
	8:53	~~1 min~~	0.0		0.1		20.7		79.3	0	0	–	1016	-0.24	
	8:55	~~2 min~~	0.0		0.1		20.7		79.3	0	0	–	1016	-0.24	stabilised
		~~3 min~~													
		Unstable- (Fluctuation or direction & rate of change in 10 secs)													

Approval and Distribution

Fieldwork Staff Signature	Date	Project Manager Signature	Date
	21/2/20		

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Appendix D

Background

G:\ENV\GIS\Projects\604 Projects\60438840 Burrows Industrial Estate\FIGURES\60438840 F2 Site Layout and Sampling Locations 24 09 2015 TO Rev A

AECOM

SITE LAYOUT AND SAMPLING LOCATIONS

Burrows Industrial Estate
New South Wales

Note: Unit areas are approximate and inferred only

FIGURE 2

City of Sydney
Town Hall House
456 Kent Street
Sydney NSW 2000
Telephone +61 2 9265 9333
Fax +61 2 9265 9222
council@cityofsydney.nsw.gov.au
GPO Box 1591 Sydney NSW 2001
cityofsydney.nsw.gov.au

ALEX LATHAM - AECOM
LEVEL 21, 420 GEORGE ST
SYDNEY NSW 2000

PLANNING CERTIFICATE

Under Section 149 of the Environmental Planning and Assessment Act, 1979

Applicant:	ALEX LATHAM - AECOM
Applicant's reference:	
Address of property:	1-3 Burrows Road , ST PETERS NSW 2044
Owner:	TALLINA PTY LTD
Description of land:	Lot 11 DP 606737, Lot 12 DP 606737
Certificate No.:	2015305814
Certificate Date:	20/08/15
Receipt No:	30303
Fee:	$53.00
Paid:	19/08/15

Title information, description, dimensions and area of land are provided from data supplied by the Valuer General and shown where available.

Issuing Officer
per **Monica Barone**
Chief Executive Officer

CERTIFICATE ENQUIRIES:
Ph: 9265 9333
Fax: 9265 9415

Sydney2030/Green/Global/Connected
city of villages

PLANNING CERTIFICATE UNDER SECTION 149 (2) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 4 - ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION, 2000, CLAUSES (1) - (2).

DEVELOPMENT CONTROLS

The following information must be read in conjunction with and subject to all other provisions of the environmental planning instruments specified in this certificate.

ZONING

Zone IN1 General Industrial (Sydney Local Environmental Plan 2012)

1 Objectives of zone
• To provide a wide range of industrial and warehouse land uses.
• To encourage employment opportunities.
• To minimise any adverse effect of industry on other land uses.
• To support and protect industrial land for industrial uses.
• To ensure uses support the viability of nearby centres.

2 Permitted without consent
Nil

3 Permitted with consent
Agricultural produce industries; Boat building and repair facilities; Depots; Food and drink premises; Freight transport facilities; General industries; Hardware and building supplies; Horticulture; Industrial training facilities; Kiosks; Light industries; Neighbourhood shops; Roads; Roadside stalls; Timber yards; Warehouse or distribution centres; Any other development not specified in item 2 or 4

4 Prohibited
Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Childcare centres; Commercial premises; Community facilities; Correctional centres; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Health services facilities; Heavy industries; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Passenger Transport facilities; Places of public worship; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Residential accommodation; Respite day care centres; Restricted premises; Rural industries; Self-storage units; Sex services premises; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Wholesale supplies

PROPOSED ZONING

This property is not affected by a draft zone.

LOCAL PLANNING CONTROLS

Sydney Local Environmental Plan 2012 (as amended) – Published 14 December 2012 NSW Legislation Website.

Sydney Development Control Plan 2012 (as amended) - (commenced 14.12.2012)

Planning Proposal - Amendment to Sydney Local Environmental Plan 2012 – Minor Policy and Housekeeping Amendments 2014

The Planning Proposal seeks to amend the *Sydney Local Environmental Plan 2012* by implementing minor policy and housekeeping amendments that align future development and the objectives of the City's Sustainable Sydney 2030, and improve the operation and accuracy of the plan by permitting additional uses to a site, correcting errors, refining definitions, correcting descriptions, removing barriers and updating details.

HERITAGE

State Heritage Register (Amendment To Heritage Act, 1977 Gazetted 2/4/99)
This property may be identified as being of state heritage significance, and entered on the State Heritage Register.

To confirm whether the site is listed under the Heritage Act 1977 a Section 167 Certificate should be obtained from the NSW Heritage Office by contacting the NSW Heritage office on (02) 9873 8500 for an application from or by downloading the application form from www.heritage.nsw.gov.au

STATE PLANNING INSTRUMENTS

Full copies of State Environmental Planning Policies are available online at www.planning.nsw.gov.au.

State Environmental Planning Policy No. 19 – Bushland in Urban Areas
This is a policy to protect and preserve bushland within certain urban areas, as part of the natural heritage or for recreational, educational and scientific purposes. This policy is designed to protect bushland in public open space zones and reservations, and to ensure that bush preservation is given a high priority when local environmental plans for urban development are prepared.

State Environmental Planning Policy No. 32 – Urban Consolidation
This policy implements the principles of urban consolidation, including the orderly, economic use and development of land. The policy enables urban land which is no longer required for the purpose for which it is currently zoned or used to be redeveloped for multi-unit housing and related development.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
This policy aims to amend the definitions of hazardous and offensive industries; to render ineffective any environmental planning instruments not defining hazardous or offensive as per this policy; to control development of hazardous and offensive industries.

State Environmental Planning Policy No. 55 – Remediation of Land
This policy provides planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals. To assist councils and developers, the Department, in conjunction with the Environment Protection Authority, has prepared Managing Land Contamination: Planning Guidelines.

State Environmental Planning Policy No. 64 – Advertising and Signage
This policy aims to ensure that signage (including advertising):
Is compatible with the desired amenity and visual character of an area, and
Provides effective communications in suitable locations, and
Is of a high quality design and finish.

To this end the policy regulates signage (but not content) under Part 4 of the Act and provides limited time consents for the display of certain advertisements. The policy does not apply to signage that is exempt development under an environmental planning instrument. It does apply to all signage that can be displayed with or without consent and is visible from any public place or reserve, except as provided by the policy.

This policy should be read in conjunction with the Sydney Local Environmental Plan 2005, the City of Sydney Signage and Advertising Structures Development Control Plan 2003 and State Environmental Planning Policy No. 60 where these apply.

State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Buildings
This policy aims to improve the design quality of flats of three or more storeys with four or more self contained dwellings. The policy sets out a series of design principles for local councils to consider when assessing development proposals for residential flat development. The policy also creates a role for an independent design review panel and requires the involvement of a qualified designer in the design and approval process.

State Environmental Planning Policy No.70 – Affordable Housing (Revised Schemes) (Gazetted 31.05.02)
The policy identifies that there is a need for affordable housing in the City of Sydney, describes the kinds of households for which affordable housing may be provided and makes a requirement with respect to the imposition of conditions relating to the provision of affordable housing (provided other requirements under the Act are met).

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
This Policy does not apply to land described in Schedule 1 (Environmentally sensitive land), or land that is zoned for industrial purposes, or land to which an interim heritage order made under the *Heritage Act 1997* by the Minister administering that Act applies, or land to which a listing on the State Heritage Register kept under the *Heritage Act 1997* applies.

The Policy aims to encourage the provision of housing (including residential care facilities) that will increase the supply and diversity of residences that meet the needs of seniors or people with a disability, and make efficient use of existing infrastructure and services, and be of good design.

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
Aims to ensure consistency in the implementation of the BASIX scheme throughout the State. This Policy achieves its aim by overriding provisions of other environmental planning instruments and development control plans that would otherwise add to, subtract from or modify any obligations arising under the BASIX scheme.

State Environmental Planning Policy (Major Development) 2005
This Policy aims to identify development of economic, social or environmental significance to the State or regions of the State so as to provide a consistent and comprehensive assessment and decision making process for that development.
NB: This SEPP also contains exempt & complying provisions

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
This Policy aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State.

State Environmental Planning Policy (Temporary Structures and Places of Public Entertainment) 2007
This Policy aims to ensure that suitable provision is made for ensuring the safety of persons using temporary structures or places of public entertainment.

State Environmental Planning Policy (Infrastructure) 2007
This Policy aims to facilitate the effective delivery of infrastructure across the state.
NB: This SEPP also contains exempt & complying provisions

State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2008
This Policy is an 'amending instrument' that removes or modifies referral and concurrence clauses within local environmental plans (LEPs), regional environmental plans (REPs) and State environmental planning policies (SEPPs).

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
This Policy Streamlines assessment processes for development that complies with specified development standards. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that are of minimal environmental impact that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the Environmental Planning and Assessment Act 1979.

State Environmental Planning Policy (Affordable Rental Housing) 2009
Establishes a consistent planning regime for the provision of affordable rental housing. The policy provides incentives for new affordable rental housing, facilitates the retention of existing affordable rentals, and expands the role of not-for-profit providers. It also aims to support local centres by providing housing for workers close to places of work, and facilitate development of housing for the homeless and other disadvantaged people. NOTE: Does not apply to land at Green Square or at Ultimo Pyrmont, or on southern employment land.

State Environmental Planning Policy (Urban Renewal) 2010
The aims of this Policy are as follows:
(a) to establish the process for assessing and identifying sites as urban renewal precincts,
(b) to facilitate the orderly and economic development and redevelopment of sites in and around urban renewal precincts,
(c) to facilitate delivery of the objectives of any applicable government State, regional or metropolitan strategies connected with the renewal of urban areas that are accessible by public transport.

State Environmental Planning Policy (State and Regional Development) 2011
The aims of this Policy are as follows:
(a) to identify development that is State significant development,
(b) to identify development that is State significant infrastructure and critical State significant infrastructure,
(c) to confer functions on joint regional planning panels to determine development applications.

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
This plan applies to land within the Sydney Harbour Catchment, as shown edged heavy black on the Sydney Harbour Catchment Map, being part of the Sydney Region declared by order published in Gazette No 38 of 7 April 1989 at page 1841.

This plan has the following aims with respect to the Sydney Harbour Catchment:
to ensure that the catchment, foreshores, waterways and islands of Sydney Harbour are recognised, protected and maintained: as outstanding natural asset, and as a public asset of national and heritage significance, for existing and future generations; to ensure a healthy, sustainable environment on land and water; to achieve a high quality urban environment; to ensure a prosperous working waterfront and an effective transport corridor, to encourage a culturally rich and vibrant place for people; to ensure accessibility to and along Sydney Harbour and its foreshores; to ensure the protection, maintenance and rehabilitation of

watercourses, wetlands, riparian lands, remnant vegetation and ecological connectivity, to provide a consolidated, simplified and updated legislative framework for future planning.

OTHER MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 4 - E. P. & A. REGULATION, 2000. CLAUSES (3) - (10)

(3) Complying Development

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4),1.18(1)(c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4),1.18(1)(c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Note: All Exempt and Complying Development Codes: Council does not have sufficient information to ascertain the extent of a land based exclusion on a property. Despite any statement preventing the carrying out of complying development in the Codes listed below, complying development may still be carried out providing the development is not on the land affected by the exclusion and meets the requirements and standards of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

General Housing Code & Commercial and Industrial (New Buildings and Additions) Code

Complying development **may not** be carried out on the land under the General Housing Code & the Commercial and Industrial (New Buildings and Additions) Code if because of the provisions of clause 1.17A,1.18(1)(c3) & 1.19 (Land-based requirements for exempt and complying development) any of the following statements are **YES**

▪ Clause 1.19(5)d. Land that is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. (Applies only to the Commercial and Industrial (New Buildings and Additions) Code.	NO
▪ Clause 1.17A(d). Has been identified as a property that comprises, or on which there is, an item that is listed on the State Heritage Register under the *Heritage Act 1977* or that is subject to an interim heritage order under the *Heritage Act 1977*.	NO
▪ Clause 1.17A(d) & 1.18(1)(c3). Has been identified as a property that comprises, or on which there is, a heritage item or draft heritage item.	**NO**
▪ Clause 1.17A(c). Has been identified as being within a wilderness area (identified under the *Wilderness Act 1987*.	**NO**
▪ Clause 1.17A(e) & 1.19(1)e or 1.19(5)f. Has been identified as land that is within an environmentally sensitive area or by an environmental planning instrument as being within a buffer area, a river front area, an ecologically sensitive area, environmentally sensitive land or a protected area	**NO**
▪ Clause 1.19(1)a.or 1.19(5)a Has been identified as being within a heritage conservation area or a draft heritage conservation area.	**NO**

▪ Clause 1.19(1)b or 1.19(5)b. Has been identified as being land that is reserved for a public purpose in an environmental planning instrument.	**NO**
▪ Clause 1.19(1)c or 1.19(5)c. Has been identified as being on an Acid Sulfate Soils Map as being Class 1 or Class 2.	**NO**
▪ Clause 1.19(1)d or 1.19(5)e. Has been identified as land that is subject to a biobanking agreement under part 7A of the threatened Species Conservation Act 1995 or a property vegetation plan under the Native Vegetation Act 2003.	**NO**
▪ Clause 1.19(1)f or 1.19(5)g. Has been identified by an environmental planning instrument, a development control plan or a policy adopted by the Council as being or affected by a coastline hazard, a coastal hazard or a coastal erosion hazard.	**NO**
▪ Clause 1.19(1)g or 1.19(5)h. Has been identified as being land in a foreshore area.	**NO**
▪ Clause 1.19(1)h. Has been identified as land that is in the 25 ANEF contour or a higher ANEF contour. (Applies only to the General Housing Code)	**YES**
▪ Clause 1.19(1)j or 1.19(5)i. Has been identified as unsewered land within a drinking water catchment.	**NO**
▪ Clause 1.19(1)i. Has been identified as land that is declared to be a special area under the Sydney Water Catchment Management Act 1998.	**NO**

Housing Internal Alterations Code
Complying development under the Housing Alterations Code **may** be carried out on the land.

Commercial and Industrial Alterations Code
Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

Subdivisions Code
Complying development under the Subdivisions Code **may** be carried out on the land.

Rural Housing Code
The Rural Housing Code does not apply to this Local Government Area.

General Development Code
Complying development under the General Development Code **may** be carried out on the land.

Demolition Code
Complying development under the Demolition Code **may** be carried out on the land.

(4) Coastal Protection Act, 1979

The council has **not** been notified by the department of public works that the land is affected by the operation of section 38 or 39 of the coastal protection act, 1979.

(4A) Certain information relating to beaches and coasts

(1) In relation to a coastal council an order has **not** been made under Part 4D of the coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land).

(2) In relation to a coastal council: Council has **not** been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within in the meaning of that Act) have been placed on the land (or on public land adjacent to that land).

(4B) Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note. "Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.

(5) Mine Subsidence District

This land has not been proclaimed to be a mine subsidence district within the meaning of section 15 of the mine subsidence compensation act, 1961.

(6) Road Widening and/or Road Realignment affected by (a) Division 2 of Part 3 of the Roads act 1993 or (c) any resolution of council or other authority.

This land **is not** affected by road widening and/or road realignment under section 25 of the Roads Act, 1993 and/or resolution of Council or any other authority.

(6) Road Widening and/or Road Realignment Affected by (b) any environmental planning instrument.

This land **is not** affected by any road widening or road realignment under any planning instrument.

(7) Council and other public authorities policies on hazard risk restrictions:

(a) The land **is not** affected by a policy adopted by the Council that that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk; and

(b) The land **is not** affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to on planning certificate issued by Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

(7A) Flood related development controls information.

The development on this land or part of this land is subject to flood related development controls refer to Clause 7.15 of Sydney Local Environment Plan 2012 and Section 3.7 of Sydney Development Control Plan 2012.

(8) Land reserved for acquisition

No environmental planning instrument, or proposed environmental planning instrument applying to the land, provides for the acquisition of the land by a public authority, as referred to in section 27 of the Act.

(9) Contribution plans

The following Contributions Plans apply to properties within the City of Sydney local government area. Contributions plans marked **YES** may apply to this property:

▪ Central Sydney Development Contributions Plan 2013 – in operation 9th July 2013	**NO**
▪ Ultimo Pyrmont Section 94 Contributions Plan (approved C.S.P.C 15th December 1994 and Council 19th December 1994)	**NO**
▪ City of Sydney Development Contributions Plan 2006 – in operation 7th April 2007	**YES**
▪ Redfern Waterloo Authority Contributions Plan 2006 – in operation 16th May 2007 ▪ Redfern Waterloo Authority Affordable Housing Contributions Plan – in operation 16th May 2007	**NO**

(9A) Biodiversity certified land

The land has not been certified as biodiversity certified land.

(10) Biobanking Agreement

Council has not been notified of a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995.

(11) Bush fire prone land

The land has not been identified as Bush fire prone land.

(12) Property vegetation plans

Not Applicable

(13) Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of an order which as been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

(14) Directions under Part 3A

Not Applicable.

(15) Site compatibility certificates and conditions for seniors housing

(a)The land to which the certificate relates is not subject to a current site compatibility certificate (seniors housing), of which Council is aware, in respect of proposed development on the land.

(b) The land to which the certificate relates is not subject to any condition of consent to a development application granted after 11 October 2007 required by State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

(16) Site compatibility certificates for infrastructure

The land to which the certificate relates is not subject to a valid site compatibility certificate (infrastructure), of which Council is aware, in respect of proposed development on the land.

(17) Site compatibility certificates and conditions for affordable rental housing

(a)The land to which the certificate relates is not subject to a current site compatibility certificate (affordable rental housing), of which Council is aware, in respect of proposed development on the land.

(b) The land to which the certificate relates is not subject to any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

(18) Paper subdivision information

Not Applicable.

(19) Site verification certificates

The land to which the certificate relates is not subject to a valid site verification certificate of which Council is aware.

Note. The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

(a) The land to which the certificate relates **is not** declared to be **significantly contaminated land** within the meaning of that act as at the date when the certificate is issued.

(b) The land to which the certificate relates **is not** subject to a **management order** within the meaning of that act as at the date when the certificate is issued.

(c) The land to which the certificate relates **is not** the subject of an **approved voluntary management proposal** within the meaning of that act at the date the certificate is issued.

(d) The land to which the certificate relates **is not** the subject of an **ongoing maintenance order** within the meaning of that act as at the date when the certificate is issued.

(e) As at the date when the certificate is issued, Council **has not** identified that a **site audit statement** within the meaning of that act has been received in respect of the land the subject of the certificate.

PLANNING CERTIFICATE SECTION 149(2) INFORMATION:
Information provided in accordance with planning certificate section 149 (2) has been taken from council's records and advice from other authorities but council disclaims all liability for any omission or inaccuracy in the information. Specific inquiry should be made where doubt exists.

For information regarding outstanding notices and orders a CERTIFICATE FOR OUTSTANDING NOTICES OF INTENTION AND/OR AN ORDER UNDER SECTION 735A OF THE LOCAL GOVERNMENT ACT, 1993 AND SECTION 121ZP OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979 may be applied for at Sydney City Council.

Planning certificate section 149 (2), local planning controls are available for inspection at the following Council locations:

General Enquiries:
Telephone: 02 9265 9333
Facsimile: 02 9265 9415

Town Hall House
Level 2,
Town Hall House,
456 Kent Street,
Sydney.
8am – 6pm, Monday - Friday

Glebe Customer Service Centre
Glebe Library,
186 Glebe Point Road,
Glebe
9am – 5pm, Monday – Friday

Neighbourhood Service Centre Kings Cross
50 Darlinghurst Road,
Potts Point
9am – 5pm, Monday – Friday
9am – 12pm, Saturday

Neighbourhood Service Centre Redfern
158 Redfern Street
Redfern
9am-5pm Monday – Friday
9am – 12 Noon Saturday

Green Square Customer Service Centre
The Tote,
100 Joynton Avenue,
Zetland
10am-6pm Monday – Friday

State planning controls are available for inspection at the following locations:

Sydney Harbour Foreshore Authority (former Sydney Cove Authority and Darling Harbour Authority),
Level 6,
66 Harrington Street,
The Rocks.

Department of Planning & Infrastructure Information Centre
23-33 Bridge Street,
Sydney NSW 2000

Where planning certificate section 149 (5) matters are supplied, complete details are available by writing to:
Chief Executive Officer,
City of Sydney,
G.P.O. Box 1591,
Sydney, NSW 2000

End of Document

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000
PO Box Q410
QVB Post Office NSW 1230
Australia
www.aecom.com

+61 2 8934 0000 tel
+61 2 8934 0001 fax
ABN 20 093 846 925

18 November 2011

Kym Dracopoulos
Technical Services Manager
Goodman Limited
E: kym.dracopoulos@goodman.com

Dear Kym

UPSS Stage 1 Inspection Program: Burrows Industrial Estate

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was retained by Goodman Property Services (Aust) Pty Ltd (GPS) to undertake inspections of select properties to evaluate for the presence of Underground Petroleum Storage Systems (UPSS). In this summary report, underground storage tank (UST) is also used to denote a UPSS.

This summary report is for Burrows Industrial Estate, 1-3 Burrows Road, Alexandria (the Site).

2.0 Purpose

The inspection was undertaken to evaluate for the presence of UPSS and if identified, the operational status (i.e. active, passive [disused], or decommissioned).

3.0 Background

Background data was sourced from:

- The Goodman Building Supervisor, who advised there are no known active UPSS at the Site;
- A limited scope Phase I assessment completed by Mahaffey Associates in 1994, which indicated that 1 x 9000 L UST was used by Rheem Australia. The report did not indicate the location of the UST; and
- WorkCover records for the licensed storage of dangerous goods (refer attached documents). Review of the data indicates that at least 5 USTs have been present at the Site. Three USTs were decommissioned by removal in 1997. Two USTs may have been 'abandoned' (method not sighted in documentation) in approximately 1990. Based on review of the data, inferred and approximate locations of the former USTs are shown on Figure 1.

4.0 Inspection Findings

Site inspections were completed on 19 July 2011 and 31 August 2011. The second inspection was completed after receipt and review of the WorkCover data. The inspections were completed in readily accessible areas, external to the Site Buildings.

In summary, no UPSS were identified. A vent-like pipe (approximately 50 mm diameter) and a flammable liquid sign were present on a wall external to Unit 6a however, no obviously visible evidence of UST dip or fill points or fuel dispensing pumps were observed. Some new sections of concrete hardstand were observed in the area external to Unit 6a, possibly representing the location of the removed USTs.

Select photographs are shown in Section 6.0.

5.0 Synopsis

Status of UST(s): none identified.

Further Action for Compliance to UPSS (2008) Regulation: none. AECOM understands that the UPSS Regulation applies to active systems.

Regards

Alex Latham
Associate Director
alex.latham@aecom.com

Direct Dial: +61 2 8934 0451

encl: Figure 1
WorkCover Documentation

6.0 Plate

Plate	Commentary
	Possible UST vent pipe (blue) on wall near Unit 6a

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G:\Projects\602 Projects\60218857\FIGURES\60218857 F1 1-3 Burrows Road 15 11 2011 TO Rev A

AECOM

SITE LOCATION

Goodman UPSS Program, Stage 1
Burrows Industrial Estate, 1 - 3 Burrows Road, Alexandria

FIGURE 1

WorkCover NSW
92-100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
WorkCover Assistance Service 13 10 50
DX 731 Sydney workcover.nsw.gov.au

SYDNEY AECOM
A latham
RECEIVED 30/8/11
Reception No 16394
Suitable for Use ☐ Unsuitable for Use ☐
..... (PM) ...../...../..
PROJECT No:
FILE No:
DOCUMENT No:
CORRESPONDENCE No:
Controlled Copy ☐ Uncontrolled Copy ☐
Concept ☐ Draft ☐
Final ☐ Superseded ☐

Our Ref: D11/103973
Your Ref: Alex Latham

26 August 2011

Attention: Alex Latham
AECOM Australia Pty Ltd
PO Box Q410
QVB Post Office
Sydney NSW 1230

Dear Mr Latham,

RE SITE: 1-3 Burrows Road Alexandria

I refer to your site search request received by WorkCover NSW on 18 August 2011 requesting information on licences to keep dangerous goods for the above site.

Enclosed are copies of the documents that WorkCover NSW holds on Dangerous Goods Licences 35/035589 and 35/027501relating to the storage of dangerous goods at the above-mentioned premises, as listed on the Stored Chemical Information Database (SCID).

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

035589 + 027501
NOT included →
no Licensed UPSS

Diana Hayes
Senior Licensing Officer
Dangerous Goods Notification Team

WORK SAFE HOME SAFE

CMPS&F PTY LIMITED
ENVIRONMENTAL
ACN 000 912 630
SYDNEY OFFICE

VA0012/LT/07

OFFICES
Adelaide
Bangkok
Brisbane
Gladstone
Jakarta
Kuala Lumpur
Melbourne
Newcastle
Perth
Sydney
Whyalla

17 February 1997

ATTENTION: Chief Inspector
WorkCover New South Wales
Scientific Services Branch
Dangerous Goods Licensing
Locked Bag 10, Clarence Street
SYDNEY NSW 2000

- 7 MAR 1997

SUBJECT: REMOVAL OF UNDERGROUND STORAGE TANKS
SEALED AIR AUSTRALIA
3 BURROWS ROAD, ALEXANDRIA

35/001168.

Dear Sir

Sealed Air Australia Pty Limited currently holds a dangerous goods license for three underground storage tanks at the above site (Dangerous Goods License No. 35/001168). These tanks have recently been excavated and scrapped and we now request that they be removed from the license for these premises. The following information is relevant to this request:

- A total of three tanks were removed from site. An accompanying figure shows the original locations of these tanks onsite. The tanks were located in two tank pits, one containing a single 20,000L (T20) tank and the other containing one 20,000L (T20) tank and one 10,000L (T10) tank.
- The tanks were removed by CMPS&F Environmental, an independent environmental consultant. CMPS&F contracted Emcal Engineering Pty Ltd to undertake excavation, transportation and scrapping works. Emcal Engineering hold a WorkCover demolition license for this type of demolition work (Demolition License No. DE2 401);
- South Sydney Council approval for demolition works was obtained before any site work commenced. The Council Building Application number relevant to this work is Q9600764;
- The tanks were pumped dry before removal from site. N. G. Koorey Pty Ltd, a New South Wales Environment Protection Authority licensed contractor, was commissioned to perform this task. The waste liquid was disposed to a registered liquid waste disposal depot via the EPA's five docket system of waste tracking. Disposal certificates can be produced if required;
- All three tanks were removed and scrapped according to the Australian Institute of Petroleum's (AIP), Code of Practice for the Removal and Disposal of Underground Petroleum Storage Tanks (AIP CP22-1994). A certificate of scrapping and the location/fate of the excavated tanks is attached to this notice of disposal.

67 Albert Avenue Chatswood NSW 2067 Australia PO Box 201 Chatswood 2057 Tel: (02) 9412 9663 Fax: (02) 9412 9876

Please remove the aforementioned underground storage tanks from the dangerous goods license which covers our operations at this site and issue the updated license to Sealed Air Australia Pty Limited who now both lease and operate the site. If you require further information please do not hesitate to contact the undersigned on 9550 7888.

Yours faithfully
Sealed Air Australia Pty Limited

Peter Economy

COPIES: Sealed Air Australia Pty Limited
Southcorp Holdings Pty Limited
CMPS&F Project File VA0012/001

PHONE: (02) 820 4400
FAX: (02) 820 4401

15 SWAFFHAM ROAD
MINTO NSW 2566
P.O. BOX 1312
CAMPBELLTOWN 2560

Emcal Engineering Pty. Ltd.

A.C.N. 004 000 131

FUEL DEPOT & SERVICE STATION INSTALLATIONS

21st February, 1997

C.M.P.S. & F
67 ALBERT STREET
CHATSWOOD NSW 2067

ATTENTION: MR NEIL WALKER

Dear Sir,

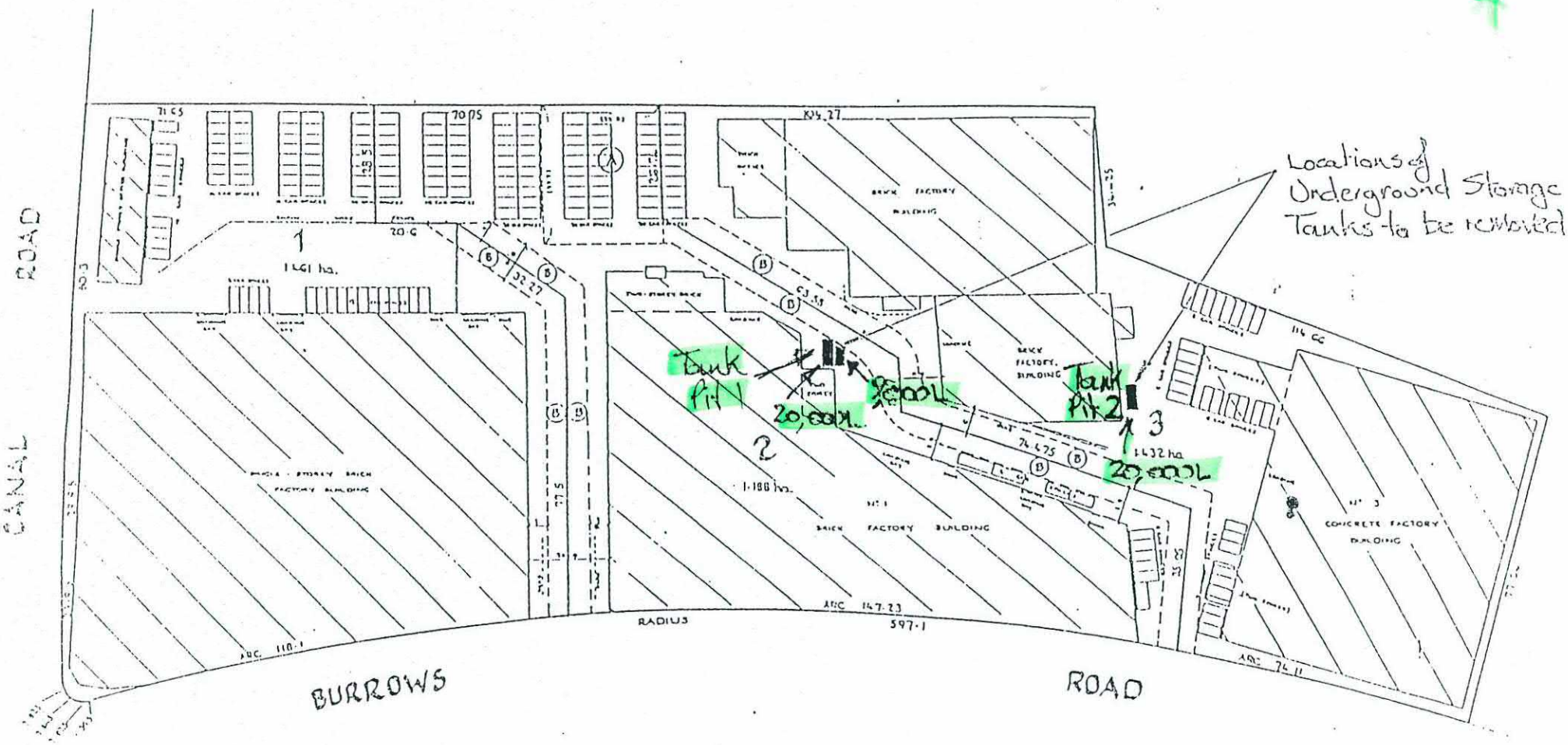
We wish to advise that the three underground fuel tanks removed from Southcorp packaging, 3 Burrows Road, Alexandria were transported to Central Scrap and re-cycling. They were crushed and re-cycled.

Yours faithfully
EMCAL ENGINEERING PTY LTD

C. S. Minett

CARL MINETT

FOR SERVICES 5 WIDE & VARIABLE WIDTH



NOTE: DIMENSIONS & AREAS ARE SUBJECT TO SURVEY AND REGISTRATION OF A PLAN AT THE LAND TITLES OFFICE

PLAN OF PROPOSED SUBDIVISION OF LOTS 11 & 12 IN D.P. 606737 AT ST. PETERS IN THE CITY OF SOUTH SYDNEY

1705

NEW SOUTH WALES GOVERNMENT
Serving people first by managing better

PART A

SCIENTIFIC SERVICES BRANCH
21 JUL 1993
DANGEROUS GOODS

WorkCover Authority

LICENCE TO KEEP DANGEROUS GOODS

(Dangerous Goods Act 1975)

Application for new licence, amendment or transfer

Expiry: 21.6.95

1. Name of applicant — ACN
   RHEEM AUSTRALIA LIMITED | 004 213 665

2. Site to be licensed
   No: 3 | Street: BURROWS ROAD
   Suburb/Town: ALEXANDRIA | Postcode: 2015

3. Previous licence number (if known): 35/001168

4. Nature of site: PACKAGING MANUFACTURING

DATA ENTERED 23 NOV 1993

5. Emergency contact on site:
   Phone: 5507888 | Name: BARRY KELLY

6. Site staffing: Hours per day: 24 | Days per week: 5

7. Major supplier of dangerous goods:

8. If new site or significant modification
   Plan stamped by: | Accredited consultant's name: | Date stamped

9. Number of dangerous goods depots at site: 6

10. Trading name or occupier's name
    RHEEM PROTECTIVE PACKAGING PRODUCTS

11. Postal address of applicant
    PO BOX 36 | Suburb/Town: ALEXANDRIA | Postcode: 2015

12. Contact for licence enquiries:
    Phone: 5507888 | Fax: 5195724 | Name: PETER ECONOMY

I certify that the details contained in this application (or the accompanying computer disk) are true and correct

13. Signature of applicant: BARRY KELLY | Date: 28.6.93

Please complete attached site sketch, depot listing and check sheet

Form DG1

SENT 23/11/93 RHV

Complete 1 section per depot ✓ 35/001168

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
1	ROOFED PACKAGE STORE	3	6400

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1294	TOLUOL	3.1	I		TOLUENE	800	L
1210	SPECIAL CONDUCTIVE BLACK	3.1	II		BLACK INK	300	L
1993	FLEXO WPP REDUCER	3.1	II		REDUCER	100	L
1133	P.E. MAT COATING	3.1	I		BUTYL RUBBER ADHESIVE	4000	L

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

PAR ?

Complete 1 section per depot ✓ CHEMICAL STORAGE 85/001168

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
2	UNDERGROUND	3.1	~~6400~~ see sketch 9,000 L

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1271	SHELL X2	3.1	I		X2	3000	L
1294	TOLUENE	3.1	I		TOLUOL	3000	L

Depot number	Type of depot	Class	Licensed maximum storage capacity
3	ABOVEGROUND TANK	2	7500 L

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1978 ~~2.5~~	UNODOURISED PROPANE ~~PENTANE~~ 2.1 ~~3~~			3YE	~~PENTANE~~	5000	L

Depot number	Type of depot	Class	Licensed maximum storage capacity
4	ABOVEGROUND TANK	2.1	7500 L

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1011	UNODOORISED BUTANE	2.1		2A2	BUTANE	5000	L

Depot number	Type of depot	Class	Licensed maximum storage capacity
5	ABOVEGROUND TANK	2.1	2000 L

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1075	LPG	2.1			~~PROPANE~~	1200	L

ARI C

Complete 1 section per depot

CHEMICAL STORAGE
35/001168

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
6	DRUM STORAGE.	6.1(b)	30,000 L

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
2489	INSTAPAK A	6.1	III		INSTAPAK COMPONENT A	15,000	L

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

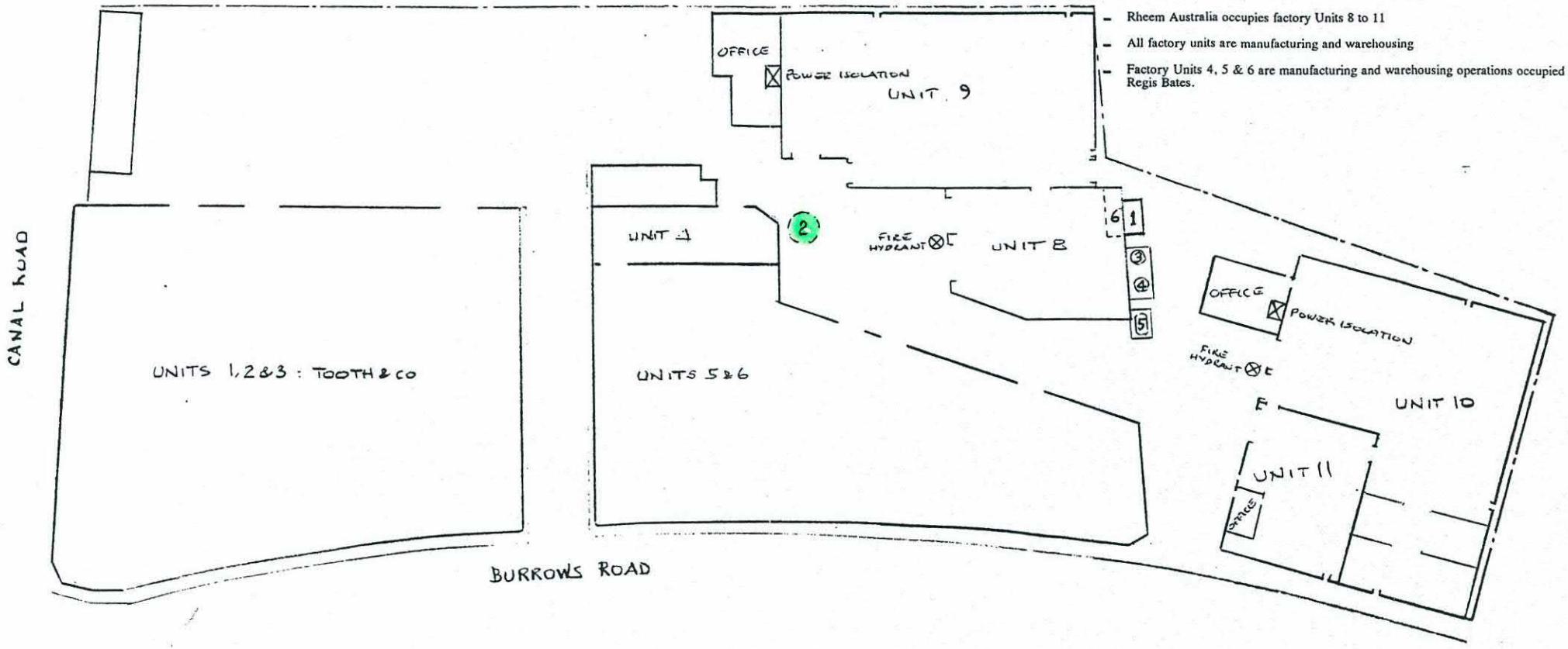
3RD ANGLE PROJECTION	SHARP CORNERS TO BE BROKEN UNLESS STATED. DRAWING No. & MATERIAL TO BE CLEARLY MARKED ON COMPONENT OR PATTERN

35/001168

LEGEND

Depot No	Depot Type	Goods Stores In Depot	Quantity Kg/Litres/No
1	ROOFED STORE	FLAMMABLE LIQUIDS	6,000
2	UNDERGROUND TANK	FLAMMABLE LIQUIDS	9,000
3	ABOVEGROUND TANK	FLAMMABLE GASES	7,500
4	ABOVEGROUND TANK	FLAMMABLE GASES	7,500
5	ABOVEGROUND TANK	FLAMMABLE GASES	2,000
6	ROOFED STORE	COMBUSTIBLE LIQUID CLASS 6	30,000

- Power isolation in Unit 9 Accessible from factory only
- Rheem Australia occupies factory Units 8 to 11
- All factory units are manufacturing and warehousing
- Factory Units 4, 5 & 6 are manufacturing and warehousing operations occupied by St Regis Bates.



REV.	CHG. INST.	DETAILS	BY	CHD	DATE

DIMENSIONS IN mm UNLESS STATED

TOLERANCE

This drawing and the information contained herein is the sole property of Rheem Australia Limited, is strictly confidential and must not be used or disclosed without the written consent of Rheem Australia Limited.

Drawn	Ch'd.	App'd.

SCALE 1:1000

Sheet size A3

RHEEM AUSTRALIA LIMITED

Location of Dangerous Goods at
RHEEM AUSTRALIA LIMITED, 3 Burrows Road, Alexandria

TAPE No.

DRAWING No. SA-39

DANGEROUS GOODS ACT, 1975

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE)*
FOR THE KEEPING OF DANGEROUS GOODS

DANGEROUS GOODS BRANCH 16 OCT 1991

(* Delete whichever is not required)

Name of Applicant in full (see Item 1 - Explanatory notes - page 4)	PETER ECONOMY ON BEHALF OF RHEEM AUSTRALIA LTD
Trading name or occupier's name (if any)	RHEEM AUSTRALIA. LTD
Postal Address	P.O. BOX 36 ALEXANDRIA Postcode 2015
Address of the premises to be licensed. (Including Street No.)	Units 8–11 3 BURROWS ROAD, ALEXANDRIA Postcode 2015
Nature of premises (See Item 2 - Explanatory notes - page 4)	MANUFACTURING / WAREHOUSE.
Telephone number of applicant	STD Code Number 5507888

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (See item 3 - Explanatory notes - page 4)	Storage capacity	Dangerous goods: Product being stored	C & C Office use only
			To add	
1	ROOFED STORE.	6000.	FLAMMABLE LIQUIDS	
2	UNDERGROUND TANK	9,000	FLAMMABLE LIQUIDS	
3	ABOVEGROUND TANK	7,500	FLAMMABLE GASES	
4	A/G TANK	7,500	FLAMMABLE GASES	
5	A/G TANK	7,000	FLAMMABLE GASES	
6	DECANTING CYLINDER ~~A/G TANK~~	380	FLAMMABLE GASES	7 100 38X1
7	DECANTING CYLINDERS	380	FLAMMABLE GASES.	7 100 38X1
8				
9				
10				
11				
12				

SEEN

Has site plan been approved by the Dangerous Goods Branch? Yes / No — 5/11/91 SIGNATURE/DATE — If yes, no plans required. If no, please attach site plan, or provide sketch plan overleaf. which has been checked by an accredited consultant

Have premises previously been licensed? Yes / No — If yes, state name of previous occupier, and licence No. (if known) 35/001168 RHEEM. AUST.

Name of oil company supplying flammable liquid (if applicable).

Signature of applicant ..... Date 15/10/91

For external explosives magazine(s), please fill in page 3.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

Signature of Inspector..... Date.....

WorkCover Authority of N.S.W.
Locked Bag 2 Post Office
Rose[illegible] NSW 2018

31 AUG 1990

APPROVED DRAWING ATTACHED.

APPLICATION FOR RENEWAL OF
LICENCE FOR THE KEEPING OF DANGEROUS GOODS
UNDER AND SUBJECT TO THE PROVISIONS OF THE
DANGEROUS GOODS ACT, 1975
AND REGULATIONS THEREUNDER.

DETAILS OF CURRENT LICENCE WHICH EXPIRES ON 15/06/90

Summary of goods on site { Flammable Gases
{ Flammable Liquid
{

5 depot(s) on site (only details of first 6 listed)

DEPOT NO.	DEPOT TYPE	GOODS STORED IN DEPOT	QUANTITY KG/LITRES/NO.
1	Pkge St	Flammable Liquid	6,000
~~2~~	~~U/G Tank~~	~~Flammable Liquid~~	~~20,000~~
~~3~~	~~U/G Tank~~	~~Flammable Liquid~~	~~20,000~~
4	U/G Tank	Flammable Liquid	9,000
5	A/G Tank	Flammable Gases	2,000
6	A/G TANKS	FLAMMABLE GASES (2 OFF)	7,500 LITRES

WORKCOVER AUTHORITY 17 OCT 1990 DISTINGUISHING LETTER

TO RENEW YOUR LICENCE
PLEASE CAREFULLY CHECK THE DETAILS SHOWN AND MAKE ANY REQUIRED CORRECTIONS. THE SIGNED AND DATED NOTICE IS THEN TO BE RETURNED, WITH PAYMENT (IF ANY), TO THE DANGEROUS GOODS SECTION, AT THE ABOVE ADDRESS.
For enquiries Ph (02) 287 6252 Fax (02) 662 2834

(Signature) ..... (Date) 9/10/90

LICENSEE OR REGISTERED HOLDER
RHEEM AUST LTD
* Items 2 4 3 have been abandoned.
BOX 36 P O
ALEXANDRIA 2015

Amount Payable
$ 0.00

PREMISES TO BE LICENSED OR REGISTERED IF NOT AS ABOVE
1 "BURROWS RD"
ALEXANDRIA 2015

35/001168 — LICENCE/REG. No.
15/ 6/1991 — Next EXPIRY DATE

DEPARTMENT OF INDUSTRIAL RELATIONS
1 OXFORD STREET, P.O. BOX 847, DARLINGHURST 2010, N.S.W.
TELEPHONE: 266 8111 (DX22, SYDNEY)

TO BE PAID

APPLICATION FOR
LICENCE FOR THE KEEPING OF DANGEROUS GOODS
UNDER AND SUBJECT TO THE PROVISIONS OF THE
DANGEROUS GOODS ACT, 1975
AND REGULATIONS THEREUNDER.

DEPOT	TYPE	PRODUCT	UNITS (ABT)	CLASS	FEE
~~1~~	~~ROOFED~~	~~FLAMMABLE LIQUID~~	~~6,000~~	~~3~~	~~$15~~
~~2~~	~~U/G TANK~~	~~FLAMMABLE LIQUID~~	~~20,000~~	~~3~~	~~$15~~
~~3~~	~~U/G TANK~~	~~FLAMMABLE LIQUID~~	~~20,000~~	~~3~~	~~$15~~
4	U/G TANK	FLAMMABLE LIQUID	9,000	3	$15
5	A/G TANK	FLAMMABLE GASES	2,000	2.1	$15

* N.B. ITEMS 1 2 & 3 HAVE BEEN ABANDONED & ARE NO LONGER USED.

Data Entered
03 Sep 90

DD 002. 120
2.020 93 1.100 23.

DECLARATION: I certify that the details shown are correct (amend if necessary) and forward herewith fee of $30.00 (Signature) ..... (Date) 13-6-89

APPLICANT
RHEEM AUST LTD
BOX 36 P O
ALEXANDRIA 2015

350011686
469956 20/06/89 CHQ

AMOUNT PAID
$75.00

PREMISES TO BE LICENSED OR REGISTERED IF NOT AS ABOVE
1 BURROWS RD

35 0011686 LICENCE/REG. No.
15 JUNE 90 NEXT EXPIRY

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE) FOR THE KEEPING OF DANGEROUS GOODS

DATA ENTERED 17 SEP 1984 OPERATOR ONE

VERIFIED

Application is hereby made for *a licence (or amendment of the licence) described below. *the transfer of the licence (*delete whichever is not required)

for the keeping of dangerous goods in or on the premises

FEE: $10.00 per Depot for new licence.
3 $10.00 for amendment or transfer.

Name of Applicant in full (see over)	RHEEM AUSTRALIA LIMITED
Trading name or occupier's name (if any)	RHEEM SEALED AIR PRODUCTS
Postal address	P.O. Box 36 ALEXANDRIA Postcode 2015
Address of the premises including street number (if any)	No 3 BURROWS RD, ALEXANDRIA. Postcode 2015
Nature of premises (see over)	FACTORY
Telephone number of applicant	STD Code 02 Number 5194211

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods: Product being stored	C & C Office use only
			DD	005 120 0
1	ROOFED PACKAGE STORE	6400 l	STAYBOND SHELL X2 SOLVENT	6 020 63
2	U/G tank	18,000 l	Petrol	2 020 24
3	"	"	"	2 020 24
4	"	9,000 l	Solvent	2 020 93
5	A/G tank	2,500 l	LPG	1 100 23
6				
7				
8				
9				
10				
11				
12				

Has site plan been approved? Yes ~~No~~ If yes, no plans required. If no, please attach site plan.

Have premises previously been licensed? ~~Yes~~ No If yes, state name of previous occupier.

Name of company supplying flammable liquid (if any) STAYBOND

Signature of applicant ..... Date 30/8/84

For external explosives magazine(s), please fill in side 2.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, C S DAVIES being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

Signature of Inspector C. Davies Date 25.10.84.

DANGEROUS GOODS

Application is hereby made for—*a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: $10.00 per Depot

Name of Applicant in full (see over)	Surname HETHERINGTON Given Names Anthony
Trading name or occupier's name (if any)	RHEEM AUSTRALIA LIMITED
Postal address	P.O. BOX 36 Alexandria Postcode 2015
Telephone number of applicant	STD Code 02 Number 519-4211
Address of the premises in or on which the depot or depots are situated (including street number, if any)	1 Burrows Road ALEXANDRIA Postcode 2015
Nature of premises (see over)	FLEXIBLE PACKAGING MANUFACTURE

(PLEASE ATTACH SITE PLAN)

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity LITRS	Dangerous goods 0004 0200 Product being stored	C & C Office use only
1	Undergr. Tank	18160	Petrol	2 020 24
2	" "	18160	Petrol	2 020 24
3	" "	9080	SOLVANT	2 020 93
4	Abovegr. Tank	2500	LP Gas	1 100 33
5				
6				
7				
8				
9				
10				
11				
12				

Name of company supplying flammable liquid (if any) GAS = BORAL, SOLVENT - Shell, PETROL - Caltex

Have premises previously been licensed? YES

If known, state name of previous occupier -- Licence No. 1168-6

Signature of applicant P. Hetherington Date 12/9/80

For external explosives magazine(s), please fill in side 2.

LICENCE No.

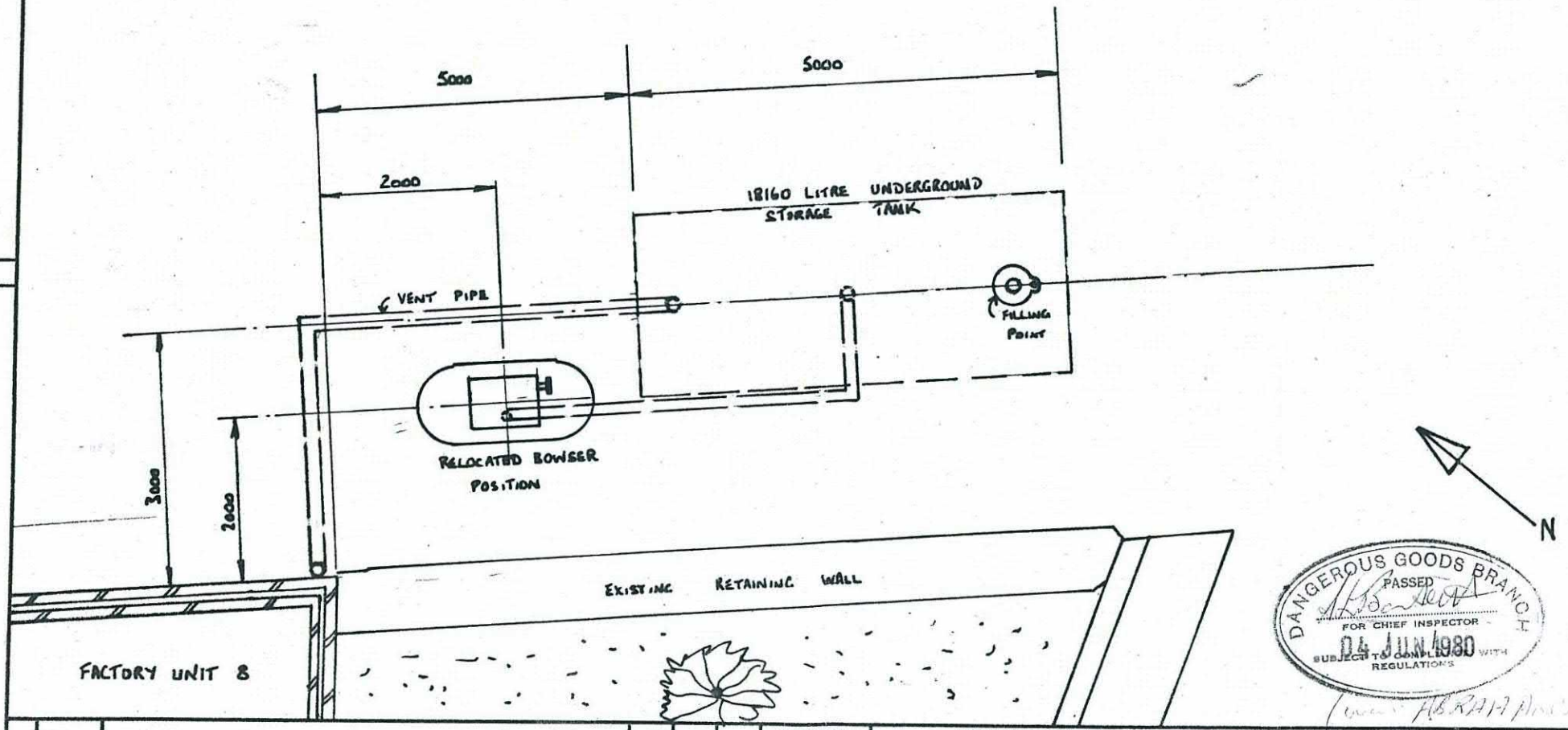
FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, ADLY NOUR being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

3RD ANGLE PROJECTION

SHARP CORNERS TO BE BROKEN UNLESS STATED. DRAWING No. & MATERIAL TO BE CLEARLY MARKED ON COMPONENT OR PATTERN



DANGEROUS GOODS BRANCH
PASSED
FOR CHIEF INSPECTOR
04 JUN 1980
SUBJECT TO COMPLIANCE WITH REGULATIONS

(was ABRAHAM Plans) 1168

REV.	CHC. INST.	DETAILS	BY	CHD.	DATE

DIMENSIONS IN mm UNLESS STATED

TOLERANCE

This drawing and the information contained herein is the sole property of Rheem Australia Limited, is strictly confidential and must not be used or disclosed without the written consent of Rheem Australia Limited.

Drawn	Ch'd.	App'd.
P.H		
29-5-80		

SCALE 1:50

Sheet size A3

RHEEM AUSTRALIA LIMITED
CANAL ROAD, ST PETERS, N.S.W. 2044

PLAN OF PROPOSED UNDERGROUND STORAGE TANK FOR PETROL

TAPE No.

DRAWING No. 10389

REV.

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE) FOR THE KEEPING OF DANGEROUS GOODS

Application is hereby made for—*a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

25 MAY 1980

FEE: ~~$10.00~~ per Depot 30 — 60

Amend & Renr

Name of Applicant in full (see over)	Surname ~~HETHERINGTON~~ Given Names ~~PHILIP~~ ANTHONY. 375 2705780 U3A
Trading name or occupier's name (if any)	RHEEM AUSTRALIA LTD.
Postal address	P.O. BOX 36 ALEXANDRIA Postcode 2015
Telephone number of applicant	STD Code 02 Number 5194211
Address of the premises in or on which the depot or depots are situated (including street number, if any)	No. 1 BURROWS RD, LF ALEXANDRIA Postcode 2015
Nature of premises (see over)	FACTORY.

~~PLEASE ATTACH SITE PLAN~~

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity LITRES	Dangerous goods Product being stored DD.	903.120.4 C & C Office use only
1	Underg TANK	18160	3.1 Petrol	2.020.24
2	✓ ✓	9080	SOLVENT	2.020.93
3	Aboveg TANK	2500	2.1 LP Gas	1.100.33
4				
5				
6				
7				
8				
9				
10				
11				
12				

Name of company supplying flammable liquid (if any) CTK

Have premises previously been licensed? YES

If known, state name of previous occupier AS ABOVE Licence No. 1168-6

Signature of applicant X P. Hetherington Date 21.5.80

For external explosives magazine(s), please fill in side 2.

LICENCE No.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous

Application is hereby made for—*a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: $10.00 per Depot 3 $50

DATA ENTRY VERIFIED — OPERATOR

Name of Applicant in full (see over)	Surname Rheem Aust Ltd Given Names
Trading name or occupier's name (if any)	1640 7/08/79 038
Postal address	Box 36 PO Alexandria Postcode 2015
Telephone number of applicant	STD Code Number
Address of the premises in or on which the depot or depots are situated (including street number, if any)	Canal Rd & Burrows Rd Postcode
Nature of premises (see over)	

PLEASE ATTACH SITE PLAN (1979)

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods: Product being stored	Dangerous goods: C & C Office use only
1	Underground Tank	1800 litre	Petrol	2 020 23
2	"	"	"	2 020 23
3	"	"	"	2 020 23
4	"	9000	x2 Solvent	2 020 93
5	Above ground tank	2500	LPG	1 100 33
6				
7				
8	OK to renew licence from H. Conroy			
9	— N/A	to check	abandoned	
10		solvent	tanks	
11	— see plan & letter on file			Chy
12				

Name of company supplying flammable liquid (if any) Colrex - Shell & C.S.R

Have premises previously been licensed? YES

If known, state name of previous occupier as before Licence No. 1168.6

Signature of applicant [signature] Date 6.8.79

For external explosives magazine(s), please fill in side 2.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

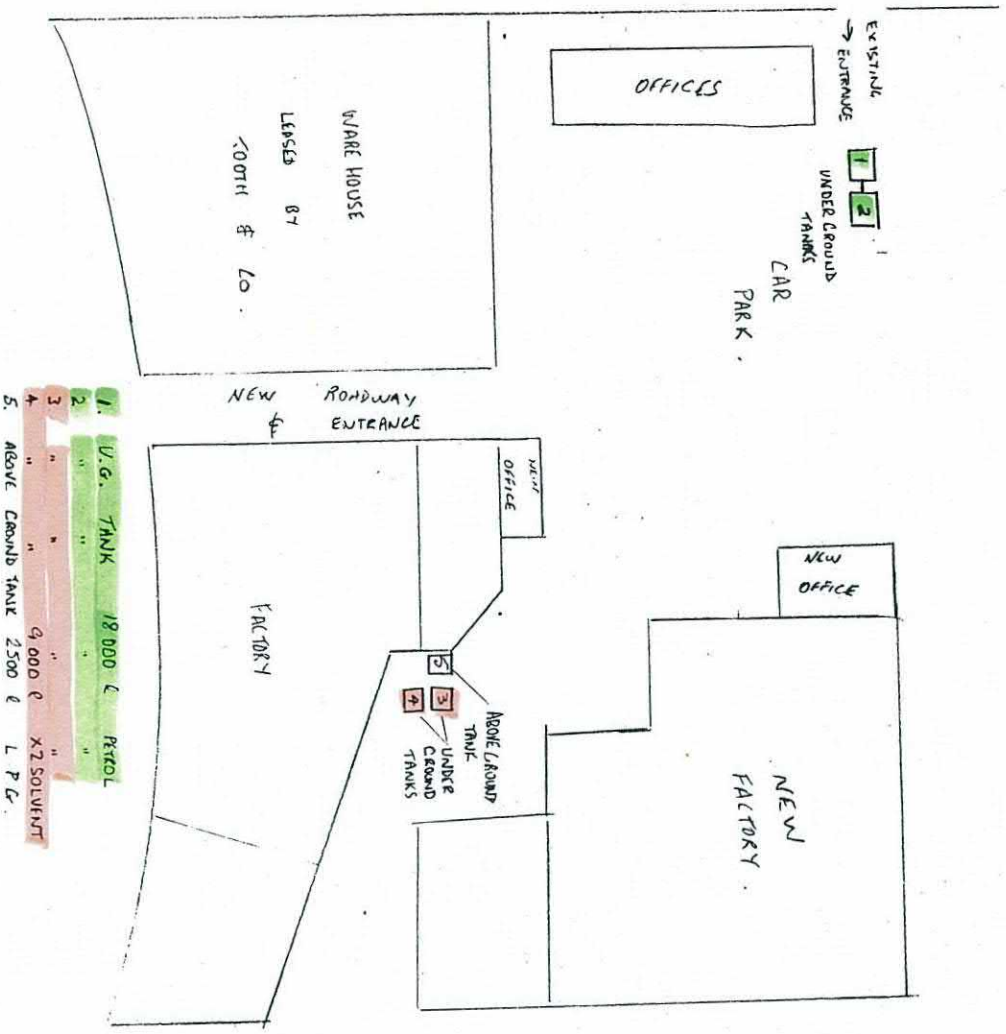
I, George F. Brooks being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

Signature of Inspector [signature]

ake rough sketch of ground layout of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings. If space insufficient, attach separate plan.

9th July 1979

1979.



EXPLANATORY NOTES

NAME IN FULL OF OCCUPIER/S — Full name(s) of occupier(s) must be given. Trading name (if any) should also be shown.

NATURE OF PREMISES — State whether premises comprise of dwelling, service station, depot, etc.

CONSTRUCTION OF DEPOT — If storage is in an aboveground depot indicate the material of which the depot is constructed, e.g., brick, steel, concrete, and then the amount of inflammable liquid or dangerous goods and the type being stored, e.g., mineral spirit, kerosene, acetone, etc.

If storage is within underground or aboveground tanks, indicate the quantities and type of liquid or goods being stored in each tank. Also the capacity of each individual tank. Attach separate list, if space insufficient.

The completed form should be forwarded to:

The Chief Inspector of Inflammable Liquids,
P.O. Box R.216,
Royal Exchange 2000.

Application is hereby made for—*a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: $10.00 per Depot

Name of Applicant in full (see over)	Surname RHEEM AUSTRALIA LIMITED Given Names
Trading name or occupier's name (if any)	~~RHEEM AUSTRALIA LIMITED~~ 9798 13/10/78 038
Postal address	P.O. BOX 36, ALEXANDRIA. Postcode 2015
Telephone number of applicant	STD Code ~~02~~ 02 Number 51-0371
Address of the premises in or on which the depot or depots are situated (including street number, if any)	CNR. CANAL & BURROWS ROADS, ALEXANDRIA. N.S.W. Postcode 2015
Nature of premises (see over)	PACKAGING MANUFACTURING SITE & STORE.

~~PLEASE ATTACH SITE PLAN~~

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods: Product being stored	Dangerous goods: C & C Office use only
1	Underground	18160+	3.1 Petrol	2.020.24
2	" "	18160+	3.1 Petrol	2.020.24
3	" "	18160+	3.2 Solvent	2.020.24
4	" "	9080+	3.1 Petrol	2.020.14
5	Underground	9080+	3.2 Solvent	2.020.14
6	Aboveground	2500+	2.1 L.P.Gas	1.100.33
7	Roofed Package	908+	3.2 Solvent	6.020.12
8				
9				
10				
11				
12				

Name of company supplying flammable liquid (if any) Caltex (M.S) C.S.R (D.A.A) Shell (x2)

Have premises previously been licensed? YES

If known, state name of previous occupier as before Licence No. 01168-06

Signature of applicant [signature] Date 21-9-78.

~~For external explosives magazine(s), please fill in side 2.~~

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, George E. Blake being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

Signature of Inspector [signature]

Name of Occupier (Surname) RHEEM AUSTRALIA LTD (First Names)

Trading Name (if any) A. ABRAHAMS & SONS

Postal Address P.O. Box 36 Alexandria Postcode 2015

Address of the premises in which the depot or depots are situated Cnr CANAL & BURROWS Rds Alexandria Postcode 2015

Occupation Packaging Manufacturers

Nature of Premises FACTORY

Particulars of construction of depots and maximum quantities of inflammable liquid and/or dangerous goods to be kept at any one time.

~~PLEASE SKETCH SITE ON BACK OR ATTACH PLAN~~

Depot No.	Construction of depots *			Inflammable Liquid		Dangerous Goods						
	Walls	Roof	Floor	Mineral spirit litres	Mineral oil litres	Class 1 litres	Class 2 litres	Class 3 kg	Class 4 m^3	Class 5A# litres	Class 5B# litres	Class 9 litres
1	Brick	Concrete	Concrete		4313				Solvent Based Inks			
2	"	"	"		18160				Solvents & S. Based Inks			
3	Aboveground tank				2270				Waste Solvents/Inks			
4	Underground tank				18160				x2 Solvent			
5	"	"		18160	~~18160~~				Mineral Spirit (Petrol)			
6	Underground tank				9080				DE-NATured Alcohol			
7	Aboveground tank			not included in total					(2500)			
8	"	"	"		4267.5				Copper Naphthanate			
9	Brick	Concrete	Concrete		908				Solvents			
10	Underground tank			9080					Mineral Spirit (Petrol)			
11				18160					" " (Petrol)			
12									PUBLIC REVENUE A/c			
13									duty 125.00			
14									(Date) 20.6.75			
	TOTAL								Receipt No. 9580			

* If kept in tanks describe depots as underground or aboveground tanks.

\# Insert water capacity of tanks or cylinders.

Name of Company supplying inflammable liquid Speedie Bros, Petroleum Products Pty Ltd, Coates Bros, Local Inks, Shell, Caltex

Have premises previously been licensed? Yes - Currently Licenced to 15-6-76

If known, state name of previous occupier As above.

Signature of applicant L. Nicholson Date 18-6-75.

X

CERTIFICATE OF INSPECTION

I, Leslie Edward Brooks being an Inspector under the Inflammable Liquid Act, 1915, do hereby certify that the premises or store described above does comply with the requirements of that Act and regulations with regard to its situation and construction for the keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Signature of Inspector L.E. Brooks

CALTEX OIL (AUSTRALIA) PTY. LIMITED

INC. IN N.S.W.

CALTEX HOUSE, 167-187 KENT STREET, SYDNEY, N.S.W., 2000
BOX 1593, G.P.O., SYDNEY, N.S.W., 2001 - - - PHONE: 20555
TELEGRAMS: 'THUBAN'

In reply please quote:

31-7-75

The Superintendent,
Department of Mines,
Explosives Department,
P.O. Box 48, G.P.O.,
SYDNEY N.S.W. 2001

Dear Sir,

We wish to advise that we have removed — 1 X 1000 installed — 1 X 4000 gallon underground storage tank (s).

at Abrahams & Sons P/L. B. 1168
Canal Road
Alexandria

RHEEM Aust. Ltd.
cnr CANAL & BURRows
ALEX.

Yours very truly,
CALTEX OIL (AUSTRALIA) PTY. LTD.,

for P.H.C. Watson
Manager - Operations N.S.W.

Contractor Pullin of Lakemba

STORE LICENCE
AMENDMENT TO REGISTRATION OR LICENCE) INFLAMMABLE LIQUID AND/OR DANGEROUS GOODS.

ame of Occupier (Surname) RHEEM AUSTRALIA LTD. (First Names)

rading Name (if any) A. ABRAHAMS AND SONS.

ostal Address P.O. BOX 36, ALEXANDRIA NSW Postcode 2015

ddress of the remises in which the epot or depots are ituated CNR CANAL/BURROWS RD, ALEXANDRIA NSW Postcode 2015.

)ccupation PACKAGING MANUFACTURERS.

lature of Premises FACTORY.

'articulars of construction of depots and maximum quantities of inflammable liquid and/or dangerous goods to be kept t any one time.

PLEASE SKETCH SITE ON BACK OR ATTACH PLAN (1975)

Depot No.	Construction of depots *			Inflammable Liquid		Dangerous Goods						
	Walls	Roof	Floor	Mineral spirit litres	Mineral oil litres	Class 1 litres	Class 2 litres	Class 3 kg	Class 4 m^3	Class 5A# litres	Class 5B# litres	Class 9 litres
1	BRICK	CONCRETE	CONCRETE			4750			SOLVENT BASED INKS			
2	"	"	"			20,000			SOLVENTS AND S.B. INKS			
3	BRICK BUND		"			2,500			WASTE SOLVENTS/INKS			
4	UNDERGROUND TANK					20,000			X2 SOLVENT			
5	"		"	20,000					PETROL			
6	"		"			10,000			DE-NATURED ALCOHOL			
7	ABOVE-GROUND		"						2,500 L.P.G.			
8	"	"	"			4,700			COPPER NAPTHENATE			
9	BRICK	CONCRETE	CONCRETE			1,000			SOLVENTS			
10	UNDERGROUND TANK			10,000					PETROL			
↓ P.T.O	TOTAL											

* If kept in tanks describe depots as underground or aboveground tanks.

Insert water capacity of tanks or cylinders.

Name of Company(s) supplying inflammable liquid(s) COATES BROS, SOCOL INKS, SHELL, CALTEX SPEEDIE-GAS, PETROLEUM PRODUCTS PTY LTD.

Have premises previously been licensed? YES - CURRENTLY LICENCED - N° B1168 TO 15-6-76

If known, state name of previous occupier N/A.

Signature of applicant L. Nicholson FOR: A. ABRAHAMS AND SONS Date 6-6-75

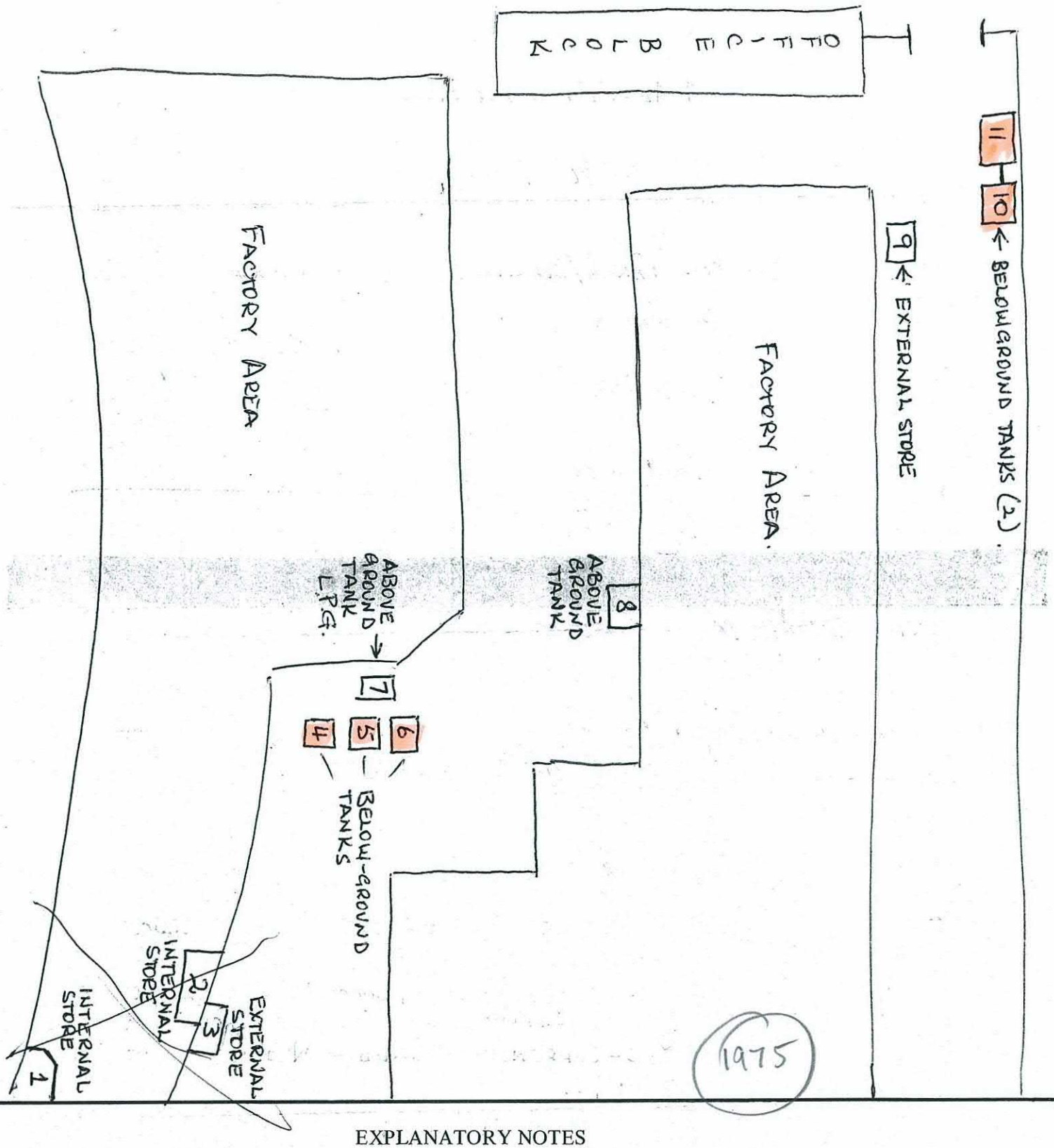
CERTIFICATE OF INSPECTION

I, Leslie Edward Brooks being an Inspector under the Inflammable Liquid Act, 1915, do hereby certify that the premises or store described above does comply with the requirements of that Act and regulations with regard to its situation and construction for the keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Signature of Inspector L E Brooks

Date 9-6-75

Make rough sketch of ground layout of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings. If space insufficient, attach separate plan.



EXPLANATORY NOTES

NAME IN FULL OF OCCUPIER/S – Full name(s) of occupier(s) must be given. Trading name (if any) should also be shown.

NATURE OF PREMISES – State whether premises comprise of dwelling, service station, depot, etc.

CONSTRUCTION OF DEPOT – If storage is in an aboveground depot indicate the material of which the depot is constructed, e.g., brick, steel, concrete, and then the amount of inflammable liquid or dangerous goods and the type being stored, e.g., mineral spirit, kerosene, acetone, etc.

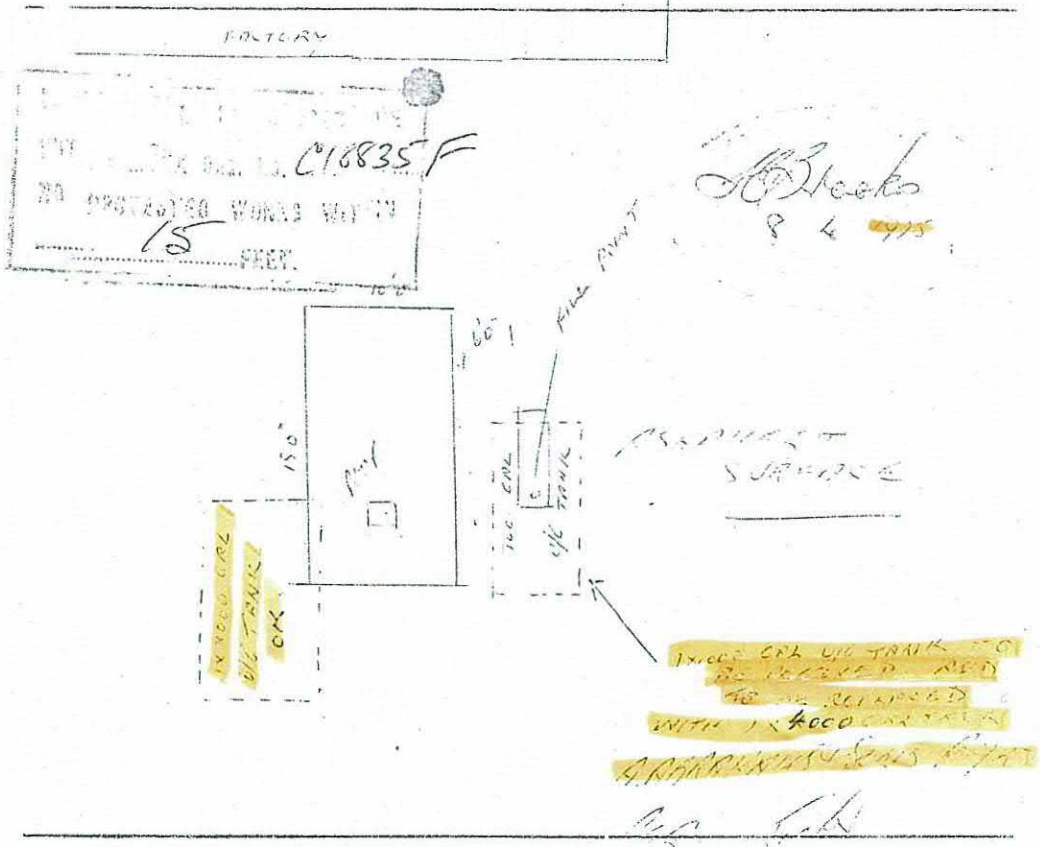
PLAN OF PROPOSED WORK FOR CALTEX

(Measurements as per Page 2)

(Show Buildings, Fences, other Structures, Fall of Ground etc.
Switchboard - Vent Location)

ACCURATE MEASUREMENTS

CLIENT'S NAME & ADDRESS [illegible]



THE ABOVE LAYOUT MEETS WITH MY APPROVAL .....
Customer Signature
Essential

EXPLOSIVES: Requirements do not permit fill points inside a building or within 5' of any door. No pump inside a building or on a wharf without special approval. U/ground Gasoline Tanks must be separated from protected works, as under:

CALTEX
DRAWING
C18835E

500 gallon	- 10' = 7'6 x 4'	dia)	
1000 "	- 10' = 8'7"x 5'	dia)	
2000 "	- 10' = 9'10x 7'	dia)	Protected Works, Dwellings,
3000 "	- 13' =13'10x 7'	dia)	Amenities, Property,
4000 "	- 15' =18' x 7'	dia)	Boundaries, etc. To be
5000 "	- 18' =22'2 x 7'	dia)	shown on plan.
6000 "	- 18' =26'3 x 7'	dia)	

ELECTRICAL: Each pump to have its own circuit. Fuse 4½ amps. S/E
9 amps D/E pmp.

Client to provide switchboard at own expense.
Multiple tanks to be separated by 2'0".

1 x 1000 Gal U/G Tank
to be removed + replaced
with 1 x 4000 Gal

alteration or amendment of any such Registration or Licence, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Box R.216, Royal Exchange Sydney, N.S.W. 2000 and must be accompanied by the prescribed fee, as set out hereunder:

Registration of Premises (Fee $3.00 p.a.) – For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, $6.50 p.a.) – For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1, 2 and 9.

Store License, Div. B (Fee, See Regulation 7) – For quantities exceeding 4,000 gallons of mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4. ($15.00 p.a.).

Fees for the keeping of inflammable liquid and dangerous goods in excess of the above stated quantities and also for Liquid Petroleum Gas storage are set out in Regulation 7.

1. Name of occupier including full christian names. — RHEEM AUSTRALIA LIMITED ✓

2. Trading Name (if any) — A. Abrahams & Sons

3. Locality of the premises in which the depot or depots are situated — No. or Name corner; Street Canal & Burrows Roads,; Town ALEXANDRIA

6.

4. Postal address — Postcode 2015

5. Occupation — manufacturers

6. Nature of premises (dwelling, garage etc.)

7. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

PLEASE ATTACH PLAN OF PREMISES

Depot No.	Construction of depots *			Inflammable liquid		Dangerous goods					
	Walls	Roof	Floor	Mineral spirit gallons	Mineral oil gallons	Class 1 gallons	Class 2 gallons	Class 3 lb	Class 4 cu ft	Class 5A water gal	Class 9 gallons
1	brick	concrete	concrete		950 ✓						
2	brick	concrete	concrete		200 /						
3	underground tank			2000 /							
4	"	"		2000 /							
5	"	"		1000 /							
6	"	"					1000 ✓				
7	aboveground	"			1000 X						
8	"	"			940						
9	"	"								490 ✓	
10	underground	"		4000 X						2450	

/c.

Date of application _____, 19__

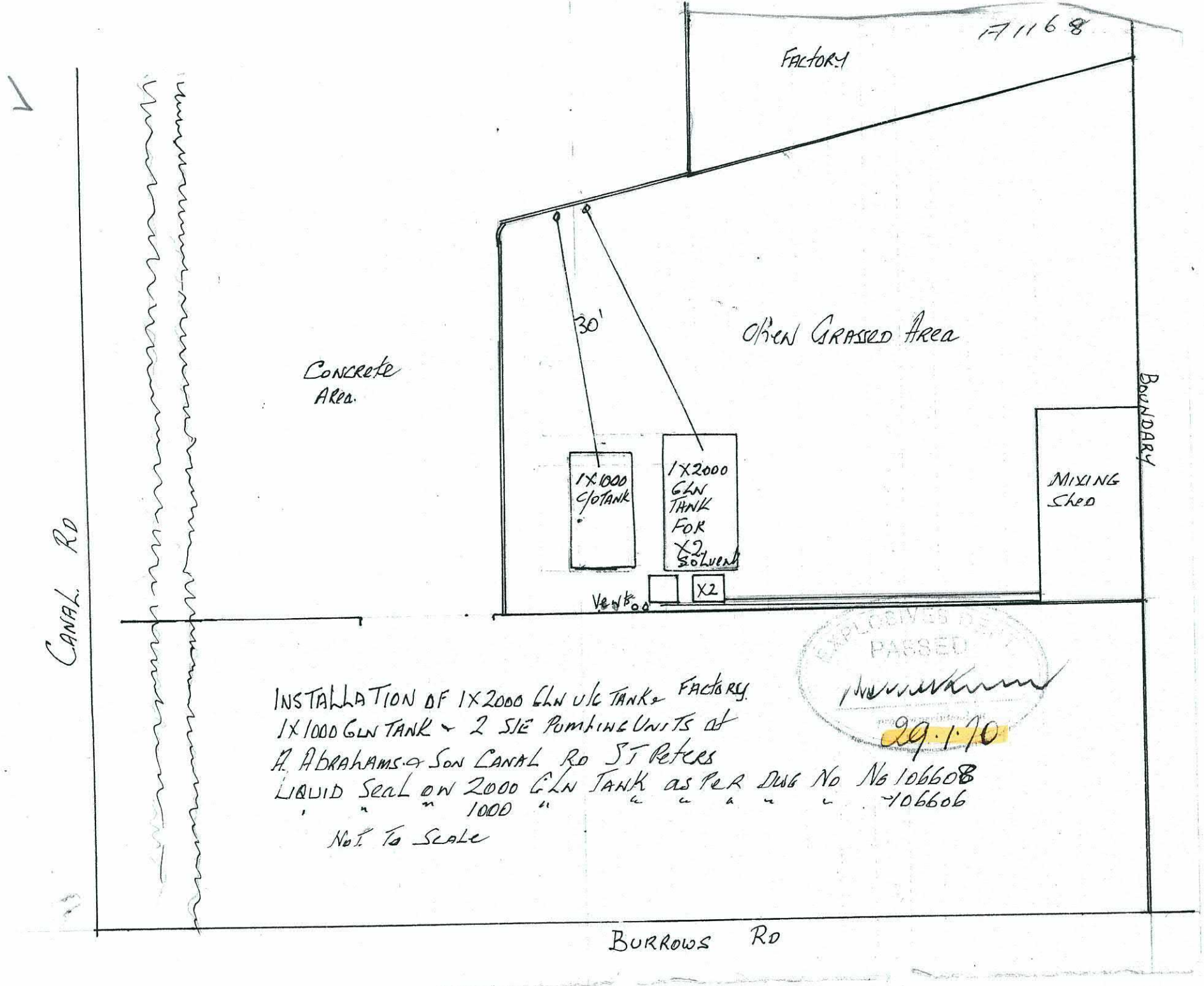
EHQ / $ 19.00

11/5/72 (Date)

Receipt No. 2929

CERTIFICATE OF INSPECTION

I, _____ being an Inspector under the Inflammable Liquid Act, 1915 (as amended), do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.


A1168
FACTORY
30'
OPEN GRASSED AREA
CONCRETE AREA.
BOUNDARY
1X1000 G/O TANK
1X2000 GLN TANK FOR X2 SOLVENT
X2
VENTS
MIXING SHED
CANAL RD
BURROWS RD
EXPLOSIVES DEPT
PASSED
29.1.70
INSTALLATION OF 1X2000 GLN U/G TANK & FACTORY
1X1000 GLN TANK & 2 SITE PUMPING UNITS AT
A. ABRAHAMS & SON CANAL RD ST PETERS
LIQUID SEAL ON 2000 GLN TANK AS PER DWG NO NG106608
" " 1000 " " " " " 106606
NOT TO SCALE

STORAGE

WAREHOUSE.

70'-0"

GARDEN - LAWN AREA

UNDERGROUND OIL TANK

PUMP METER & STOP VALVE

PROPOSED 1 TON L.P.G. SKID TANK

PROTECTED WORKS.

3'-0"

17'-0"

CONCRETE

DRIVEWAY

FROM.

THE GAS SUPPLY CO. (N.S.W.) LTD.

P.O BOX 46

FOR

A. ABRAHAM & SON

CANAL STREET

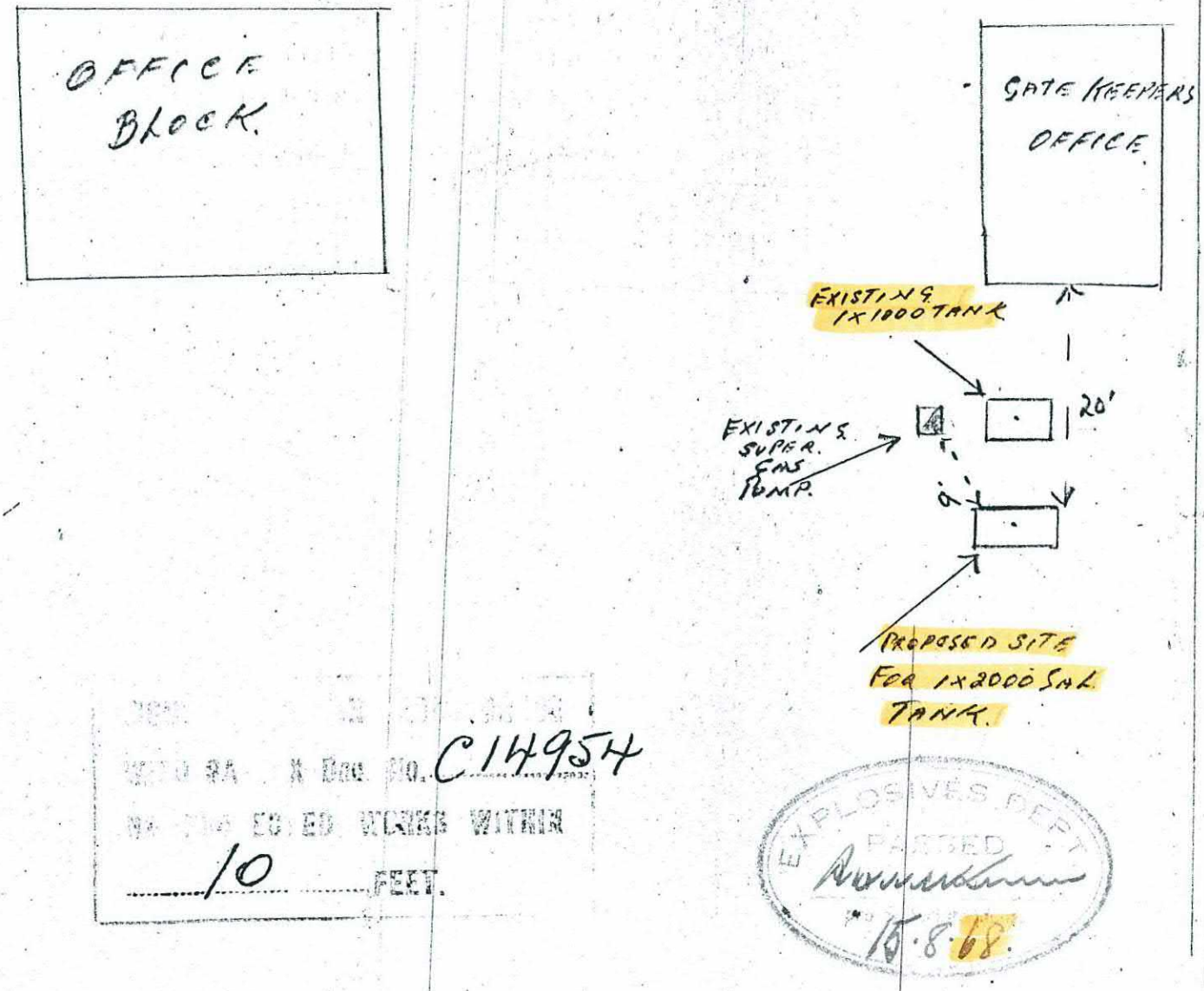
A. ABRAHAMS & SONS PTY LTD
CANAL RD ALEXANDRIA

PLAN OF PROPOSED WORK

(Measurements as per Page 2)

(Show Buildings, Fences, other Structures, Fall of Ground etc.
Switchboard - Vent Location)

CANAL ROAD.



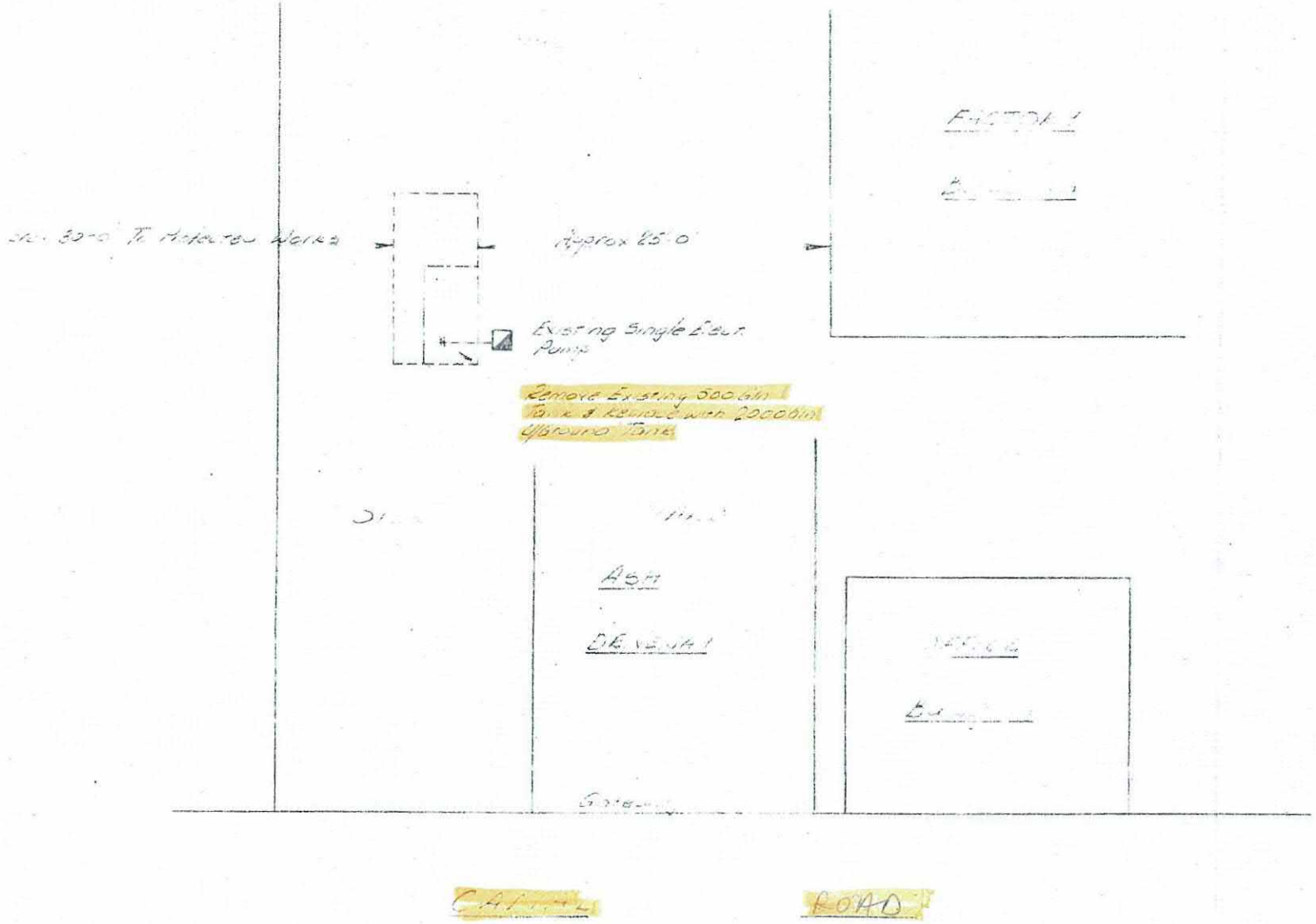
C14954

10 FEET.

EXPLOSIVES DEPT. PASSED 15.8.68

THE ABOVE LAYOUT MEETS WITH MY APPROVAL .....
Customer

EXPLOSIVES: Requirements do not permit fill points inside a building or within 5' of any door or Pump inside a building or on a wharf without special approval. U/ground Gasoline Tanks must be separated from protected



2/4/58

DATE	BY	DESCRIPTION	CHECKED
		REVISION	

CALTEX OIL (AUSTRALIA) PTY. LTD.

DISTRICT LOCATION

DATE CHECKED

SCALE APP'D (DIST ENG.)

DRAWN

TRACED

DRAWER

OPIED
CON-
MITED

Sydney Local Environmental Plan 2010 - Draft

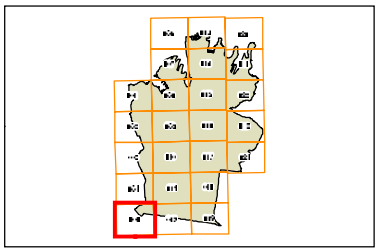
Acid Sulfate Soils Map - Sheet ASS_005

Acid Sulfate Soils

- Class 1
- Class 2
- Class 3
- Class 4
- Class 5

Cadastre

- Cadastre 17/08/2010 © City of Sydney



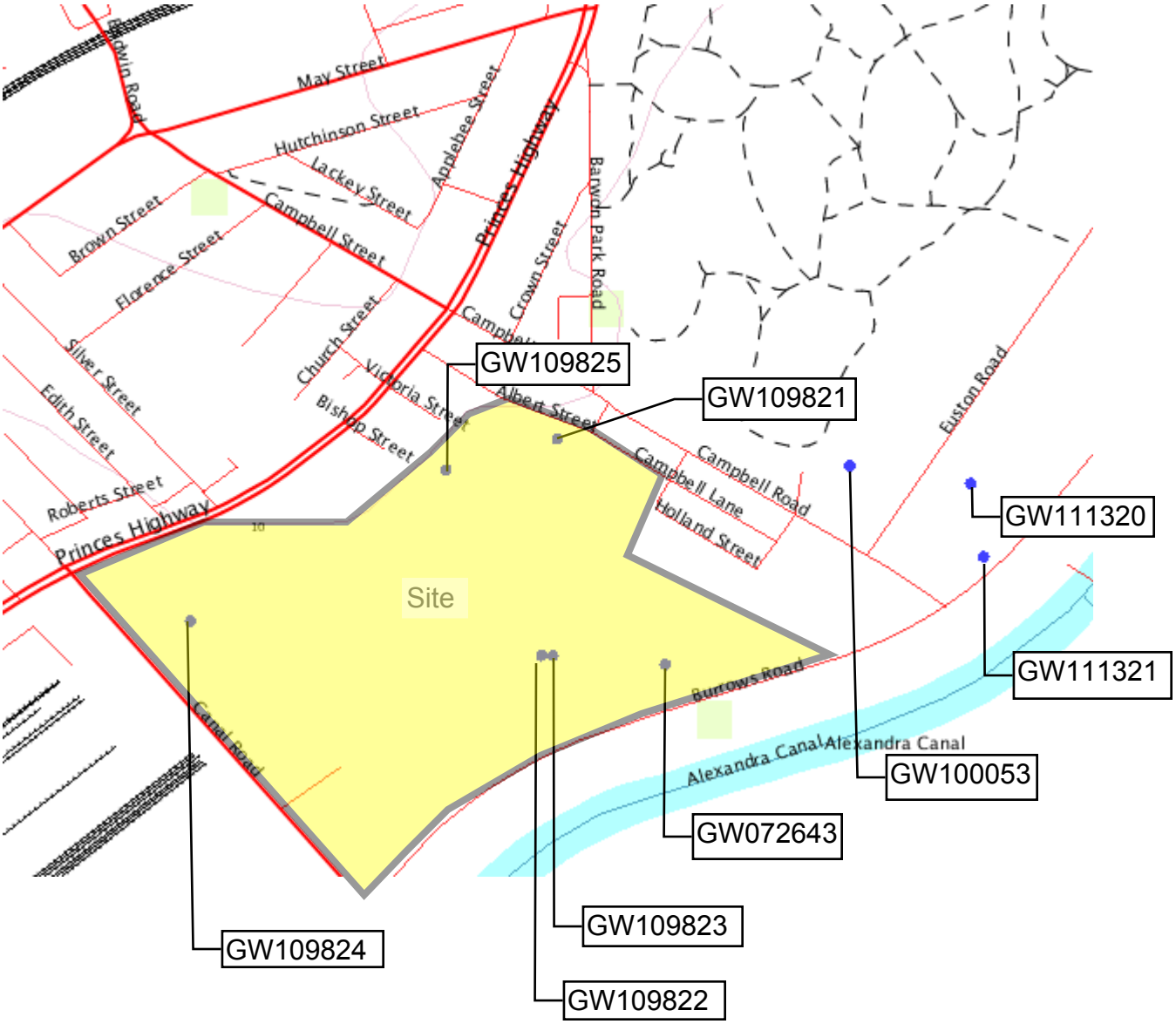
N

0 200 Metres

Scale: 1:5,000 @ A3

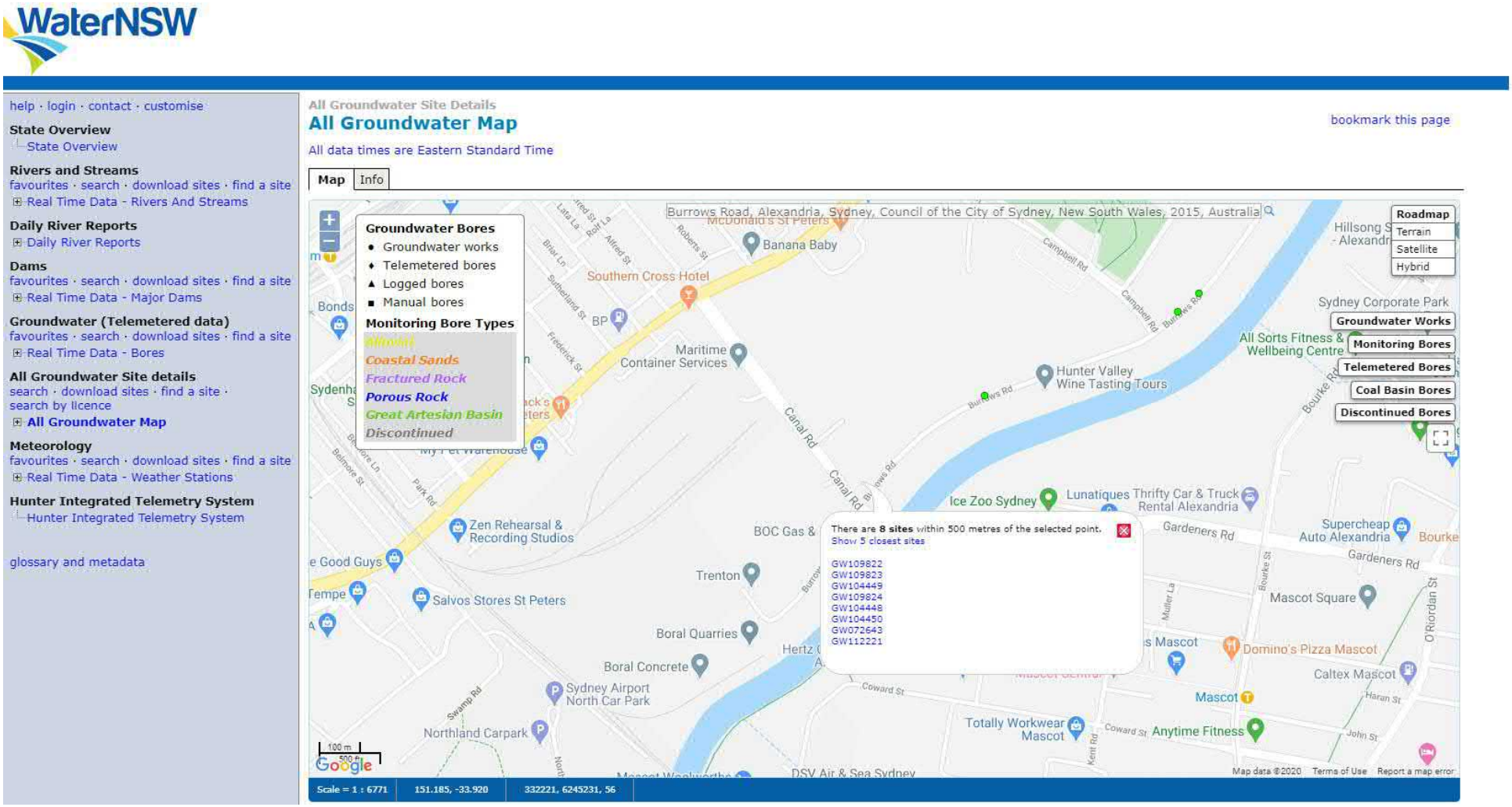
Projection: GDA 1994 Zone 56

Map identification number: SSW_CSV_LEP_ASS_005_20100817


May Street
Hutchinson Street
Lackey Street
Campbell Street
Brown Street
Florence Street
Silver Street
Edith Street
Roberts Street
Princes Highway
Church Street
Victoria Street
Bishop Street
Albert Street
Crown Street
Barwon Park Road
Campbell Road
Campbell Lane
Holland Street
Euston Road
Burrows Road
Alexandra Canal
Canal Road
Site
GW109825
GW109821
GW111320
GW111321
GW100053
GW072643
GW109823
GW109822
GW109824

Burrows Road, Alexandria – Groundwater Bore Search

Date Accessed: 5/03/2020



WaterNSW

help · login · contact · customise

State Overview
- State Overview

Rivers and Streams
favourites · search · download sites · find a site
- Real Time Data - Rivers And Streams

Daily River Reports
- Daily River Reports

Dams
favourites · search · download sites · find a site
- Real Time Data - Major Dams

Groundwater (Telemetered data)
favourites · search · download sites · find a site
- Real Time Data - Bores

All Groundwater Site details
search · download sites · find a site ·
search by licence
- **All Groundwater Map**

Meteorology
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- Real Time Data - Weather Stations

Hunter Integrated Telemetry System
- Hunter Integrated Telemetry System

glossary and metadata

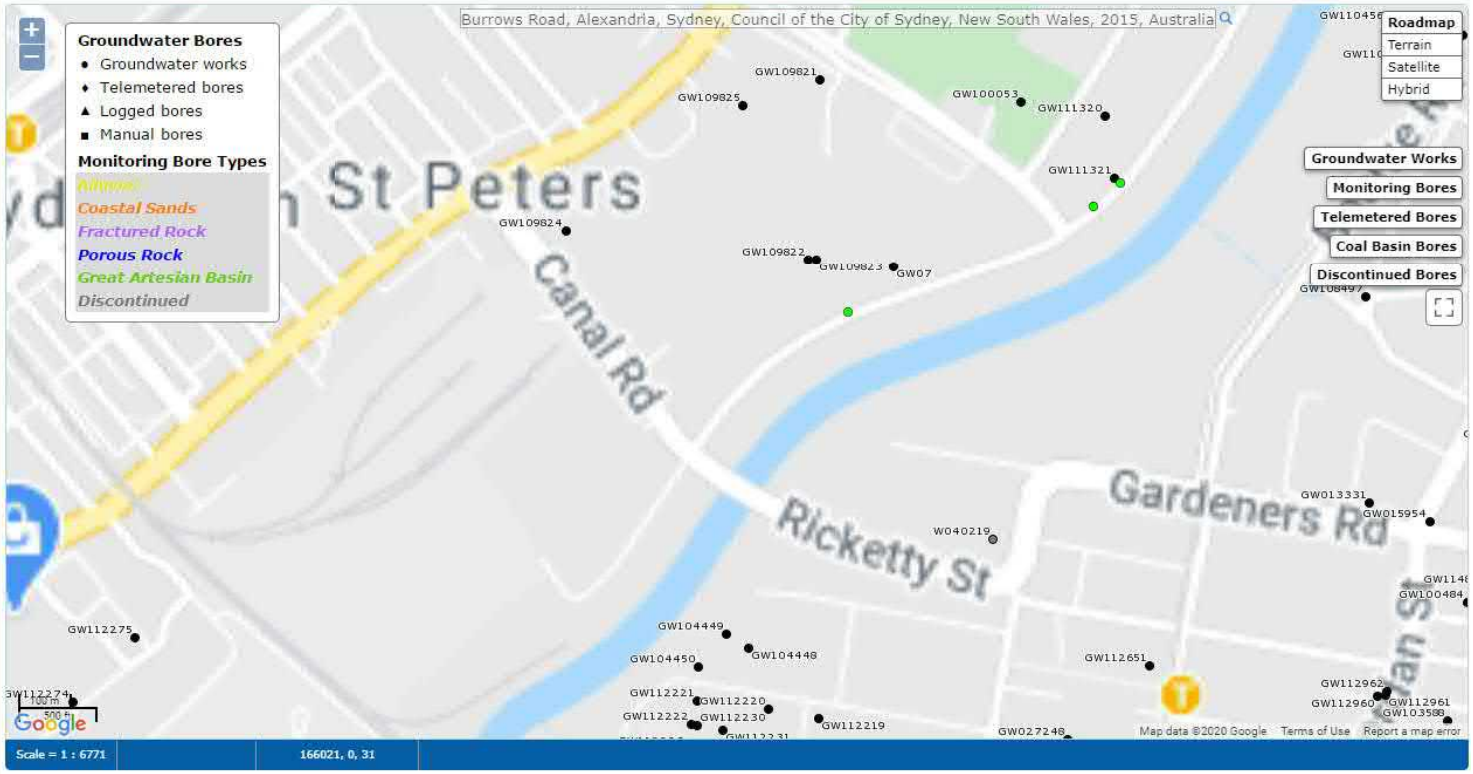
All Groundwater Site Details

All Groundwater Map

bookmark this page

All data times are Eastern Standard Time

Map | Info



ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

P.O. Box 149
Yagoona NSW 2199

Telephone: +612 9644 1679
Mobile: 0412 169 809
Facsimile: +612 8076 3026
Email: alsearch@optusnet.com.au

9th August, 2015

AECOM AUSTRALIA PTY LTD
PO Box Q410,
QVB PO,
SYDNEY, NSW 1230

Attention: Alex Latham

RE: **Burrows and Canal Roads, Alexandria**
Job No. 60438840

Note 1:	**Lot 11 DP 606737**	**(page 1)**
Note 2:	**Lot 12 DP 606737**	**(page 5)**

Note 1:

Current Search

Folio Identifier 11/606737 (title attached)
DP 606737 (plan attached)
Dated 31st July, 2015
Registered Proprietor:
TALLINA PTY LIMITED

Title Tree
Lot 11 DP 606737

Folio Identifier 11/606737

Certificate of Title Volume 14280 Folio 15

Certificate of Title Volume 11397 Folio 192

(a)

Certificate of Title Volume 4654 Folio 38

Certificate of Title Volume 108 Folio 179

(b)

PA 47256

Conveyance Book 2073 No. 256

(bi)

Conv Bk 1050 No. 966

(bii)

Conv Bk 1344 No. 405

****

Summary of proprietor(s)
Lot 11 DP 606737

Year	Proprietor
	(Lot 11 DP 606737)
2000 – todate	Tallina Pty Limited
1988 – 2000	Goodman Hardie Pty Limited
(1988 – todate)	*(various leases, shown on folio identifier 11/606737 and historical folio 11/606737)*
	(Lot 11 DP 606737 – CTVol 14280 Fol 15)
1987 – 1988	Goodman Hardie Pty Limited
1986 – 1987	Superannuation Fund Investment Trust
(1986 – 1988)	*(various commercial leases, see CTVol 14280 Fol 192)*
	(Lot 1 DP 53958 – Area 9 Acres 0 Roods 31 ½ Perches – CTVol 11397 Fol 192)
1980 – 1986	Superannuation Fund Investment Trust
1979 – 1980	Investment & Merchant Finance Corporation Limited
1972 – 1979	Rheem Australia Limited
1970 – 1972	A. Abrahams & Sons Pty Limited

See Notes (a) & (b)

Note (a)

	(Part of that piece or parcel of land – Area 1 Acre 0 Roods 24 ½ Perches, Parish of Petersham, part of the 3 Acres 3 Roods 0 Perches originally granted to Thomas Holt in 1859 – CTVol 4654 Fol 38)
1949 – 1970	A. Abrahams & Sons Pty Limited
1934 – 1949	The Council of the Municipality of Alexandria
	(Part of that piece or parcel of land – Area 3 Acres 3 Roods 0 Perches, Parish of Petersham originally granted to Thomas Holt in 1859 - CTVol 108 Fol 179)
1876 – 1934	William Cooper, gentleman
1870 – 1876	Sir David Cooper, baronet Thomas Brickland, merchant

*****

Note (b)

	(Those pieces or parcels of land being part of M. Gannon's grant, Parish of Petersham, - Area 4 Acres 0 Roods 10 Perches and part of William Hutchinson's grant – Area 8 Acres 3 Roods 4 ¾ Perches, Parish of Alexandria and that part of Portion 11, Parish of Petersham – Area 2 Acres 1 Rood 5 Perches – Conv Bk 2073 No. 256)
1948 – 1970	A. Abrahams & Sons Pty Limited

See Notes (bi) & (bii)

Note (bi)

	(That piece or parcel of land, part of Portion 11, Parish of Petersham – Area 2 Acres 1 Rood 5 Perches – Conv Bk 1050 No. 966)
1915 – 1948	The Council of the Municipality of Alexandria
1907 – 1915	Joseph Collins) administrators of the Estate of Charlotte Collins) James Collins
1907 – 1907	James Collins

*****

Note (bii)

	(Those pieces or parcels of land being part of M. Gannon's grant, Parish of Petersham – Area 4 Acres 0 Roods 10 Perches and part of William Hutchinson's grant, Parish of Alexandria – Area 8 Acres 3 Roods 4 ¾ Perches – Conv Bk 1344 No. 405)
1924 – 1948	The Council of the Municipality of Alexandria
1915 – 1924	Gerald Melbourne Cooper, of London, esquire
1915 – 1915	Sir William Charles Cooper, baronet

*****

Note 2:

Current Search

Folio Identifier 12/606737 (title attached)
DP 606737 (plan attached)
Dated 31st July, 2015
Registered Proprietor:
TALLINA PTY LIMITED

Title Tree
Lot 12 DP 606737

Folio Identifier 12/606737

Certificate of Title Volume 14107 Folio 184

PA 54762

Conveyance Book 2194 No. 102

Conveyance Book 1361 No. 421

****

Summary of proprietor(s)
Lot 12 DP 606737

Year	Proprietor
	(Lot 12 DP 606737)
2000 – todate	Tallina Pty Limited
(2012 – todate)	*(lease to Staging Rentals of part, shown on folio identifier 12/606737)*
1988 – 2000	Goodman Hardie Pty Limited
(1988 –todate)	*(various leases shown on historical folio 12/606737)*
	(Lot 12 DP 606737 – CTVol 14107 Fol 184)
1987 – 1988	Goodman Hardie Pty Limited
1980 – 1987	Superannuation Fund Investment Trust
1980 – 1980	The Commissioner for Main Roads
(1980 – 1988)	*(various leases shown on CTVol 14107 Fol 184)*
	(Those pieces or parcels of land , Waterloo Estate–Parish of Alexandria with other lands – Area 2 Acres 1 Rood 5 Perches – Conv Bk 2194 No. 102)
1951 – 1980	The Austral Brick Company Pty Limited
	((Those pieces or parcels of land , Waterloo Estate–Parish of Alexandria with other lands – Area 2 Acres 1 Rood 5 Perches – Conv Bk 1361 No. 421)
1924 – 1951	The Central Brick and Tile Company Pty Limited
1924 – 1924	Frederick William Lynch, brickyard manager Walter George West, brickyard manager

*****

Advance Legal Searchers
Pty Ltd Phone: 02 9644 1679

Advance Legal Searchers Pty Ltd hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act.

Information provided through Tri-Search an approved LPI*NSW* Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 11/606737

SEARCH DATE	TIME	EDITION NO	DATE
31/7/2015	1:24 PM	44	9/3/2015

LAND

LOT 11 IN DEPOSITED PLAN 606737
AT ALEXANDRIA
LOCAL GOVERNMENT AREA SYDNEY
PARISH OF ALEXANDRIA COUNTY OF CUMBERLAND
PARISH OF PETERSHAM COUNTY OF CUMBERLAND
TITLE DIAGRAM DP606737

FIRST SCHEDULE

TALLINA PTY LIMITED (T 6758541)

SECOND SCHEDULE (8 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 R979465 COVENANT
3 Z571492 LEASE TO THE SYDNEY COUNTY COUNCIL OF SUBSTATION PREMISES NO.1629 (GROUND FLOOR), TOGETHER WITH RIGHTS AND EASEMENTS FOR ELECTRICITY PURPOSES. EXPIRES 31.12.2039
4 AB375822 LEASE TO COCA-COLA AMATIL (AUST) PTY LIMITED BEING UNIT 4, 1-3 BURROWS RD, ALEXANDRIA. EXPIRES: 30/9/2009. OPTION OF RENEWAL: 5 YEARS.
AF813535 VARIATION OF LEASE AB375822 EXPIRY DATE NOW 30/9/2013.
AI581842 VARIATION OF LEASE AB375822 EXPIRY DATE NOW 31/5/2015.
5 AH317745 LEASE TO STAGING RENTALS PTY LTD OF UNITS 5 AND 6, BURROWS INDUSTRIAL ESTATE, 1-3 BURROWS ROAD, ALEXANDRIA. EXPIRES: 21/4/2015.
* AJ399694 VARIATION OF LEASE AH317745 EXPIRY DATE NOW 21/4/2020.
6 AH391891 LEASE TO QANTAS AIRWAYS LIMITED OF UNIT 3, BURROWS INDUSTRIAL ESTATE, 1-3 BURROWS ROAD, ALEXANDRIA. EXPIRES: 4/7/2017.
7 AI491053 LEASE TO SEALED AIR AUSTRALIA PTY LIMITED OF UNITS 8, 9, 10 AND 11, BURROWS INDUSTRIAL ESTATE, 1-3 BURROWS ROAD, ALEXANDRIA. EXPIRES: 31/7/2016.
8 AI937029 LEASE TO PCA EXPRESS PTY LTD OF UNIT 7, BURROWS INDUSTRIAL ESTATE, 1-3 BURROWS ROAD, ST PETERS. EXPIRES: 14/9/2017.

END OF PAGE 1 - CONTINUED OVER

Aecom - Alexandria PRINTED ON 31/7/2015

ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.

◄ RECENT ACTIVITY
Powered by triSearch

Advance Legal Searchers
Pty Ltd Phone: 02 9644 1679

LPI On-Line

FOLIO: 11/606737 PAGE 2

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.

Advance Legal Searchers Pty Ltd Phone: 02 9644 1679

Advance Legal Searchers Pty Ltd hereby certifies that the information contained in this document has been provided electronically by the Registrar General.

Information provided through Tri-Search an approved LPI*NSW* Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
31/7/2015 1:24PM

FOLIO: 11/606737

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14280 FOL 15

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/5/1988		AMENDMENT: PARISH-COUNTY	
8/9/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
20/10/1988	X899145	SURRENDER OF LEASE	
20/10/1988	X899149	LEASE	
20/10/1988	X899148	LEASE	EDITION 1
31/10/1988	X943170	DISCHARGE OF MORTGAGE	EDITION 2
12/4/1991	Z571492	LEASE	EDITION 3
10/2/1992	E247889	SURRENDER OF LEASE	
10/2/1992	E247890	LEASE	EDITION 4
27/5/1992	E485924	LEASE	EDITION 5
18/12/1992	E988990	DISCHARGE OF MORTGAGE	
18/12/1992	E988991	MORTGAGE	
18/12/1992	E989053	VARIATION OF LEASE	
18/12/1992	E989054	LEASE	EDITION 6
17/11/1993	I804259	VARIATION OF LEASE	
25/1/1994		AMENDMENT: LOCAL GOVT AREA	
9/2/1994	U15388	DEPARTMENTAL DEALING	EDITION 7
22/11/1994	U808345	SURRENDER OF LEASE	
22/11/1994	U808347	REQUEST	
22/11/1994	U808348	DISCHARGE OF MORTGAGE	
22/11/1994	U808349	MORTGAGE	EDITION 8
23/11/1994	U808350	LEASE	
23/11/1994	U808351	LEASE	EDITION 9

END OF PAGE 1 - CONTINUED OVER

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
31/7/2015 1:24PM

FOLIO: 11/606737

PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
22/8/1995	0383600	DISCHARGE OF MORTGAGE	EDITION 10
25/8/1995	0383605	MORTGAGE	EDITION 11
18/9/1995	0383608	APPLICATION	EDITION 12
17/12/1996	2696486	TRANSFER OF LEASE	
13/2/1997	2834857	LEASE	EDITION 13
4/8/1997	3249406	REQUEST	
4/8/1997	3104782	SURRENDER OF LEASE	
4/8/1997	3104783	LEASE	EDITION 14
8/9/1997		AMENDMENT: LOCAL GOVT AREA	
19/11/1997	3594760	SURRENDER OF LEASE	
19/11/1997	3594761	LEASE	
19/11/1997	3594762	LEASE	EDITION 15
27/10/1998	5355196	VARIATION OF LEASE	
17/11/1998	5400677	LEASE	EDITION 16
14/12/1998	5461005	LEASE	EDITION 17
23/3/1999	5697831	LEASE	EDITION 18
18/6/1999	5913503	MORTGAGE	EDITION 19
3/8/1999	6054531	LEASE	EDITION 20
5/5/2000	6758539	DISCHARGE OF MORTGAGE	
5/5/2000	6758540	DISCHARGE OF MORTGAGE	
5/5/2000	6758541	TRANSFER	
5/5/2000	6758542	MORTGAGE	EDITION 21
14/9/2000	7089785	DEPARTMENTAL DEALING	
22/9/2000	7105873	LEASE	
22/9/2000	7105874	LEASE	EDITION 22
7/9/2001	7925349	SURRENDER OF LEASE	

END OF PAGE 2 - CONTINUED OVER

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
31/7/2015 1:24PM

FOLIO: 11/606737

PAGE 3

Recorded	Number	Type of Instrument	C.T. Issue
7/9/2001	7925350	LEASE	EDITION 23
28/11/2001	8153902	DISCHARGE OF MORTGAGE	EDITION 24
1/10/2002	8911012	MORTGAGE	
1/10/2002	8911011	LEASE	EDITION 25
9/12/2002	9198651	VARIATION OF LEASE	
9/12/2002	9198652	VARIATION OF LEASE	
9/12/2002	9198653	LEASE	EDITION 26
15/8/2003	9884047	LEASE	EDITION 27
14/3/2004	AA472866	DEPARTMENTAL DEALING	
2/7/2004	AA772248	LEASE	EDITION 28
30/3/2005	AB375822	LEASE	EDITION 29
13/7/2005	AB619238	LEASE	EDITION 30
7/12/2006	AC794928	REQUEST	
7/12/2006	AC794929	LEASE	EDITION 31
6/3/2007	AC963663	LEASE	EDITION 32
12/6/2007	AD183529	DISCHARGE OF MORTGAGE	EDITION 33
5/12/2007	AD614910	LEASE	EDITION 34
13/12/2007	AD632464	LEASE	EDITION 35
22/7/2008	AE98640	LEASE	EDITION 36
25/8/2009	AE927787	LEASE	EDITION 37
2/9/2009	AE947145	SURRENDER OF LEASE	EDITION 38
13/10/2010	AF813535	VARIATION OF LEASE	
15/3/2011	AG120181	VARIATION OF LEASE	
30/8/2011	AG464837	LEASE	EDITION 39

END OF PAGE 3 - CONTINUED OVER

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
31/7/2015 1:24PM

FOLIO: 11/606737 PAGE 4

Recorded	Number	Type of Instrument	C.T. Issue
24/10/2012	AH317745	LEASE	EDITION 40
26/11/2012	AH391891	LEASE	EDITION 41
15/5/2014	AI581842	VARIATION OF LEASE	
23/5/2014	AI491053	LEASE	EDITION 42
10/12/2014	AI937029	LEASE	EDITION 43
9/3/2015	AJ320321	REQUEST	EDITION 44
13/4/2015	AJ399694	VARIATION OF LEASE	

*** END OF SEARCH ***

Aecom - Alexandri PRINTED ON 31/7/2015

Req:R760197 /Doc:CT 14280-015 CT /Rev:28-Jan-2011 /Sts:OK.SC /Prt:27-Jun-2014 18:45 /Pgs:ALL /Seq:1 of 2
Ref:ALS /Src:T

CERTIFICATE OF TITLE

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

14280015

Appln Nos. 19 & 47256

Vol. 14280 Fol. 15

Prior Title Vol. 11397 Fol. 192

EDITION ISSUED

7 11 1980

(Page 1) Vol. 14280 Fol. 15

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

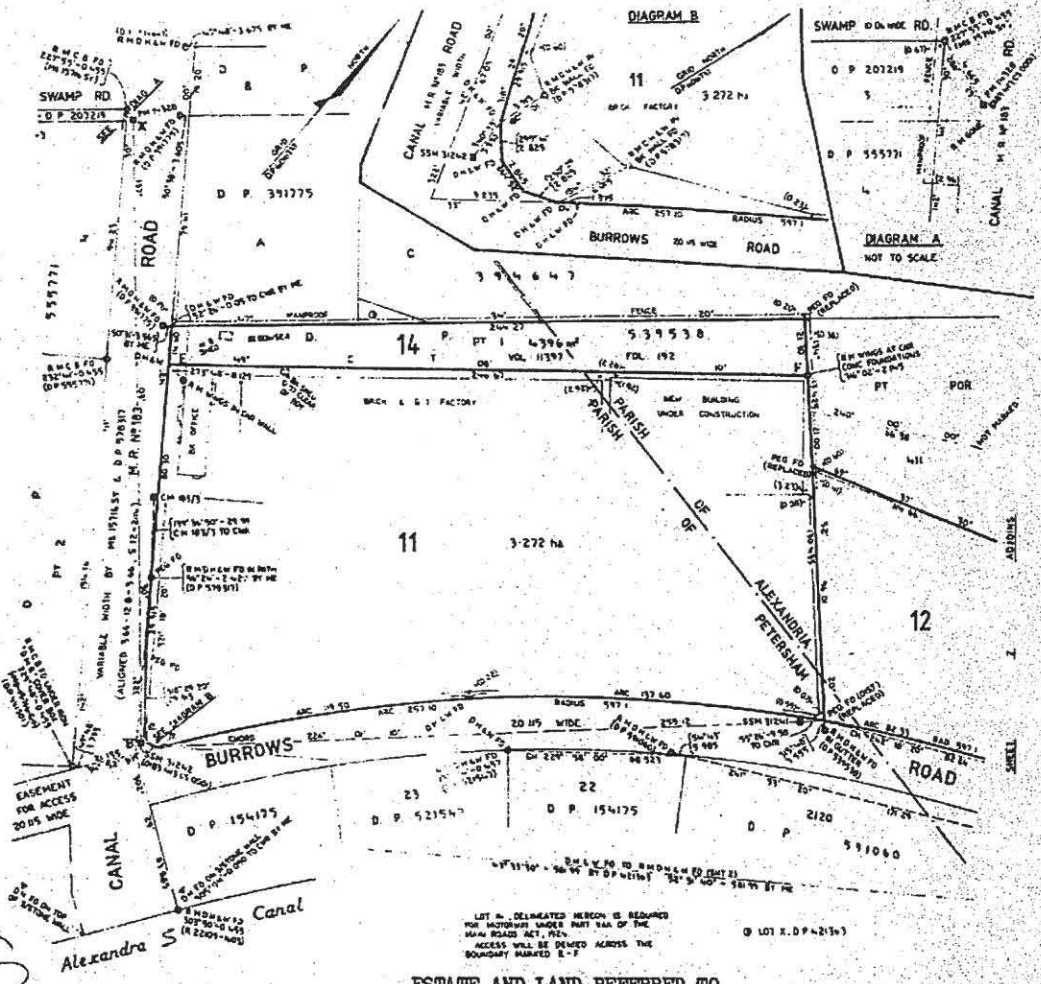
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 11 in Deposited Plan 606737 at Alexandria in the Municipality of South Sydney Parishes of Alexandria and Petersham and County of Cumberland being part of 565.6 hectares granted to William Hutchinson on 27-5-1823 (Parish of Alexandria) part of 1.72 hectares granted to Michael Gannon on 4-7-1859, part of 5.058 hectares granted to Patrick Maguire and Thomas Maguire on 4-7-1859 and part of 1.518 hectares granted to Thomas Holt on 5-9-1859 (Parish of Petersham).

FIRST SCHEDULE

~~SUPERANNUATION AND INVESTMENT TRUST.~~

SECOND SCHEDULE

GRY L 1. Reservations and conditions, if any, contained in the Crown Grants above referred to.

L 2. N661013P Lease to The Sydney County Council of premises known as Substation Premises No.1629 (Ground floor) together with rights and easements for electricity purposes. Expires 31-12-1989.

3. ~~R585967 Lease to Tooth & Co. Limited of premises known as Units 1, 2 and 3 of the building on the corner of Canal Street and Burrows Road, Alexandria together with option of renewal. Expires 31-10-1984.~~ Expired W427591

L 4. R585969P Lease to Rheem Australia Limited of premises know as units 4 to 9 inclusive of the building on the corner of Canal Street and Burrows Road, Alexandria together with option of renewal. Expires 31-10-1989.

CV 5. R979465P Covenant.

RG 2/64

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE REGISTRAR GENERAL'S OFFICE.

Req:R760197 /Doc:CT 14280-015 CT /Rev:28-Jan-2011 /Sts:OK.SC /Prt:27-Jun-2014 18:45 /Pgs:ALL /Seq:2 of 2
Ref:ALS /Src:T

Vol. 14280 Fol. 15

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	Signature of Registrar General
Goodman Hardie Pty.Limited by Transfer W978853.Registered 21-8-1987.				

CANCELLED

SEE AUTO FOLIO

W304657 L (pm)
W427891 R
W888165X R
W978850 wx 6
51 D/L 6 (T)
52 L 6
W978853 J-4
X48916M. R

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION	
~~W304657 Lease to Liquor Distributors Pty. Limited of premises being Units 1, 2 and 3 in the building on Corner Canal Street and Burrows Road, Alexandria, together with rights Expires 31-10-1987. Option of renewal 3 yea~~						
~~W888165 Caveat by Edwards Dunlop & Co. Limited. Registered 15-5-1987 as regards premises being Units 1, 2 and 3 in building situated at Corner of Canal St and Burrows Rd, Alexandria Registered 15.5.1987~~					Surrendered	W978851
W978852P		Lease to Edwards Dunlop and Company Limited. Registered of premises being Units 1,2 and 3 Cnr. Canal Street and Burrows Road Alexandria together with and reserving rights Expires 31-5-1992. Registered 20-7-1987.			Withdrawn	W978850
W978854P		Mortgage to Bill Acceptance Corporation Limited. Registered 21-8-1987.				
X48916P		Mortgage to Midland International Australia Limited Registered 7-10-1987				

(Page 2 of 2 pages)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

/Req:R760201 /Doc:CT 11397-192 CT /Rev:03-Nov-2010 /Sts:OK.SC /Prt:27-Jun-2014 18:50 /Pgs:ALL /Seq:1 of
Ref:ALS /Src:T

NEW SOUTH WALES

[redacted]ICATE OF TITLE

[redacted]OPERTY ACT, 1900, as amended.

11397192

Appln. Nos.19 and 47256

Prior Title Vol.4654 Fol. 38
(as to part)

Vol. 11397 Fol. 192

[redacted]ICELLED

Edition issued 27-8-1970

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

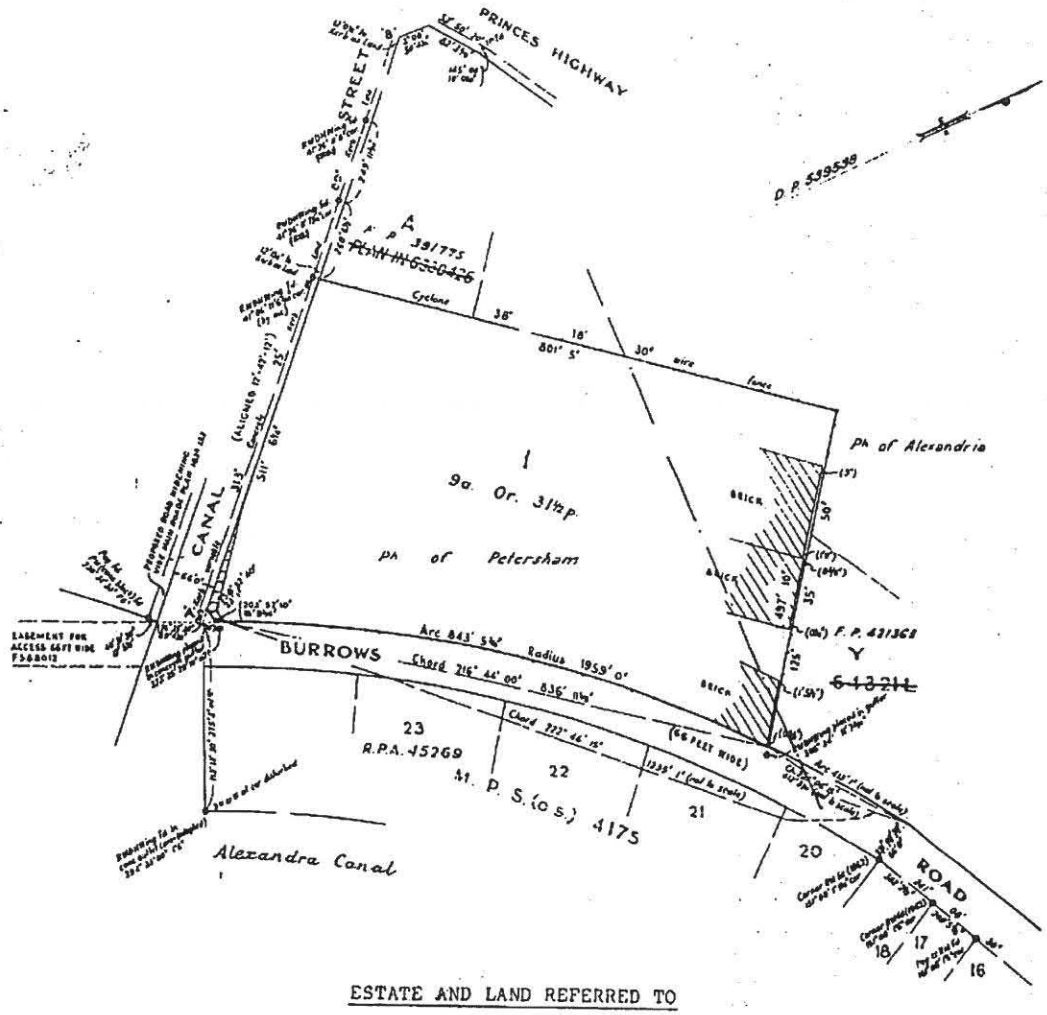
Registrar General.

Vol. 11397 Fol. 192 (Page 1)

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 539538 at Alexandria in the Municipality of South Sydney Parishes of Alexandria and Petersham and County of Cumberland being part of 1400 acres granted to William Hutchinson on 27-5-1823 (Parish of Alexandria), part of 4 acres 1 rood granted to Michael Gannon on 4-7-1859, part of 12 acres 2 roods granted to Patrick Maguire and Thomas Maguire on 4-7-1859 and part of 3 acres 3 roods granted to Thomas Holt on 5-9-1859 (Parish of Petersham).

FIRST SCHEDULE

~~A. ABRAHAMS & SONS PTY. LIMITED.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
~~2. Mortgage No.P508634 of the part of the land above described formerly comprised in Certificate of Title Volume 4654 Folio 38 to Commonwealth Bank of Australia.~~
~~Entered 5-6-1951.~~ Discharged M594722

Registrar General

20941:527 (32)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

Req:R760201 /Doc:CT 11397-192 CT /Rev:03-Nov-2010 /Sts:OK.SC /Prt:27-Jun-2014 18:50 /Pgs:ALL /Seq:2
Ref4ALS /Src:T

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
~~Kelheem Australia Limited~~	Transfer	M865823	4-4-1972	3-8-1972	
Investment & Merchant Finance Corporation Limited.	Transfer	R96566		22-5-1979	
Superannuation Fund Investment Trust as regards Lot 11 in DP 606737 and the Commissioner for Main Roads as regards the residue being Lot 14 in DP 606737	Transfer	R977465 R585971		16-10-1980	

NEW CERTIFICATE(S) OF TITLE ISSUING ON DP 606737
NO DEALING TO BE REGISTERED WITHOUT REFERENCE TO SURVEY DRAFTING BRANCH

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
~~Mortgage~~	~~L882421~~	~~3-6-1970~~	~~To Commonwealth Trading Bank of Australia~~	~~27-8-1970~~		Discharged	M549921	
~~Mortgage~~	~~L882422~~	~~3-6-1970~~	~~To Commonwealth Trading Bank of Australia~~	~~27-8-1970~~		Discharged	M865821	
~~Mortgage~~	~~M865823~~	~~6-7-1972~~	~~To Commonwealth Trading Bank of Australia~~	~~31-8-1972~~				
~~Lease~~	~~N661013~~	~~4-12-1973~~	~~of premises known as "Substation Premises No. 1629 (Ground Floor) together with rights of way and easements for electricity purposes to The Sydney County Council.~~					
Mortgage	M865823	6-7-1972	to Commonwealth Trading Bank of Australia	8-2-1974				
Lease	N661013	4-12-1973	of premises known as "Substation Premises No. 1629 (Ground Floor) together with rights of way and easements for electricity purposes to the Sydney County Council.	31-8-1972		Discharged	R96565 ~~R965665~~	
Discharge	P450033		of Mortgage M865823 as regards part being lot 2 in D.P. 578317	8-2-1974				
Transfer	P450040		part of the land within described shown as hatched black in the plan hereon, being lot 2 in D.P. 578317 is now Public Road vested in the Commissioner for Main Roads	24-11-1975		Cancelled	R96565	
~~Caveat~~	R96567		~~by Bill Acceptance Corporation Limited.~~	24-11-1975				
				~~22-5-1979~~		~~Withdrawn~~	R585966	

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

RECORDINGS (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION
Lease	R585967	of premises known as Units 2 and 3 of the building complex situated at the corner of Canal Street and Bennaw Road, Alexandra & Toth & Co. Limited together with option of renewal Date of expiry 31-10-1984	14-10-1980		
Lease	R585969	of premises known as Units 4 to 9 inclusive of the building complex situated at the corner of Canal Street and Bennaw Road, Alexandra to Pharm Distributors Limited together with option of renewal Date of expiry 31-10-1989	14-10-1980		
Covenant	R979465	created by transfer R979465 affecting Lot 11 on DP 606737	18-12-1985		

This deed is cancelled as to whole (ex road & minerals)
New Certificates of Title have issued on 6.11.1980
for lots in Deposited Plan No. 606737 as follows
Lots 11 Vol. 14280 Fol. 15 respectively

REGISTRAR GENERAL

The residue of land in this folio comprises lot 14 on DP 606737 (ex minerals)

REGISTRAR GENERAL

W613582 Lease to Noel Henry Wilson of the residue being lot 4 in DP 606737. Expires 30-4-1989. Registered 26-3-1987

FOLIO CANCELLED - NEW FOLIO IS 14/606737

NOTE: ALL ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

W613582

Req:R760201 /Doc:CT 11397-192 CT /Rev:03-Nov-2010 /Sts:OK.SC /Prt:27-Jun-2014 18:50 /Pgs:ALL /Seq:1
Ref:ALS /Src:T

Req:R760201 /Doc:CT 11397-192 CT /Rev:03-Nov-2010 /Sts:OK.SC /Prt:27-Jun-2014 18:50 /Pgs:ALL /Seq:4 o
Ref:ALS /Src:T

RECORDINGS (continued)

INSTRUMENT		PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION	
NATURE	NUMBER					

Advance Legal Searchers
Pty Ltd Phone: 02 9644 1679

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Information provided through Tri-Search an approved LPI*NSW* Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 12/606737

SEARCH DATE	TIME	EDITION NO	DATE
31/7/2015	1:24 PM	20	24/10/2012

LAND

LOT 12 IN DEPOSITED PLAN 606737
AT ALEXANDRIA
LOCAL GOVERNMENT AREA SYDNEY
PARISH OF ALEXANDRIA COUNTY OF CUMBERLAND
PARISH OF PETERSHAM COUNTY OF CUMBERLAND
TITLE DIAGRAM DP606737

FIRST SCHEDULE

TALLINA PTY LIMITED (T 6758541)

SECOND SCHEDULE (1 NOTIFICATION)

---

1 AH317745 LEASE TO STAGING RENTALS PTY LTD OF UNITS 5 AND 6, BURROWS INDUSTRIAL ESTATE, 1-3 BURROWS ROAD, ALEXANDRIA. EXPIRES: 21/4/2015.

* AJ399694 VARIATION OF LEASE AH317745 EXPIRY DATE NOW 21/4/2020.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

**ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.*

Advance Legal Searchers Pty Ltd Phone: 02 9644 1679

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
31/7/2015 1:26PM

FOLIO: 12/606737

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14107 FOL 184

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/5/1988		AMENDMENT: PARISH-COUNTY	
5/9/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
20/10/1988	X899146	SURRENDER OF LEASE	
20/10/1988	X899147	SURRENDER OF LEASE	
20/10/1988	X899148	LEASE	EDITION 1
31/10/1988	X943170	DISCHARGE OF MORTGAGE	EDITION 2
27/5/1992	E485924	LEASE	EDITION 3
18/12/1992	E988990	DISCHARGE OF MORTGAGE	
18/12/1992	E988991	MORTGAGE	EDITION 4
22/11/1994	U808346	REQUEST	
22/11/1994	U808348	DISCHARGE OF MORTGAGE	
22/11/1994	U808349	MORTGAGE	EDITION 5
22/8/1995	O383600	DISCHARGE OF MORTGAGE	EDITION 6
25/8/1995	O383605	MORTGAGE	EDITION 7
18/9/1995	O383608	APPLICATION	EDITION 8
17/12/1996	2696486	TRANSFER OF LEASE	
13/2/1997	2834857	LEASE	EDITION 9
4/8/1997	3104782	SURRENDER OF LEASE	EDITION 10
19/11/1997	3594762	LEASE	EDITION 11
18/6/1999	5913503	MORTGAGE	EDITION 12
5/5/2000	6758539	DISCHARGE OF MORTGAGE	

END OF PAGE 1 - CONTINUED OVER

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PRINTED ON 31/7/2015

Advance Legal Searchers Pty Ltd Phone: 02 9644 1679

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
31/7/2015 1:26PM

FOLIO: 12/606737 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
5/5/2000	6758540	DISCHARGE OF MORTGAGE	
5/5/2000	6758541	TRANSFER	
5/5/2000	6758542	MORTGAGE	EDITION 13
14/9/2000	7089785	DEPARTMENTAL DEALING	
11/5/2001	7598759	DEPARTMENTAL DEALING	
28/11/2001	8153902	DISCHARGE OF MORTGAGE	EDITION 14
30/8/2002	8911033	MORTGAGE	EDITION 15
9/12/2002	9198651	VARIATION OF LEASE	EDITION 16
14/3/2004	AA472866	DEPARTMENTAL DEALING	
6/3/2007	AC963663	LEASE	EDITION 17
12/6/2007	AD183580	DISCHARGE OF MORTGAGE	EDITION 18
20/4/2009	AE618312	REQUEST	
25/8/2009	AE927787	LEASE	EDITION 19
24/10/2012	AH317745	LEASE	EDITION 20
13/4/2015	AJ399694	VARIATION OF LEASE	

*** END OF SEARCH ***

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*ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.

Req:R032185 /Doc:CT 14107-184 CT /Rev:21-Jan-2011 /Sts:OK.SC /Prt:31-Jul-2015 13:29 /Pgs:ALL /Seq:1 of 2
Ref:LLS /Src:T

CERTIFICATE OF TITLE

NEW SOUTH WALES

PROPERTY ACT, 1900

14107184

Appln No. 54762

Vol. 14107 Fol. 184

EDITION ISSUED

16 4 1980

14107 Fol. 184 (Page 1) Vol.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

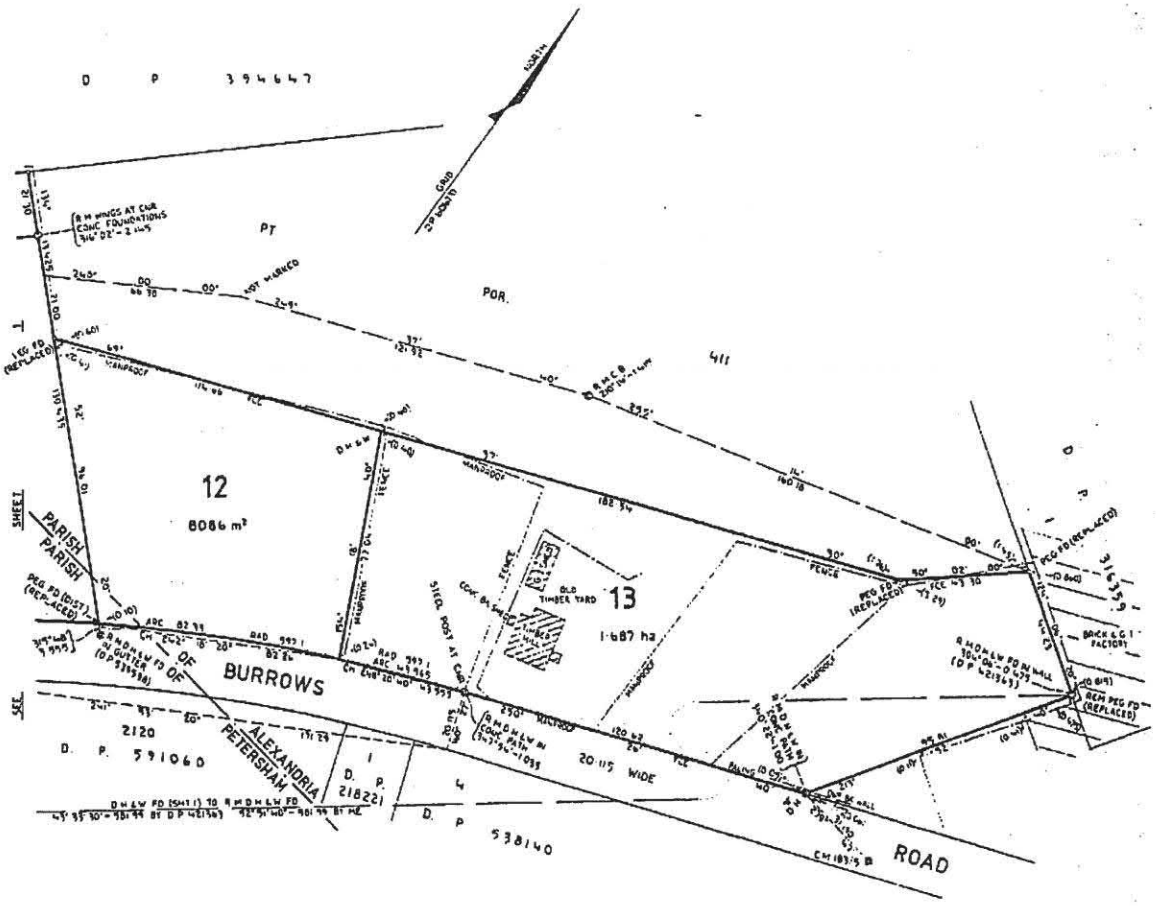
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 12 in Deposited Plan 606737 at Alexandria in the Municipality of South Sydney Parishes of Alexandria and Petersham and County of Cumberland being part of 566.6 hectares granted to William Hutchinson on 27-5-1823 and part of 5.059 hectares granted to Patrick Maguire and Thomas Maguire on 4-7-1859.

FIRST SCHEDULE

~~THE COMMISSIONER FOR MAIN ROADS.~~

GRN

SECOND SCHEDULE

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE REGISTRAR GENERAL'S OFFICE.

RG 2/62 NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Vol. 14107 Fol. 184

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	Signature of Registrar General
Superannuation Fund Investment Trust	Transfer	~~R965453~~ R965454	7-8-1980	
Goodman Hardie Pty.Limited by Transfer W978853.Registered 21-8-1987.				

CANCELLED

SEE AUTO FOLIO

R965453 T.
-4 T.
C.T. 12.3.81
S447765 be
— 66 cu
premises
T 33631 / ~~L~~ R
wrong ref.
~~H 304(AP) X~~
Re-instr. Ltd.
— 58 cu.
W410063L R
W978853 T
5 cu
X48916 M R

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION	
L	S447765 P	Lease to General Colour Distribution Pty. Limited of premises being the building known as Unit No. 11 erected on the part of the land within described together with and reserving rights. Expires 7-1-1986. Registered 11-5-1981.				
L	T33631 P	Lease to Rheem Australia Limited of premises known as Unit 10, together with option of renewal. Expires 31-10-1989. Registered 10-5-1982.				
L	W410063 P	Lease to Rheem Australia Limited of premises being Unit No. 11 erected on the land within described together with and reserving rights. Expires 31.10.89 with an option of renewal for 5 years. Registered 16.7.1986.				
M	W978854 P	Mortgage to Bill Acceptance Corporation Limited. Registered 21-8-1987.				
M	X48916 P	Mortgage to Midland International Australia Limited Registered 7-10-1987				

(Page 2 of 2 pages)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R032185 /Doc:CT 14107-184 CT /Rev:21-Jan-2011 /Sts:OK.SC /Prt:31-Jul-2015 13:29 /Pgs:ALL /Seq:2 of 2
Ref:ALS /Src:T

Box:97 /Req:C147956 /Doc:PA 054762 PA /Rev:22-Jun-2015 /Sts:OK.OK /Prt:04-Aug-2015 14:32 /Seq:1 of 3
Ref:lpi:syd-dref /Src:W Ref:lpi:SIXdre /Src:W /WARNING! A4 copy Supplied by LPI NSW for Conveyancing Purpose

R.P.A. 54762

54762

$21.00

CRR 2664
29.2.80
M

NEW SOUTH WALES

APPLICATION PURSUANT TO SECTION 31A(2) OF THE REAL PROPERTY ACT, 1900, TO BRING RESUMED LAND UNDER THE PROVISIONS OF THE ACT

Application is hereby made for the issue of certificates of title in favour of THE COMMISSIONER FOR MAIN ROADS for Lots 12 and 13 in Deposited Plan 606737 being the land resumed by notification in Government Gazette dated 8th February, 1980, folio 600 (a true copy of which is annexed hereto) AND I HARRY MUDIE hereby certify that

(1) I am authorised to make the within application;

(2) the said land has not been divested from the said Commissioner for Main Roads and no estate or interest therein has been created in favour of any other person other than a Contract for Sale which will be completed under the provisions of the Real Property Act, 1900;

(3) the said land is not under the provisions of the Real Property Act, 1900, and no sale, lease or other transaction affecting it is intended to be completed prior to the issue of the certificates of title; and

(4) this application is correct for the purposes of the Real Property Act, 1900.

pt 1400 oc
Cld to WILLIAM HUTCHINSON
27.5.1823
S.14 P.171
Res ϕ

DATED at Sydney this day of One thousand nine hundred and eighty.

SIGNED in my presence by the said HARRY MUDIE, Deputy Chief Legal Officer, Department of Main Roads

H Mudie

M Golledge
.....
Signature of Witness

M. GOLLEDGE
.....
Name of Witness

Cert. of T. issued Vol. 14107 Fol. 184/185
Dated 16-4-1980.

Box:97 /Req:C147956 /Doc:PA 054762 PA /Rev:22-Jun-2015 /Sts:OK.OK /Prt:04-Aug-2015 14:32 /Seq:2 of 3
'Ref [redacted] urpose

[*Published in Government Gazette No. 23 of 8th February, 1980, on page No. 600.*]

MAIN ROADS ACT, 1924.—PROCLAMATION

ACQUISITION OF LAND AT ALEXANDRIA IN THE MUNICIPALITY OF SOUTH SYDNEY

(L.S.) A. R. CUTLER, *Governor.*

I, Sir ARTHUR ROBIN CUTLER, Governor of the State of New South Wales and its Dependencies, with the advice of the Executive Council and on the application of The Commissioner for Main Roads, made by virtue of the powers conferred in him by the Transport (Division of Functions) Act, 1932, do in pursuance of the provisions of the Main Roads Act, 1924, by this my Proclamation, declare that so much of the land hereunder described as is Crown land is hereby appropriated and so much thereof as is private property is hereby resumed under the provisions of the Public Works Act, 1912, for the purposes of the Main Roads Act, 1924, and that the land hereunder described is hereby vested in The Commissioner for Main Roads.

Signed and sealed at Sydney, this thirtieth day of January, 1980.

By His Excellency's Command,

H. F. JENSEN, Minister for Roads.

GOD SAVE THE QUEEN!

DESCRIPTION OF THE LAND REFERRED TO

Schedule

All those pieces or parcels of land situate in the Municipality of South Sydney, Parishes of Alexandria and Petersham and County of Cumberland, being lots 12 and 13, Deposited Plan 606737, which is also numbered 6006.413.SS.0136 at the Department of Main Roads. The land is in the possession of The Commissioner for Main Roads.

(D.M.R. Papers F6/413.146) (8282)

D. West, Government Printer, New South Wales—1980

This is the copy of Gazette Notification referred to in annexed Application pursuant to Section 31A(2) of the Real Property Act, 1900, by The Commissioner for Main Roads.

Box:97 /Req:C147956 /Doc:PA 054762 PA /Rev:22-Jun-2015 /Sts:OK.OK /Prt:04-Aug-2015 14:32 /Seq:3 of 3
'Ref:lp... ...g Purpose

Lodged By Dept Main Roads
PX No 13 Sydney
20933 × 216 COC
76/412.162
RG Box 556X

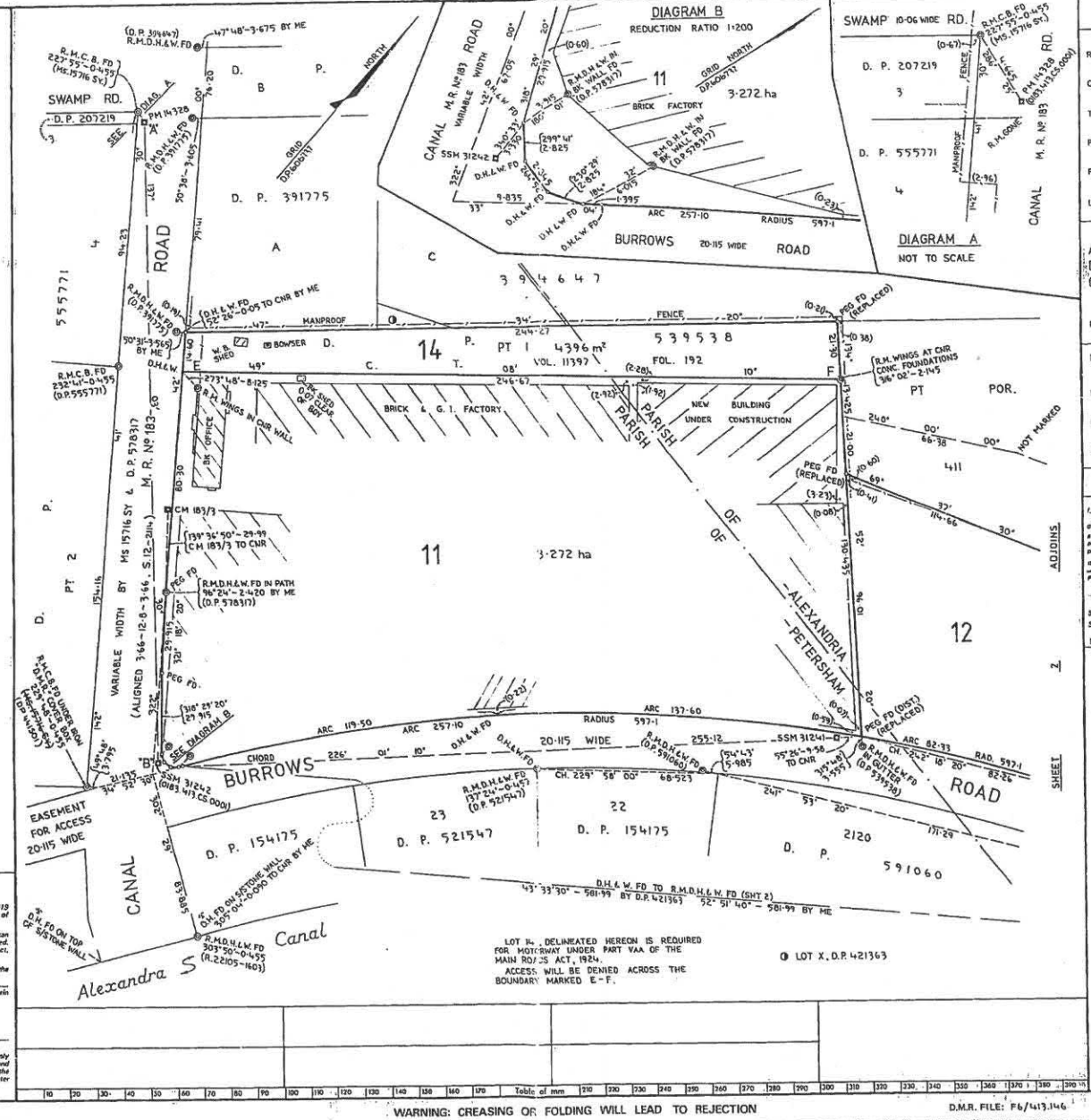
R.P.A. 54762

54762

PLAN FORM 2a.

Plan Drawing only to appear in this space

Signatures and seals only.



Council Clerk's Certificate

I hereby certify that –

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of section 348 of the †Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, †Hunter District Water, Sewerage, and Drainage Act, 1938, as amended

have been complied with by the applicant in relation to the proposed ..... (insert "new road", "subdivision" or "consolidated lot") set out hereon.

Subdivision No. .....

Date .....

(Signature) .....
Council Clerk

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

†Delete if inapplicable.

D. P. 606737

Registered: 10·4·1980

C.A.: —

Title System: TORRENS & OLD SYSTEM

Purpose: P.A. 54762, SUBDIVISION, PROPOSED MOTORWAY, AND RESIDUE

Ref. Map: ALEXANDRIA SH.5*

Last Plan: D.P. 539538 D.P. 421363

PLAN OF LAND TO BE ACQUIRED AND SUBDIVISION OF LOT Y, D.P. 421363 FOR THE PURPOSES OF THE MAIN ROADS ACT, 1924.

Reduction Ratio 1: 1000
Lengths are in metres.

Mun. [redacted] SOUTH SYDNEY

Locality: ALEXANDRIA

Parishes: ALEXANDRIA AND PETERSHAM

County: CUMBERLAND

This is sheet 1 of my plan in 2 sheets.
(Delete if inapplicable.)

I, BRIAN DENIS MORRISON,

of DEPARTMENT OF MAIN ROADS, N.S.W.,

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan .....

is accurate and has been made *(1) by me ~~(2) by me or under my supervision~~ ~~(3) under my supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on † 30 TH MAY, 1979

Signature Brian D Morrison 23/10/79

Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth: A – B I.S.G.
D.M.R. CONTROL PLAN 0183 413 CS 0001
F.B's 6006 413 FP 8396 & 197 PAB 20

Panel for use only for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

LOTS 12 & 13 DELINEATED HEREON ARE OWNED BY THE COMMISSIONER FOR MAIN ROADS.
LOT 12 IS TO BE DISPOSED OF TO THE OWNER OF ADJOINING LOT 11
LOT 13 IS TO BE RETAINED BY THE COMMISSIONER FOR MAIN ROADS
LOT 14 DELINEATED HEREON IS REQUIRED FOR MOTORWAY UNDER PART VAA OF THE MAIN ROADS ACT, 1924
ACCESS WILL BE DENIED ACROSS THE BOUNDARY MARKED E – F

APPROVED:

FOR DEPUTY PRINCIPAL SURVEYOR AND PROPERTY OFFICER, DEPARTMENT OF MAIN ROADS.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

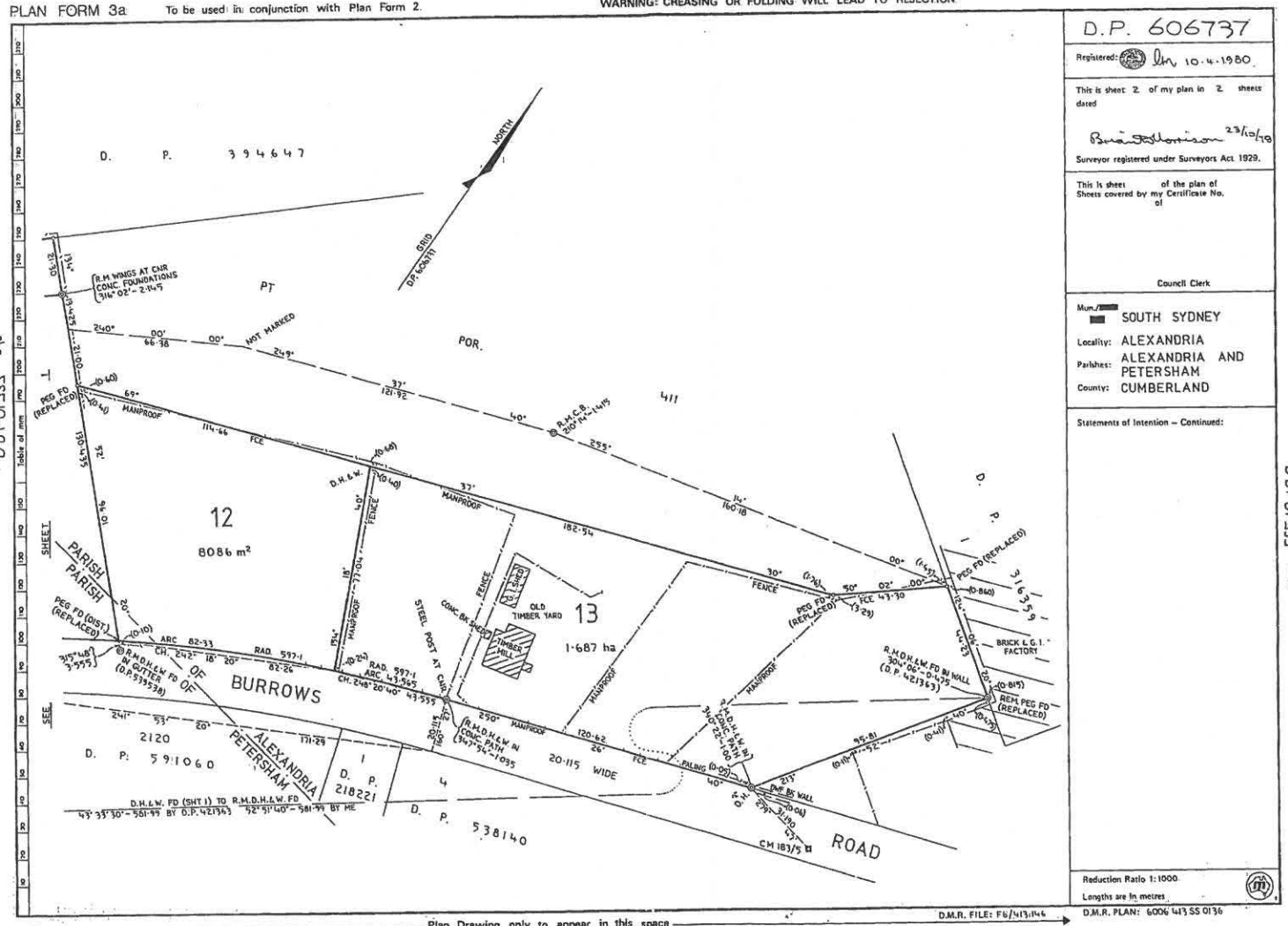
D.M.R. FILE: F6/413.146

D.M.R. PLAN: 6006 413 SS 0136

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 11th day of April, 1980

eq:R760193 /Doc:DP 0606737 P /Rev:31-Dec-1992 /Sts:OK.OK /Prt:27-Jun-2014 18:42 /Pgs:ALL /Seq:1 of 2
ef:ALS /Src:T

PLAN FORM 3a To be used in conjunction with Plan Form 2. WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION



D.P. 606737

Registered: 10.4.1980

This is sheet 2 of my plan in 2 sheets dated 23/10/79

Surveyor registered under Surveyors Act 1929.

This is sheet of the plan of Sheets covered by my Certificate No. of

Council Clerk

Mun./ SOUTH SYDNEY

Locality: ALEXANDRIA

Parishes: ALEXANDRIA AND PETERSHAM

County: CUMBERLAND

Statements of Intention – Continued:

Reduction Ratio 1:1000

Lengths are in metres

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 11th day of April, 1980

Req:R760193 /Doc:DP 0606737 P /Rev:31-Dec-1992 /Sts:OK.OK /Prt:27-Jun-2014 18:42 /Pgs:ALL /Seq:2 of 2
Ref:ALS /Src:T

Healthy Environment, Healthy Community, Healthy Business

Attention Internet Explorer 10 users

Some functionality on this webpage is currently not compatible with Internet Explorer 10.
We recommend you enable compatibility mode on your browser:

1. Press F12 on your keyboard to display the developer tools
2. On the developer tools menu, select Browser Mode then select Internet Explorer 9

Your original settings will be restored when you close the browser window.
We are working to resolve this issue and apologise for the inconvenience.

Licence summary

Search Again | Return to Previous Page

Summary Licence No: 5523

View this licence (PDF document 199 kb)

Licence holder:	**SEALED AIR AUSTRALIA PTY LIMITED**
	Trading as: SEALED AIR AUSTRALIA PTY LIMITED
Premises:	SEALED AIR AUSTRALIA PTY LTD 3 BURROWS ROAD, ST PETERS, NSW, 2044
	LGA: SYDNEY **Catchment:** Sydney Coast & Georges River
Administrative fee:	$952.00
Licence status:	No_longer_in_force
Activity type:	Hazardous, Industrial or Group A Waste Generation or Storage
Licence review:	Complete date 08 Feb 2005 Complete date 01 Jul 2002 Due date 08 Feb 2010
Pollution incident management plan:	No

Notices

Number	Issue date	Notice type
1044347	08 Feb 2005	s.58 Licence Variation

Annual Returns

Start date	End date	Date received	Non-compliance	LBL data
30-Jul-2007	29-Jul-2008	13-Aug-2008	No	Not available
30-Jul-2006	29-Jul-2007	25-Sep-2007	No	Not available
30-Jul-2005	29-Jul-2006	08-Sep-2006	No	Not available
30-Jul-2004	29-Jul-2005	02-Mar-2006	No	Not available
30-Jul-2003	29-Jul-2004	29-Sep-2004	No	Not available
30-Jul-2002	29-Jul-2003	26-Sep-2003	No	Not available
30-Jul-2001	29-Jul-2002	04-Feb-2003	No	Not available
30-Jul-2000	29-Jul-2001	04-Oct-2001	No	Not available
30-Jul-1999	29-Jul-2000	20-Nov-2000	No	Not available

Connect

Feedback

Web suppo
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Defence Home
UXO Home
Information
Site Information
UXO Warning and Advice
UXO News and Updates
What is UXO
Types of UXO
Artillery Ammunition
105mm Howitzer
75mm Artillery
37mm Artillery
5.5 inch Artillery
25 PR Artillery
18 PR Artillery
2&6 PR Artillery
Mortar Ammunition
81mm Mortar
60mm Mortar
4.2 inch Mortar
3 inch Mortar
2 inch Mortar
Grenades
36M
MK II
No.69
Aircraft
Practice bombs
Where is UXO?
UXO Reports
UXO Sites
By State
By LGA
By Federal Electorate
By State Electorate
Cadastral Parcels Affected
By State
By LGA
By Federal Electorate
By State Electorate
State Summary
LGA Summary
Federal Electorate Summary
State Electorate Summary
What Should I Do?
What is Defence Doing?
Protecting the Public
Managing UXO Affected Land
Commonwealth Policy
Offering Advice
UXO Panel
Contact Us

Google Custom Search:

Search

Local Government Area Summary

The tables below show the various UXO data broken down by Categorisation Criteria for the specified Local Gov

Please select a state: NSW

and an LGA: Sydney (No)

Cadastral Parcels affected by UXO in Sydney
No known UXO

UXO Contamination Sites in Sydney
No known UXO

List of UXO Contamination Sites in Sydney
No known UXO

Map data: Version 4.0.4 Last Updated: February 2013 Copyright Commonwealth of Australia 2004-2013 Copyright Na

Disclaimer: Data supplied on this site is based on Defence's assessment of information obtained from a variety of sources. It does not reflect any UXO or organisation other than Defence. State, Territory or Local Government land management authorities should be contacted if such information is requ ensure that the information recorded on the site is accurate, complete and up to date there may be limitations to the sources available to Defence and should not be relied upon without additional checks. If you wish to verify whether your specific parcel of land might be affected by UXO, you should con planning or land management authority to obtain their confirmation regarding whether or not your land has received a Defence category assessment.

Browse Entries

A B C D E F G H I J
K L M N O P Q R S T
U V W X Y Z

Use Trove to find more resources by/about this Corporate entry

CORPORATE ENTRY

A. Abrahams & Sons Pty Ltd (1908 - 1971)

From	1908 East Bentleigh, Victoria, Australia
To	1971
Functions	Manufacturing industry, Mineralogy and Metallurgy or Mining
Location	East Bentleigh, Victoria

Summary

A. Abrahams & Sons Pty. Ltd. began operations in 1908. Initially it was a company producing sacks and bags, but later it progressed to flexible packaging. The company ceased operations in 1971.

Skip to

Published Resources

Published resources

Online Resources

- *Trove*, National Library of Australia, 2009, http://nla.gov.au/nla.party-1474242. Details

See also

- Academy of Technological Sciences and Engineering, *Technology in Australia 1788-1988*, Online edn, Australian Science and Technology Heritage Centre, Melbourne, 3 May 2000, http://www.austehc.unimelb.edu.au/tia/index_a.html . Details

AILIE SMITH

Created: 13 April 2000, Last modified: 2 May 2006

- Foundation Supporter - ARC Learned Academies' Special Projects

Cite this: http://www.eoas.info/biogs/A000274b.htm
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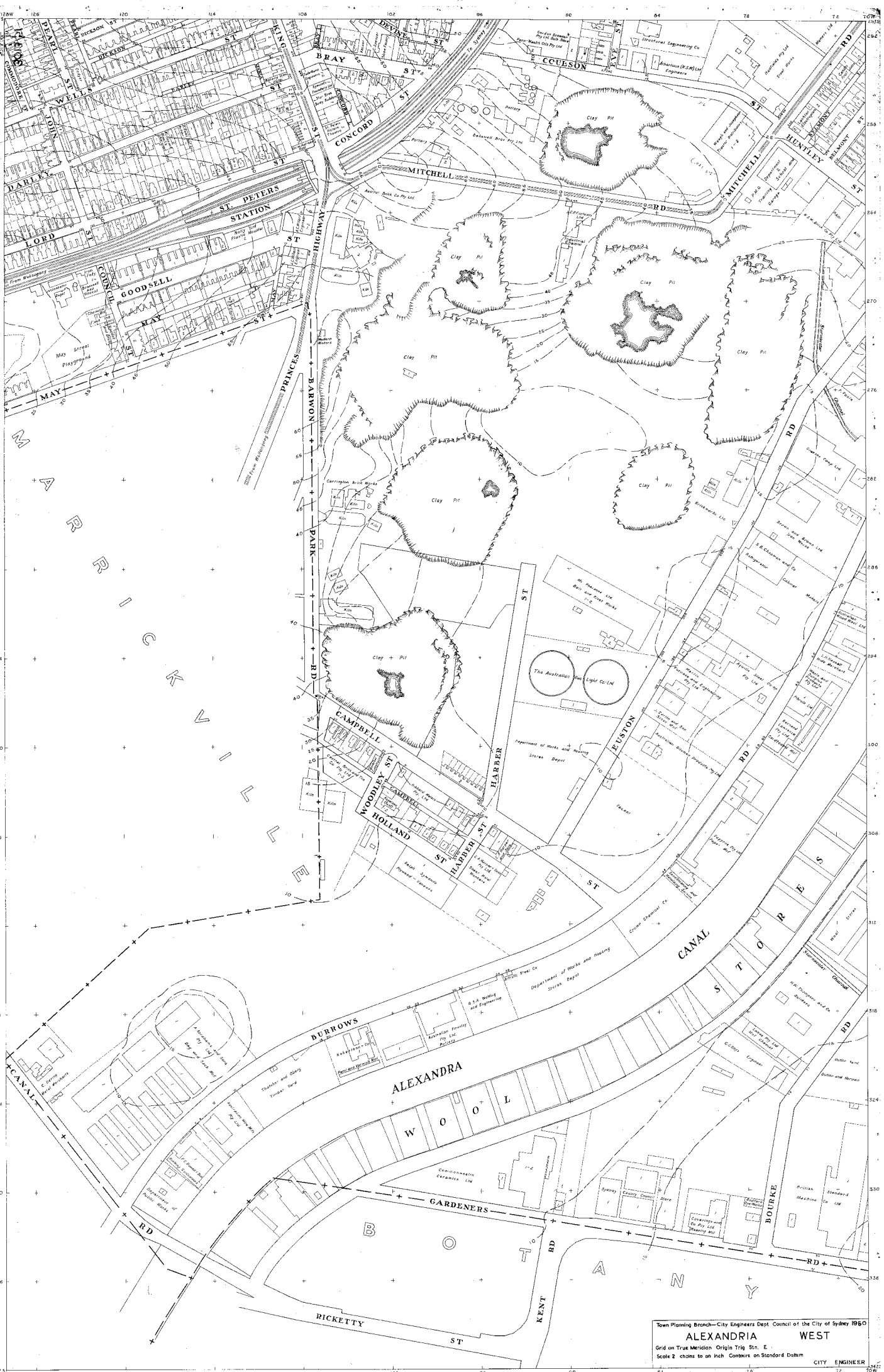
MARRICKVILLE
ALEXANDRA CANAL
ALEXANDRIA WOOLSTORES
BOTANY
MITCHELL RD
COULSON ST
BRAY ST
CONCORD ST
DEVINE ST
KING ST
PEARL ST
DICKSON ST
WELLS ST
JOHN ST
DARLEY ST
ST. PETERS STATION
LORD ST
GOODSELL ST
MAY ST
PRINCES HIGHWAY
BARWON PARK RD
CAMPBELL ST
WOODLEY ST
HOLLAND ST
HARBER ST
EUSTON RD
BURROWS RD
GARDENERS RD
BOURKE RD
KENT RD
PICKETTY ST
HUNTLEY ST
DUNLOP ST
BELMONT ST
Clay Pit
Kiln
Carrington Brick Works
Brickworks Ltd
Department of Works and Housing Stores Depot
Commonwealth Ceramics Ltd
Sydney County Council Store
British Standard Machine Co Ltd
Town Planning Branch—City Engineers Dept Council of the City of Sydney 1950
ALEXANDRIA WEST
Grid on True Meridian Origin Trig Stn. E.
Scale 2 chains to an inch Contours on Standard Datum
CITY ENGINEER

File	057/057954
ADDRESS	Cnr. Burrows Rd & Canal Road, St Peters
DESCRIPTION	Industrial premises of A. Abrahams and Sons
DATE	1977 - 1980
RECORD	NSCA CRS 1140, SSMC Heritage Photographic Survey
CITATION	CRS 1140: BM 562
PROVENANCE	City of Sydney Archives

File	057/057955
ADDRESS	Cnr. Burrows Rd & Canal Road, St Peters
DESCRIPTION	Industrial premises of A. Abrahams and Sons
DATE	1977 - 1980
RECORD	NSCA CRS 1140, SSMC Heritage Photographic Survey
CITATION	CRS 1140: BM 562
PROVENANCE	City of Sydney Archives

In this section

Alexandria Fire and Rescue NSW

Fire and Rescue NSW (FRNSW) has investigated per-and-poly-fluoroalkyl substances (PFAS) contamination stemming from the historical use of fire-fighting foams at its Alexandria site.

Investigations detected PFAS in storm water drainage channels. The detection of PFAS is not unexpected due to the historical use of PFAS-containing fire-fighting foams at the site. PFAS has also been used in many domestic and industrial products and background levels may be present from these other sources.

Residents of Alexandria do not need to take any additional precautions to limit their exposure to PFAS. Alexandria residents are connected to reticulated water (town water) which is safe to use and residents surrounding the FRNSW site do not use water from the drainage channels for drinking or recreational use.

The NSW Environment Protection Authority (EPA) will continue to work collaboratively with FRNSW to develop an ongoing site management plan.

See more information

FRNSW Alexandria website: Environmental Investigation (https://www.fire.nsw.gov.au/page.php?id=9182)

Tags: PFAS (/Search?q=PFAS)

Page last updated 8 October 2019

Background

A strategy to systematically prioritise, assess and respond to notifications under Section 60 of the ***Contaminated Land Management Act 1997*** (CLM Act) has been developed by the EPA. This strategy acknowledges the EPA's obligations to make information available to the public under ***Government Information (Public Access) Act 2009*** .

When a site is notified to the EPA, it may be accompanied by detailed site reports where the owner has been proactive in addressing the contamination and its source. However, often there is minimal information on the nature or extent of the contamination.

After receiving a report, the first step is to confirm that the report does not relate to a pollution incident. The Protection of the Environment Operations Act 1997 (POEO Act) deals with pollution incidents, waste stockpiling or dumping. The EPA also has an incident management process to manage significant incidents (https://www.epa.nsw.gov.au/reporting-and-incidents/incident-management).

In many cases, the information indicates the contamination is securely immobilised within the site, such as under a building or carpark, and is not currently causing any significant risks for the community or environment. Such sites may still need to be cleaned up, but this can be done in conjunction with any subsequent building or redevelopment of the land. These sites do not require intervention under the CLM Act, and are dealt with through the planning and development consent process. In these cases, the EPA informs the local council or other planning authority, so that the information can be recorded and considered at the appropriate time (https://www.epa.nsw.gov.au/your-environment/contaminated-land/managing-contaminated-land/role-of-planning-authorities).

Where indications are that the contamination could cause actual harm to the environment or an unacceptable offsite impact (i.e. the land is 'significantly contaminated'), the EPA would apply the regulatory provisions of the CLM Act to have the responsible polluter and/or landowner investigate and remediate the site. If the reported contamination could present an immediate or long-term threat to human health NSW Health will be consulted. SafeWork NSW and Water NSW can also be consulted if there appear to be occupational health and safety risks or an impact on groundwater quality.

As such, the sites notified to the EPA and presented in the list of contaminated sites notified to the EPA are at various stages of the assessment and remediation process. Understanding the nature of the underlying contamination, its implications and implementing a remediation program where required, can take a considerable period of time. The list provides an indication, in relation to each nominated site, as to the management status of that particular site. Further detailed information may be available from the EPA or the person who notified the site.

The following questions and answers may assist those interested in this issue.

List of NSW Contaminated Sites Notified to the EPA

Disclaimer

The EPA has taken all reasonable care to ensure that the information in the list of contaminated sites notified to the EPA (the list) is complete and correct. The EPA does not, however, warrant or represent that the list is free from errors or omissions or that it is exhaustive.

The EPA may, without notice, change any or all of the information in the list at any time.

You should obtain independent advice before you make any decision based on the information in the list.

The list is made available on the understanding that the EPA, its servants and agents, to the extent permitted by law, accept no responsibility for any damage, cost, loss or expense incurred by you as a result of:

1. any information in the list; or
2. any error, omission or misrepresentation in the list; or
3. any malfunction or failure to function of the list;
4. without limiting (2) or (3) above, any delay, failure or error in recording, displaying or updating information.

Site Status	Explanation
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or *Protection of the Environment Operations Act 1997*.
Under Preliminary Investigation Order	The EPA has issued a Preliminary Investigation Order under s10 of the *Contaminated Land Management Act 1997*, to obtain additional information needed to complete the assessment.
Regulation under CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the *Contaminated Land Management Act 1997* is not required.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the *Contaminated Land Management Act 1997*. A regulatory approach is being finalised.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.
Contamination currently regulated under POEO Act	Contamination is currently regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA as the appropriate regulatory authority reasonably suspects that a pollution incident is occurring/ has occurred and that it requires regulation under the POEO Act. The EPA may use environment protection notices, such as clean up notices, to require clean up action to be taken. Such regulatory notices are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the *Environmental Planning and Assessment Act 1979* (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the *Contaminated Land Management Act 1997* (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the *Protection of the Environment Operations Act 1997* (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the *Environmental Planning and Assessment Act 1979* (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

NSW EPA listed sites under the CLM Act (Alexandria and St Peters, Jan' 2020)

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass
ALEXANDRIA	Former Mobil Service Station	20 O'Riordan STREET	Service Station	Regulation under CLM Act not required
ALEXANDRIA	Caltex Alexandria Service Station	133 Wyndham St, cnr McEvoy STREET	Service Station	Regulation under CLM Act not required
ALEXANDRIA	Former Cadbury Schweppes	49-59 O'Riordan STREET	Other Industry	Contamination formerly regulated under the CLM Act
ALEXANDRIA	redeveloped into residential apartment as of September 2016)	10-20 Botany ROAD	Service Station	Regulation under CLM Act not required
ALEXANDRIA	Mascot Developments	494-504 Gardeners ROAD	Other Industry	Regulation under CLM Act not required
ALEXANDRIA	Alexandria GoGas	562 Botany ROAD	Service Station	Regulation under CLM Act not required
ALEXANDRIA	Australian Refined Alloys	202-212 Euston ROAD	Metal Industry	Regulation under CLM Act not required
ALEXANDRIA	Alexandra Canal Sediments	Off Huntley STREET	Unclassified	Contamination currently regulated under CLM Act
ALEXANDRIA	Australia Post	10-24 Ralph STREET	Other Industry	Contamination was addressed via the planning process (EP&A Act)
ALEXANDRIA	Perry Park	1B Maddox STREET	Landfill	Regulation under CLM Act not required
ALEXANDRIA	Alexandria Gardens	146-156 Wyndham Street & 146-156 Botany ROAD	Unclassified	Regulation under CLM Act not required
ALEXANDRIA	Sydney Park	Sydney Park, Alexandria ROAD	Landfill	Contamination currently regulated under CLM Act
ALEXANDRIA	Former Industrial Site (now Value Suites)	16 O'Riordan STREET	Other Industry	Regulation under CLM Act not required
ALEXANDRIA	The Gentry Alexandria - 31 to 41 William St.	31-41 William STREET	Unclassified	Regulation under CLM Act not required
ST PETERS	Cooks River Rail Terminal	20 Canal ROAD	Unclassified	Regulation under CLM Act not required
ST PETERS	Camdenville Park	May STREET	Other Industry	Regulation under CLM Act not required
ST PETERS	Former Tidyburn Facility	53 Barwon Park ROAD	Chemical Industry	Contamination formerly regulated under the CLM Act
ST PETERS	BP Express Service Station	2 Princes HIGHWAY	Service Station	Regulation under CLM Act not required
ST PETERS	Former Industrial Manufacturing Facility (Taubman's Paints)	75 Mary STREET	Other Industry	Regulation under CLM Act not required

POEO Licenses January 2020, St Peters

Number	Name	Location	Type	Status	Issued date
7590	BITUPAVE LTD	BURROWS ROAD SOUTH, ST PETERS, NSW 2044	POEO licence	Surrendered	22-Sep-00
12418	BORAL RECYCLING PTY LIMITED	25 Burrows Road South, ST PETERS, NSW 2044	POEO licence	Issued	21-Dec-05
1183	BORAL RESOURCES (NSW) PTY LTD	25 BURROWS ROAD SOUTH, ST PETERS, NSW 2044	POEO licence	No longer in force	22-Aug-00
4627	CPB CONTRACTORS PTY LIMITED	10-16 ALBERT STREET, ST PETERS, NSW 2044	POEO licence	Issued	15-Jan-01
10350	GOOD RIVER PROPERTIES PTY LTD	33 Burrows Road (also known as 53-57 Campbell Road St Peters), ST PETERS, NSW 2044	POEO licence	Surrendered	23-Dec-99
119	J A BRADSHAW PTY LTD	2 ALBERT STREET, ST PETERS, NSW 2044	POEO licence	Surrendered	29-Mar-00
11483	METROPOLITAN DEMOLITIONS AND RECYCLING PTY LIMITED	396 PRINCES HIGHWAY, ST PETERS, NSW 2044	POEO licence	Issued	9-Oct-01
12594	ROADS AND MARITIME SERVICES	10 ALBERT STREET, ST PETERS, NSW 2044	POEO licence	Surrendered	21-Jun-07
5523	SEALED AIR AUSTRALIA PTY LIMITED	3 BURROWS ROAD, ST PETERS, NSW 2044	POEO licence	No longer in force	9-Dec-99
13432	SITA ALEXANDRIA PTY LTD	33 BURROWS ROAD, ST PETERS, NSW 2044	POEO licence	Surrendered	30-Sep-11
13142	SPRC PTY LTD	6-10 Burrows Road South, ST PETERS, NSW 2044	POEO licence	Surrendered	23-Apr-10
11673	TF GROUP PTY LIMITED C/- HALL CHADWICK CHARTERED ACCOUNTANTS	5A CANAL ROAD, ST PETERS, NSW 2044	POEO licence	Surrendered	24-May-02
5923	THE COUNCIL OF THE CITY OF SYDNEY	25 BURROWS ROAD, ST PETERS, NSW 2044	POEO licence	Surrendered	22-Sep-00
6208	TIDYBURN PTY. LIMITED	15 CAMPBELL STREET, ST PETERS, NSW 2044	POEO licence	Surrendered	14-Aug-00
13069	VISY PAPER PTY. LTD.	6-10 Burrows Road South , ST PETERS, NSW 2044	POEO licence	Issued	2-Sep-09

Appendix E

Plates

Plate	Description
	Fragments of ACM on ground surface, between Unit 9 and the Sites northern boundary. Pieces of slag, broken glass, ash/coke and metal also present.
	Slag nodule on ground surface on the northern side of Unit 9.
	Example of mixed/variable filling material at borehole BH22. The red-brown material (bottom tube, between the jars) is believed to be foundry/casting sand, logged as “Ironstone gravels”.

Example of mixed/variable filling material at borehole BH10.

Example of mixed/variable filling material at borehole BH18.

Fill material from BH100.

Appendix F

Logs

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

MONITORING WELL LOG BH01 / MW01

PROJECT NUMBER	60438840	**DATE**	21 & 22 August 2015
PROJECT NAME	Burrows Industrial Estate	**BLANK**	0.0 to 0.454 m bgs
LOCATION	1-3 Burrows Road, Alexandria NSW	**SCREEN**	0.454 to 3.454 m bgs
DRILLING METHOD	Hand Auger / Push-tube / Solid Auger	**GRAVEL PACK**	0.3 to 3.454 m bgs
SAMPLING METHOD	Hand Auger / Push-tube	**SANITARY SEAL/BENTONITE**	0.1 to 0.3 m bgs
SURFACE ELEVATION	2.210 m AHD	**STABILISED WATER LEVEL**	1.030 m BTOC
WELL HEAD/TOC	2.12 m AHD	**GROUND WATER ELEVATION**	1.090 m AHD
LOGGED BY	K. Pigram	**NORTHING**	6245408.202
COMMENTS		**EASTING**	331543.004

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
				0.2		CONCRETE	Concrete Slab	0.17	Cement Grout
						FILL	Gravel FILL. Roadbase	0.19	Bentonite
0.1		BH01_0.3-0.4	✳	0.4		CONCRETE FILL	Concrete Slab	0.30	Casing
				0.6			Gravelly Sand FILL. Dark brown with orange ironstone gravels, medium grained sand, loose to medium dense, dry to slightly moist. Contains minor silt, ironstone gravels (20%), sand (80%) and piece of white porcelain.		
		BH01_1.0-1.1	✳	1.0			Becoming slightly moist from 1.0 m bgs. Contains minor soft, low plasticity clay (10%).		
				1.2			Water level at 1.25 m bgs; measured in borehole with tape measure		
				1.4					
				1.6					
				1.8					
		BH01_2.0-2.1		2.0		FILL	Sandy Clay FILL. Possible reworked natural. Dark grey brown with light grey mottling, medium stiff, moist to saturated, low plasticity.	2.00	Graded Sand Slotted Screen
				2.2					
				2.4					
				2.6					
		BH01_2.8-3.0		2.8		CL	Sandy CLAY. Dark grey/brown, medium stiff, saturated, medium plasticity. Contains shells, clay content increasing with depth. Slight hydrogen sulphide odour noted.	2.80	
				3.0					
				3.2					
				3.4					
				3.6					Cave-in
		BH01_3.8-3.9	✳	3.8			Becoming light grey from 3.8 m bgs.	3.90	
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m		

60438840_BORELOGS_20150826.GPJ 28/9/15

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH02

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.580 m AHD

DATE 29 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245363.848
EASTING 331576.145

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.2		CONCRETE	Concrete Slab	0.32
				0.4		CONCRETE	Concrete gravels/broken pieces of Slab	0.40
0.2		BH02_0.4-0.5	✳	0.6		FILL	Gravelly Sand FILL. Grey/brown and white, loose to medium dense, dry to slightly moist. Contains sandstone and concrete gravels (<10 mm diameter).	
				0.8			Refusal with hand auger at 0.8 m bgs; switch to push-tube.	
0.4		BH02_1.0-1.1		1.0			Becoming moist from 1.0 m bgs. Contains terracotta, glass and ceramic fragments and concrete gravels.	
				1.2			Becoming saturated at 1.3 m bgs	
				1.4				
				1.6				1.70
				1.8		FILL	Clayey Gravelly Sand FILL. Dark grey/brown, dense, saturated. Contains slag and ceramic gravels (30%), soft, low plasticity clay (20%), medium grained sand (40%) and minor silt.	
2.9		BH02_2.0-2.1	✳	2.0				
				2.2				
				2.4				
				2.6				
				2.8				2.90
14.1		BH02_3.0-3.1	✳	3.0		CH	CLAY. Dark grey/brown / black, medium stiff, saturated, high plasticity. Contains trace sand and trace silt and shell fragments. Slight hydrogen sulphide odour.	
				3.2				
				3.4				3.40
				3.6		CL-CH	Sandy CLAY. Dark grey/brown, stiff, saturated, medium to high plasticity. Contains fine to medium grained sand (20%) and shell fragments. Slight to moderate hydrogen sulphide odour.	
2.5		BH02_3.8-3.9		3.8				3.90
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	

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Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH03

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.320 m AHD

DATE 29 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245317.163
EASTING 331596.394

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						CONCRETE	Concrete Slab	0.14
0.1		BH03_0.2-0.3	✳	0.2		FILL	Gravelly Sand FILL. Dark brown/grey, yellow, white, fine to medium grained, medium dense, slightly moist. Contains minor silt, sandstone and roadbase gravels (30%, <10 mm diameter).	
0.3		BH03_0.5-0.6		0.4				
				0.6			Becoming white and dark grey/brown mottling and dense from 0.3 m bgs. Contains crushed sandstone.	
				0.8		FILL		0.80
				1.0			Refusal with hand auger at 0.6 m bgs on sandstone boulders; switch to solid auger.	
3.4		BH03_1.0-1.2	✳	1.2			Switch to push-tube at 0.8 m bgs	
2.1		BH03_1.4-1.5		1.4			Gravelly Clayey Sand FILL. Dark grey/brown, dense, moist to saturated. Contains sandstone and slag gravels (30%), sand (40%) and medium stiff, low plasticity clay (30%).	
				1.6				
				1.8			Becoming very dark/brown and saturated from 1.3 m bgs.	
0.7		BH03_2.0-2.1		2.0			As above, contains sand (50%), minor silt (10%), soft, low plasticity clay (20%), slag gravels and ceramic pieces (20%).	
				2.2				
				2.4				
				2.6				
				2.8				
				3.0				3.00
19.5		BH03_3.0-3.1	✳	3.2		CH	Sandy CLAY. Dark grey/brown, stiff, saturated, medium to high plasticity. Contains trace silt and fine to medium grained sand (20%), shell fragments. Moderate hydrogen sulphide odour.	
				3.4				
				3.6				
21.3		BH03_3.8-3.9		3.8				3.90
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	

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Sydney NSW 2000

BOREHOLE_ LOG BH04

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.250 m AHD

DATE 20 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245416.112
EASTING 331553.645

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						ASPHALT	Bitumen Hardstand	0.06
						CONCRETE	Concrete Slab	0.20
0.0		BH04_0.15-0.25		0.2		FILL	Gravelly Sand FILL. Black and grey, loose, moist. Contains minor medium sitff, low plasticity clay pockets, subangular blue metal gravels, minor vesicular slag gravels (2-5 mm diameter).	
				0.4				
				0.6				
0.5		BH04_0.5-0.6	✳	0.8		FILL	Becoming black with brown mottling from 0.4 m bgs. Mild hydrocarbon odour.	0.80
				1.0			Becoming brown with orange mottling from 0.6 m bgs	
				1.2		FILL	Silty Sandy Gravel FILL. Black/brown with orange mottling, medium dense, slightly moist.	1.10
0.6		BH04_1.0-1.1	✳	1.4			Contains ceramic tile fragments, aluminium, ironstone gravels from 0.9 m bgs. Slight odour noted.	
0.1		BH04_1.5-1.6		1.6		FILL	Silty Gravelly Sand FILL. Very moist to saturated. Contains vesicular slag (10 mm diameter), shell fragments. Slight odour noted.	1.50
				1.8				
				2.0			Sandy Gravel FILL. Saturated. Iron stained slag gravels with pockets of grey medium to coarse grained silty sand. Contains shell fragments and rusted bolts and nails.	
				2.2				2.30
0.1		BH04_2.3-2.4	✳	2.4		CL	Silty CLAY. Dark grey and black, moist, medium plasticity. Contains organic fibres. Slight hydrogen sulphide odour.	2.50
				2.6		SM		
0.2		BH04_2.7-2.8		2.8			Silty SAND. Light grey and dark brown, fine to medium grained, moist. Contains organic fibres and shell fragments.	
				3.0			Becoming light browm, medium dense and saturated from 2.7 m bgs. Contains numerous organic fibres. Organic odour noted.	
				3.2				
				3.4				
0.1		BH04_3.5-3.6		3.6			Contains high shell fragment content and organic fibres from 3.5 m bgs	
				3.8				
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	3.90

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BOREHOLE_ LOG BH05

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.190 m AHD

DATE 20 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245401.397
EASTING 331587.754

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						ASPHALT	Bitumen Hardstand	0.05
						CONCRETE		0.19
1.0		BH05_0.25-0.35		0.2		FILL	Concrete Slab	
				0.4		FILL		0.40
1.8		BH05_0.5-0.6	✳	0.6		FILL	Gravelly Sand FILL. Black and dark brown, medium to coarse grained, loose to medium dense, dry. Contains pockets of silt, sandstone and blue metal gravels. Slight odour.	0.50
				0.8			Clay FILL. Orange with black mottling, stiff, high plasticity. Contains rusted nails and sandstone gravels (20-50 mm diameter).	
0.4		BH05_1.0-1.1	✳	1.0				
				1.2			Silty Sand FILL. Black, medium to coarse grained, medium dense, dry. Contains minor sandstone gravels, glass and ceramic fragments. Slight odour noted.	
				1.4			Iron staining of sandstone gravels noted from 0.8 m bgs. Contains bone and slag fragments.	
0.0		BH05_1.5-1.6		1.6			Becoming very moist from 1.0 m bgs. Contains glass, metal and ceramic fragments. Slight odour noted.	
				1.8			Becoming saturated from 1.3 m bgs	
				2.0			Contains numerous glass and ceramic fragments from 1.5 m bgs	
				2.2				2.30
0.7		BH05_2.3-2.4	✳	2.4		ML	Sandy SILT. Brown with black mottling, saturated. Strong sulphuric odour noted.	2.50
				2.6		SM	Silty SAND. Light grey with black mottling. Strong sulphuric odour noted.	
0.4		BH05_2.7-2.8		2.8			Becoming dark grey from 2.7 m bgs. Increase in Silt content and strong sulphuric odour noted.	
0.7		BH05_3.0-3.1		3.0		ML	Sandy SILT. Dark grey, fine grained, saturated. Contains high silt content and minor organic fibres.	3.00
				3.2				
				3.4				3.50
				3.6		SM	Silty SAND. Dark grey/black and light grey, fine to medium grained. Contains numerous shell fragments. Strong hydorgen sulphide odour noted.	
0.5		BH05_3.7-3.8		3.8			Increase in silt content and strong hydrogen sulphide odour noted from 3.7 m bgs	3.90
							Decreasing shell fragments noted from 3.8 m bgs	
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	

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AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH06

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.690 m AHD

DATE 21 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245356.492
EASTING 331632.445

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						CONCRETE	Concrete Slab	0.15
				0.2		FILL	Gravelly Sand FILL. Yellow, medium grained. Contains minor sandstone gravels.	
				0.4		FILL	Hand auger refusal at 0.4 m bgs; switch to solid auger.	0.40
				0.6		FILL	Gravel FILL. Light grey/white. Slightly weathered sandstone.	0.65
				0.8				
0.2		BH06_1.0-1.1	✳	1.0			Swtich to push-tube at 0.65 m bgs.	1.10
							Gravelly Sand FILL. Loose to medium dense, dry.	
							Push-tube refusal at 0.8 m bgs; switch to solid augers.	
							Borehole terminated at 1.1 m bgs; refusal with solid augers on concrete - abandon borehole. Total Depth: 1.10 m	

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Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH07

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.560 m AHD

DATE 20 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245440.796
EASTING 331577.783

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						ASPHALT	Bitumen Hardstand	0.05
				0.2		CONCRETE	Concrete Slab	0.20
0.1		BH07_0.4-0.5		0.4		FILL	Gravelly Sand FILL. Black. Contains brick and sandstone gravels and minor slag gravels.	
				0.6				0.68
							Borehole terminated at 0.68 m bgs; refusal with hand auger - relocate borehole Total Depth: 0.68 m	

60438840_BORELOGS_20150826.GPJ 28/9/15

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH07A

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.560 m AHD

DATE 20 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245440.796
EASTING 331577.783

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						ASPHALT	Bitumen Hardstand	0.05
0.1		BH07A_0.15-0.25		0.2		CONCRETE	Concrete Slab	0.15
				0.4		FILL	Silty Gravel FILL. Black, saturated (from concrete coring). Contains slag gravels, weathered brick fragments and plastic.	0.50
0.1		BH07A_0.5-0.6	✳	0.6		FILL	Silty Sand FILL. Black, coarse grained sand. Contains small slag gravels, rusted metal and glass fragments.	0.70
							Borehole terminated at 0.7 m bgs; hand auger refusal on bricks and concrete - relocate borehole Total Depth: 0.70 m	

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH07B

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.560 m AHD

DATE 21 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245440.796
EASTING 331577.783

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						ASPHALT	Bitumen Hardstand	0.05
						CONCRETE	Concrete Slab	0.19
0.0		BH07B_0.2-0.3		0.2		FILL	Gravelly Sand FILL. Dark brown with iron staining, loose to medium dense, slightly moist. Contains grey slag and ironstone gravels. Potential bonded ACM fragment noted.	
0.1		BH07B_0.5-0.6		0.4				
0.1		BH07B_0.8-0.9		0.6				
0.1		BH07B_1.0-1.1		0.8		FILL	Increase in silt content and decrease in slag gravels from 0.5 m bgs. Contains green degraded fibrous material.	0.80
0.9		BH07B_1.2-1.3	✳	1.0		FILL	Large fragment of red and black slag noted at 0.7 m bgs	1.00
0.4		BH07B_1.6-1.7		1.2		FILL	Gravelly Silty FILL. Black, grey and orange, slightly moist. Contains metallic slag gravels (5-10 mm diameter) and pockets of silty clay.	1.30
				1.4			Silty Sand FILL. Dark brown, coarse grained, slightly moist. Contains subangular ironstone gralves (<2-5 mm diameter) and fragments of rusted metal.	
				1.6				
				1.8 ▽		FILL	Switch to push-tube at 1.1 m bgs.	1.80
				2.0				
				2.2			Becoming dark brown/black from 1.1 m bgs. Contains ceramic tile, glass and metal fragments and slag gravels.	
0.4		BH07B_2.3-2.4	✳	2.4		CH	Pockets of black staining noted and becoming moist from 1.2 m bgs. Contains glass, bark, ceramic and shell fragments.	2.30
				2.6				
0.3		BH07B_2.8-2.9		2.8		SM	Silty Clay FILL. Orange with black mottling.	2.80
				3.0			Becoming grey with orange mottling and moist to saturated from 1.5 m bgs. Contains minor ironstone gravels. Slight odour noted.	3.00
							Silty Gravel FILL. Orange/red brown, saturated. Ironstone gravels.	
							Silty CLAY. Dark grey, medium stiff, high plasticity, saturated. Hydrogen sulphide odour.	
							Becoming soft with high plasticity from 2.6 m bgs. Increase in grey sand content.	
							Sandy SILT. Dark grey, medium dense, saturated. Hydrogen sulphide odour.	
							Borehole terminated at 3.0 m bgs; target depth reached Total Depth: 3.00 m	

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH08

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.600 m AHD

DATE 20 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245424.019
EASTING 331611.759

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.0		ASPHALT	Bitumen Hardstand	0.02
0.5		BH08_0.17-0.18	✳	0.2		CONCRETE	Concrete Slab	0.14
				0.4		FILL		
0.2		BH08_0.5-0.6		0.6		FILL	Gravelly Sand FILL. Black with orange/yellow mottling, medium to coarse grained. Contains sandstone and ironstone gravels (2-5 mm diameter).	0.40
				0.8			Silty Sand FILL. Light brown, medium to coarse grained sand. Contains sandstone gravels (5-10 mm diameter) and minor silt.	
0.2		BH08_1.0-1.1	✳	1.0		FILL	Increase in sandstone and ironstone gravel content and large slag gravels noted from 0.7 m bgs.	1.00
				1.2			Scrap aluminium metal noted from 0.9 m bgs	
				1.4			Gravelly Sand FILL. Black with orange mottling, coarse grained. Contains rusted metal fragments, subangular sandstone and slag gravels (5-10 mm diameter).	
				1.6			Switch to push-tube from 1.2 m bgs - no recovery in push-tube from 1.2 to 2.2 m bgs	
				1.8				
				2.0				
				2.2 ▽		FILL	Gravelly Sand FILL. Black, saturated. Contains large slag gravels.	2.20
				2.4				
0.3		BH08_2.5-2.6	✳	2.6				2.70
				2.8		SM	Silty SAND. Black/dark grey, fine to medium grained, saturated. Strong sulphuric odour.	
				3.0				
				3.2				
				3.4				
				3.6				
0.5		BH08_3.7-3.8	✳	3.8			Becoming dark grey with brown mottling from 3.7 m bgs. Increase in silt content noted.	
				4.0				4.00
1.9		BH08_4.0-4.2		4.2		CH	Silty CLAY. Dark grey, medium stiff, saturated, high plasticity. Strong sulphuric odour noted.	
				4.4			Increase in sand content noted from 4.3 m bgs. Contains minor shell fragments. Strong sulphuric odour noted.	
4.1		BH08_4.4-4.5		4.6			No recovery in push-tube from 4.5 to 5.1 m bgs	
				4.8				
				5.0				5.10
							Borehole terminated at 5.1 m bgs; target depth reached Total Depth: 5.10 m	

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH09

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 3.040 m AHD

DATE 21 Aug 15

LOGGED BY L. Gibb & K. Pigram
COMMENTS

NORTHING 6245404.251
EASTING 331640.584

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						CONCRETE	Concrete Slab	0.14
0.1		BH09_0.15-0.25	✳	0.2		FILL	Gravelly Sand FILL. Yellow, medium grained. Contains minor sandstone gravels.	
0.2		BH09_0.25-0.35	✳				Becoming pink, medium to coarse grained from 0.25 m bgs. Increase in sub-rounded sandstone gravel content.	
0.1		BH09_0.4-0.5		0.4				0.50
				0.6		FILL	Becoming black/dark brown from 0.4 m bgs. Contains brick fragments and sandstone gravels.	
				0.8				
				1.0			Hand auger refusal at 0.5 m bgs on Sandstone. Switch to Solid Auger on Geoprobe.	
				1.2				
				1.4			Gravelly Sand FILL. Brown with light orange/brown and white sandstone gravels, dry dense.	
0.1		BH09_1.5-1.6		1.6				
				1.8				
				2.0			Band of crushed concrete noted from 2.0 to 2.2 m bgs	
0.5		BH09_2.2-2.3		2.2			Becoming dark brown with red/brown, dry to slightly moist. Contains sandstone and ironstone gravels, minor silt and black ash.	
				2.4				
				2.6				
				2.8			Becoming dark brown/black, moist to saturated from 2.7 m bgs. Contains sandstone and ironstone gravels and slag gravels (<10 mm diameter).	
0.4		BH09_3.0-3.1		3.0			Becoming green/brown from 3.0 to 3.1 m bgs. Sample collected	
				3.2				
				3.4				
				3.6				
				3.8				
0.4		BH09_4.0-4.2	✳	4.0				
139.8		BH09_4.2-4.3		4.2				4.20
				4.4		SC	Clayey SAND. Grey/brown, medium dense, saturated. Minor medium stiff, low to medium plasticity clay (20%). Moderate hydrogen sulphide odour.	4.50
390.1		BH09_4.5-4.6	✳	4.6		CL	Sandy CLAY. Dark grey/brown, saturated. Contains minor shell fragments. Sand content decreasing with depth. Moderate to strong hydrogen sulphide odour.	
				4.8				
				5.0				
				5.2				5.30
							Borehole terminated at 5.3 m bgs; target depth reached Total Depth: 5.30 m	

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH10

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.910 m AHD

DATE 21 Aug 15

LOGGED BY L. Gibb & K. Pigram
COMMENTS

NORTHING 6245375.677
EASTING 331665.802

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.2		CONCRETE	Concrete Slab	0.15
0.1		BH10_0.15-0.25	✳	0.4		FILL	Gravelly Sand FILL. Yellow, medium grained. Contains minor sandstone gravels.	
0.2		BH10_0.4-0.5		0.6			Becoming pink/brown, medium to coarse grained from 0.4 m bgs. Increase in well rounded sandstone gravel content.	
				0.8			Hand auger refusal at 0.55 m bgs on Sandstone; switch to Solid Augers on Geoprobe	
0.1		BH10_1.0-1.1		1.0			Becoming light grey, brown, black, orange, medium dense, dry to slightly moist. Contains ash, concrete, ironstone and slag gravels (40%), sand (60%).	
				1.2				
				1.4				
				1.6				
				1.8				
				2.0				2.10
0.2		BH10_2.1-2.2		2.2 ▽		FILL	Clayey Gravelly Sand FILL. Brown and dark grey/brown, medium dense, moist to saturated. Contains sand (40%), slag gravels (40%) and soft low plasticity clay (20%).	
				2.4				
				2.6				
				2.8				
0.4		BH10_3.0-3.1		3.0			Clay content increasing with depth; approx. 30% from 3.0 m bgs	
				3.2				
				3.4				
				3.6				
				3.8				3.90
20.1		BH10_4.0-4.1	✳	4.0		SC	Clayey SAND. Dark brown, medium dense, saturated. Contains sand (70%) and clay (30%).	
				4.2				
				4.4				4.50
				4.6		CL	Sandy CLAY. Dark brown, medium stiff, saturated, medium plasticity. Contains clay (60%) and sand (40%). Slight hydrogen sulphide odour.	
				4.8				
				5.0				5.10
							Borehole terminated at 5.1 m bgs; target depth reached Total Depth: 5.10 m	

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Sydney NSW 2000

BOREHOLE_ LOG BH11

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 3.120 m AHD

DATE 20 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245465.678
EASTING 331605.73

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						ASPHALT	Bitumen Hardstand	0.05
						CONCRETE		0.20
0.1		BH11_0.2-0.3	✳	0.2		FILL	Concrete Slab	
				0.4			Gravelly Sand FILL. Dark brown/black, coarse grained, dry. Contains ash.	
0.1		BH11_0.5-0.6		0.6			Contains pockets of black silt, ash and glass fragments from 0.6 m bgs	
				0.8			Contains large ceramic tile fragments from 0.6 m bgs	
						FILL	Sandy Clay FILL. White/red/brown mottled, stiff, high plasticity.	0.90
0.1		BH11_1.0-1.1		1.0				
				1.2				
				1.4				
				1.6				
				1.8				
				2.0				2.00
0.1		BH11_2.0-2.1				FILL	Sandy Silt FILL. Black. Contains ceramic and glass fragments.	2.10
				2.2		FILL		2.20
0.8		BH11_2.3-2.4	✳			FILL	Gravelly Sand FILL. Light yellow, dense. Contains sandstone and vesicular slag gravels.	
				2.4			Silty Gravel FILL. Black with orange mottling. Contains slag and ironstone gravels.	
				2.6 ▽			Becoming red/brown from 2.5 m bgs. Decreased slag gravel content.	
				2.8			Becoming saturated from 2.6 m bgs	
0.5		BH11_3.0-3.1		3.0			Becoming dark grey from 3.0 m bgs	
				3.2				3.30
0.5		BH11_3.3-3.4	✳	3.4		ML	Sandy SILT. Black, dense. Hydrogen sulphide and hydrocarbon odour noted.	
0.4		BH11_3.6-3.7		3.6				
				3.8				3.90
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	

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BOREHOLE_ LOG BH12

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 3.620 m AHD

DATE 21 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245472.364
EASTING 331645.559

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						ASPHALT	Bitumen Hardstand	0.03
0.1		BH12_0.15-0.25	✳	0.2		CONCRETE	Concrete Slab	0.14
				0.4		FILL	Gravelly Sand FILL. Black and white, coarse grained. Contains ash, slag (<5 mm diameter) and well rounded sandstone gravels, glass fragments.	0.50
0.1		BH12_0.5-0.6		0.6		FILL		0.60
0.1		BH12_0.6-0.7		0.8		FILL	Silty Sand FILL. Black, slightly moist. Contains minor slag and ash gravels.	
0.1		BH12_1.0-1.1	✳	1.0		FILL	Sandy Clay FILL. Yellow with grey mottling, slightly moist, high plasticity. Contains ceramic and glass fragments.	1.00
				1.2			Silty Sand FILL. Black with red mottling and yellow pockets, coarse grained sand. Contains ironstone and slag gravels, rusted metal and glass fragments.	
0.1		BH12_1.5-1.6		1.6			Becoming grey and white from 1.5 m bgs. Contains ash and vesicular slag gravels.	
0.4		BH12_1.8-1.9	✳	1.8		FILL	Gravelly Sand FILL. Brown, caorse grained. Contains slag gravels and organic fibres.	1.80
				2.0			No recovery in push-tube from 2.0 to 2.8 m bgs	
				2.8		FILL	Silty Gravel FILL. Black. Contains coarse grained sand, concrete cobbles and sandstone gravels.	2.80
				3.0			Becoming red/brown and saturated from 3.0 m bgs. Contains ceramic fragments, weathered brick fragments and slag gravels.	
0.2		BH12_3.2-3.3		3.2				
3.5		BH12_3.6-3.7	✳	3.6			Black staining and slight odour noted from 3.6 m bgs.	3.70
0.3		BH12_3.7-3.8		3.8		SM	Silty SAND. Light grey and dark grey. Hydrogen sulphide odour noted.	4.00
				4.0			Borehole terminated at 4.0 m bgs; target depth reached Total Depth: 4.00 m	

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AECOM Australia Pty Ltd
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BOREHOLE_ LOG BH13

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.960 m AHD

DATE 20 Aug 15

LOGGED BY L. Gibb
COMMENTS

NORTHING 6245442.06
EASTING 331634.823

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
						CONCRETE	Concrete Slab	0.17
0.1		BH13_0.2-0.3		0.2		FILL	Gravelly Sand FILL. Dark brown/black, coarse grained. Contains sandstone and ironstone gravels and glass fragments.	
0.1		BH13_0.4-0.5	✳	0.4			Becoming orange and brown mottled from 0.4 m bgs. Increased in ironstone gravels. Contains slag gravels and minor ceramic fragments.	
0.1		BH13_0.6-0.7		0.6			Becoming light grey and white, coarse grained from 0.6 m bgs. Contains sandstone gravels and glass fragments.	
				0.8				
0.1		BH13_1.0-1.1		1.0			Increase in ironstone gravel content from 1.0 m bgs. Contains rusted metal fragments and numerous glass fragments.	
				1.2				
				1.4			Switch to push-tube at 1.2 m bgs	1.50
0.2		BH13_1.5-1.6		1.6		FILL	Sandy Gravel FILL. Moist. Contains slag, sandstone and ironstone gravels.	
				1.8 ▽			Becoming red/brown and saturated from 1.8 m bgs. Contains silt and fragments of crushed shells.	
				2.0				
				2.2				
				2.4				
				2.6				
0.2		BH13_2.7-2.8		2.8			Becoming black from 2.7 m bgs	2.80
						ML	Sandy SILT. Black, dense. Organic odour.	3.00
0.3		BH13_3.0-3.1		3.0		SM	Silty SAND. Black and grey, medium grained, dense. Hydrogen sulphide odour.	
				3.2				
				3.4				
6.6		BH13_3.6-3.7	✳	3.6			Increase in sand content noted from 3.6 m bgs	
				3.8				3.90
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	

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BOREHOLE_ LOG BH14

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.930 m AHD

DATE 21 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245419.946
EASTING 331653.883

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.2		CONCRETE	Concrete Slab	0.19
						FILL	Gravel FILL. Roadbase, medium dense.	0.30
				0.4		CONCRETE	Concrete Slab	0.44
		BH14_0.45-0.55	✳			FILL	Gravelly Sand FILL. Dark brown, medium dense, dry to slightly moist. Roadbase gravels (30%), sand (60%) and minor silt (10%).	
				0.6			Hand auger refusal at 0.6 m bgs on sandstone gravel (possible boulder/floater); switch to solid augers.	
				0.8				
2.5		BH14_1.0-1.1		1.0			Contains ash, glass, slag (10%) gravels. Contains ironstone and sandstone gravels and minor roadbase gravels from 1.0 m bgs.	
				1.2				
				1.4				1.50
				1.6		FILL	Sandy Gravel FILL. Brown/orange/grey, medium dense, moist to saturated. Contains sand (15-20%), slag gravels (80%) and trace clay (<10%).	
0.6		BH14_1.8-1.9	✳	1.8				
				2.0	▽		Water level measured within borehole with tape measure at 2.0 m bgs.	
				2.2				
				2.4				
				2.6				
				2.8			Sand increasing with depth from 2.7 m bgs	
0.2		BH14_3.0-3.1		3.0				
				3.2				
				3.4				
				3.6				
				3.8				3.80
150.1		BH14_4.0-4.1	✳	4.0		CL	Sandy CLAY. Dark grey/brown, medium stiff, saturated, low to medium plasticity. Contains sand (30%) and clay (70%). Clay increasing with depth. Moderate hydrogen sulphide odour.	
				4.2				
				4.4				
				4.6			Clay becoming medium stiff and medium to high plasticity from 4.5 m bgs.	
				4.8				
				5.0				5.10
							Borehole terminated at 5.1 m bgs; target depth reached Total Depth: 5.10 m	

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BOREHOLE_ LOG BH15

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 2.700 m AHD

DATE 21 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245398.482
EASTING 331674.617

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.2		CONCRETE	Concrete Slab	0.22
0.1	☒	BH15_0.4-0.5	✳	0.4		FILL	Gravel FILL. Roadbase, medium dense, dry. Contains minor sand and minor low plasticity clay.	0.50
							Refusal at 0.5 m bgs with hand auger on concrete (possible second slab); switch to solid auger.	
							Refusal at 0.5 m bgs with solid auger; abandon borehole.	
							Total Depth: 0.50 m	

AECOM Australia Pty Ltd
Level 21, 420 George Street
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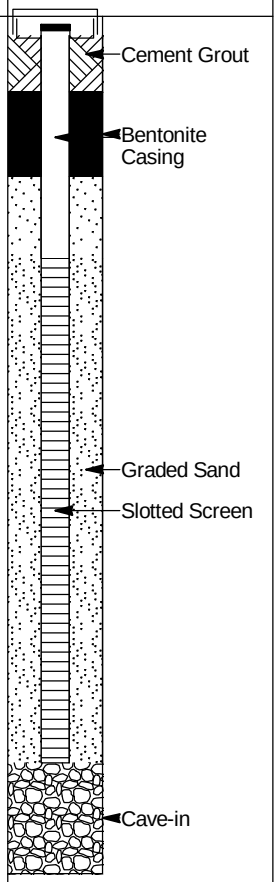
MONITORING WELL LOG BH16 / MW16

PROJECT NUMBER	60438840	**DATE**	21 & 22 August 2015
PROJECT NAME	Burrows Industrial Estate	**BLANK**	0.0 to 1.441 m bgs
LOCATION	1-3 Burrows Road, Alexandria NSW	**SCREEN**	1.441 to 4.441 m bgs
DRILLING METHOD	Hand Auger / Push-tube / Solid Auger	**GRAVEL PACK**	0.95 to 4.441 m bgs
SAMPLING METHOD	Hand Auger / Push-tube	**SANITARY SEAL/BENTONITE**	0.45 to 0.95 m bgs
SURFACE ELEVATION	4.230 m AHD	**STABILISED WATER LEVEL**	3.171 m BTOC
WELL HEAD/TOC	4.15 m AHD	**GROUND WATER ELEVATION**	0.979 m AHD
LOGGED BY	L. Gibb & K. Pigram	**NORTHING**	6245470.9
COMMENTS		**EASTING**	331688.598

PID (ppm)	SAMPLE NUMBER	DEPTH (m BGS)	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
		0.2	CONCRETE	Concrete Slab	0.17
		0.4	FILL	Sandy Gravel FILL. Yellow and dark grey, coarse grained sand. Contains sandstone cobbles, brick fragments and ceramic tile fragments.	
0.0	BH16_0.5-0.6	0.6			
0.0	BH16_0.7-0.8	0.8		Becoming black and orange from 0.7 m bgs. Contains slag gravels, ash, brick fragments, subrounded sandstone gravels and glass fragments.	
0.0	BH16_1.0-1.1	1.0			
		1.2	FILL	Dark brown with red iron staining from 1.0 m bgs. Contains slag and ironstone gravels.	1.20
		1.4		Switch to push-tube on Geoprobe from 1.2 m bgs. Completed 22 August 2015.	
		1.6			
		1.8			
0.9	BH16_2.0-2.1	2.0		Gravelly Sand FILL. Dark brown, dense, slightly moist to moist. Contains minor medium stiff, low plasticity clay, ironstone, roadbase and slag gravels, glass and metal (nails, pins and sheet metal) fragments.	
		2.2			
		2.4			
		2.6			
		2.8			
4.3	BH16_3.0-3.1	3.0		Becoming dark grey/brown and moist to saturated from 3.0 m bgs.	
		3.2			
		3.4			
		3.6			
		3.8			
2.1	BH16_4.0-4.1	4.0	FILL	Clayey Gravelly Sand FILL. Dark grey/brown to black. Contains medium stiff, low to medium plasticity (20%). Slight hydrogen sulphide odour and possible hydrocarbon odour.	4.00
		4.2			
		4.4	SW	SAND. Grey/brown, medium dense, saturated, well sorted.	4.50
		4.6			
		4.8			
3.1	BH16_5.0-5.1	5.0		Borehole terminated at 5.1 m bgs; target depth reached Total Depth: 5.10 m	5.10



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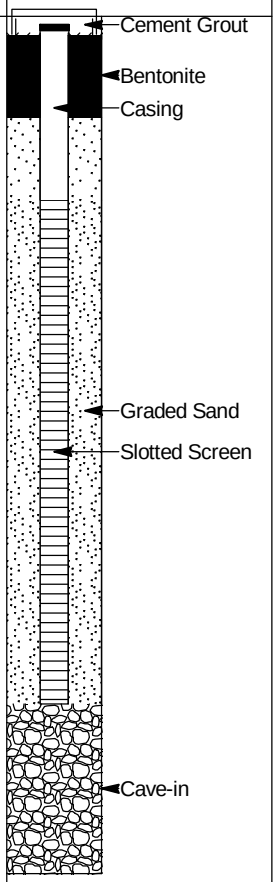
MONITORING WELL LOG BH17 / MW17

PROJECT NUMBER	60438840	**DATE**	21 & 22 August 2015
PROJECT NAME	Burrows Industrial Estate	**BLANK**	0.0 to 1.091 m bgs
LOCATION	1-3 Burrows Road, Alexandria NSW	**SCREEN**	1.091 to 4.091 m bgs
DRILLING METHOD	Hand Auger / Push-tube / Solid Auger	**GRAVEL PACK**	0.6 to 4.091 m bgs
SAMPLING METHOD	Hand Auger / Push-tube	**SANITARY SEAL/BENTONITE**	0.1 to 0.6 m bgs
SURFACE ELEVATION	4.130 m AHD	**STABILISED WATER LEVEL**	3.061 m BTOC
WELL HEAD/TOC	4.04 m AHD	**GROUND WATER ELEVATION**	0.979 m AHD
LOGGED BY	L. Gibb & K. Pigram	**NORTHING**	6245465.954
COMMENTS		**EASTING**	331700.452

PID (ppm)	SAMPLE NUMBER	DEPTH (m BGS)	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
		0.2	CONCRETE	Concrete Slab	0.19
0.0	BH17_0.2-0.3	0.4	FILL	Silty Sand FILL. Light yellow with black mottling. Contains sandstone and slag gravels, minor ash gravel content.	0.40
0.2	BH17_0.7-0.8	0.6	FILL	Gravelly Sand FILL. Yellow/orange, medium to coarse grained. Contains subangular sandstone gravels (5 mm).	
0.1	BH17_1.0-1.1	0.8			
		1.0		Becoming red/brown with black mottling from 0.7 m bgs. Contains sandstone gravels, minor slag gravels and rusted metal fragments.	1.10
		1.2	FILL		1.20
		1.4	FILL	Becoming red and grey mottled and coarse grained from 1.0 m bgs. Increase in grey slag and ash gravel content. Contains weathered brick fragments	
		1.6			
		1.8			
15.2	BH17_2.0-2.1	2.0		Silty Sand FILL. Brown mottled with black staining, dense.	
		2.2			
		2.4		Switch to push-tube on Geoprobe from 1.2 m bgs. Completed 22 August 2015.	
		2.6			2.70
		2.8		Sandy Gravel FILL. Dark grey/brown, medium dense to dense, slightly moist to moist. Contains slag, sandstone, ironstone and concrete gravels, minor silt and metal fragments. Slight hydrocarbon odour.	
		3.0			
		3.2			
		3.4			
		3.6		No push-tube recovery from 2.7 to 5.1 m bgs, possible voids or obstructions to push-tube.	
		3.8			
		4.0		Monitoring well installed according to rationale at BH16 / MW16.	
		4.2			
		4.4		Water level measured in borehole with tape measure; encountered at 3.2 m bgs	
		4.6			
		4.8			
		5.0		Borehole terminated at 5.1 m bgs. Total Depth: 5.10 m	5.10



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BOREHOLE_ LOG BH18

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 3.420 m AHD

DATE 29 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245485.266
EASTING 331741.891

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.2		CONCRETE	Concrete Slab	0.21
0.0		BH18_0.25-0.35		0.4		FILL	Gravelly Silty Sand FILL. Dark brown, loose to medium dense, dry to slightly moist. Contains silt (40%), sand (50%) and concrete and ironstone gravels (20%, <10 mm diameter).	
0.0		BH18_0.7-0.8	✳	0.6			Contains brick/concrete fragments (approx 10 cm diameter) and half bricks, pieces of sheet metal from 0.5 m bgs	
0.1		BH18_1.0-1.1		0.8		FILL	Becoming red/brown from 0.7 m bgs.	0.90
				1.0			Silty Sand FILL. Dark brown/black, loose, dry to slightly moist. Contains minor brick fragments and gravels.	
				1.2				
				1.4		FILL	Switch to push-tube at 1.2 m bgs	1.40
				1.6			Sandy Gravel FILL. Red/brown, yellow, black, medium dense, slightly moist. Contains ironstone and sandstone gravels (60%).	
0.2		BH18_2.0-2.1	✳	1.8				
				2.0				
				2.2				
				2.4				
				2.6				
				2.8				
		BH18_3.0-3.1		3.0			Becoming dark grey/brown and saturated from 3.0 m bgs.	
				3.2		SW	SAND. Grey/brown, fine to medium grained, medium dense, saturated.	3.20
				3.4				
				3.6				
		BH18_3.8-3.9		3.8				3.90
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	

AECOM Australia Pty Ltd
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MONITORING WELL LOG BH19 / MW19

PROJECT NUMBER	60438840	**DATE**	21 & 22 August 2015
PROJECT NAME	Burrows Industrial Estate	**BLANK**	0.0 to 0.92 m bgs
LOCATION	1-3 Burrows Road, Alexandria NSW	**SCREEN**	0.92 to 3.92 m bgs
DRILLING METHOD	Hand Auger / Push-tube / Solid Auger	**GRAVEL PACK**	0.5 to 3.92 m bgs
SAMPLING METHOD	Hand Auger / Push-tube	**SANITARY SEAL/BENTONITE**	0.1 to 0.5 m bgs
SURFACE ELEVATION	3.510 m AHD	**STABILISED WATER LEVEL**	2.464 m BTOC
WELL HEAD/TOC	3.44 m AHD	**GROUND WATER ELEVATION**	0.976 m AHD
LOGGED BY	L. Gibb & K. Pigram	**NORTHING**	6245525.412
COMMENTS		**EASTING**	331743.935

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
						ASPHALT	Bitumen Hardstand	0.11	Cement Grout
0.2		BH19_0.11-0.15		0.2		FILL	Silty Gravel FILL. Light grey, moist. Contains roadbase (blue metal) gravels.	0.30	Bentonite
0.4		BH19_0.25-0.30		0.4		FILL	Becoming black from 0.25 m bgs. Contains brick and glass fragments and slag gravels.	0.60	Casing
0.1		BH19_0.6-0.7		0.6		FILL	Hand Auger refusal at 0.3 m bgs, switch to Solid Auger on Geoprobe. Completed on 22 August 2015	1.00	
1.2		BH19_1.0-1.1		1.0		FILL	Gravel FILL. Roadbase gravels with metal fragments.	1.50	
0.6		BH19_1.4-1.5		1.4		FILL	Gravelly Sand FILL. Dark brown, fine to medium grained, loose, dry. Contains minor silt, brick and roadbase gravels (20%) and sand (70%).		Slotted Screen
1.9		BH19_2.0-2.2	✳	2.0			Becoming light grey/brown from 0.7 m bgs.		Graded Sand
				2.2			Hand auger refusal at 0.85 m bgs, possible concrete floater, switch to solid auger.		
				2.4			Sandy Clay FILL. Brown, loose, dry. Contains concrete and sandstone gravels (10%) and minor orange ironstone gravels.	2.90	
0.5		BH19_3.0-3.1		3.0		FILL	Switch to push-tube from 1.1 m bgs.	3.20	
				3.2		SW	Gravelly Sand FILL. Orange/brown, medium to coarse grained, loose to medium dense, slightly moist to moist. Contains ironstone and slag gravels (50%) and sand (50%).		
1.2		BH19_3.8-3.9		3.8			Water level measured in borehole with tape measure - encountered at 2.5 m bgs	3.90	
							Sand FILL. Possible reworked natural. Dark grey brown/black, saturated. Slight hydrogen sulphide odour.		
							SAND. Light grey/brown, medium dense, saturated. Contains organic matter.		
							Borehole terminated at 3.9 m bgs; target depth reached. Total Depth: 3.90 m		

60438840_BORELOGS_20150826.GPJ 28/9/15

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH20

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 3.240 m AHD

DATE 29 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245507.731
EASTING 331767.618

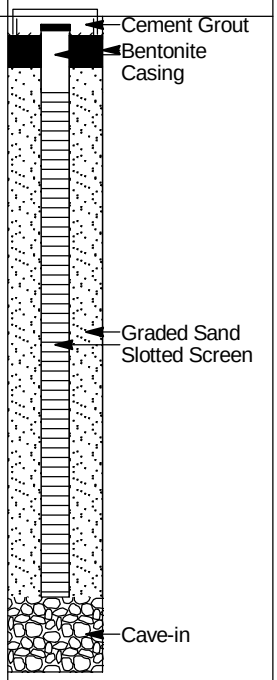
PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.2		CONCRETE	Concrete Slab	0.20
				0.4		FILL	Gravel FILL. Roasbase, dark grey/brown, dense, dry to slightly moist. Contains minor medium stiff, low plasticity clay.	0.40
0.2		BH20_0.5-0.6	✳	0.6		FILL	Gravelly Sand FILL. Brown, loose, slightly moist. Contains medium grained sand and subangular roadbase gravels (20%, <10 mm diameter).	
				0.8			Becoming dark grey/brown and slightly moist from 0.8 m bgs. Contains concrete and terracotta gravels (<1 mm diameter).	
0.4		BH20_1.0-1.1	✳	1.0		FILL	Gravels - sandstone and slag (<10 mm diameter), content increasing to 30% from 0.9 m bgs.	1.00
				1.2			Hand auger refusal at 0.95 m bgs; switch to push-tube.	
				1.4				
				1.6			Sandy Gravel FILL. Red/brown, black, brown, dense, slightly moist. Contains slag and sandstone gravels.	
				1.8				
0.4		BH20_2.0-2.1	✳	2.0 ▽			Becoming dark grey/brown and saturated from 2.0 m bgs. Contains slag gravels (80%)	
				2.2				
				2.4				
				2.6				
				2.8				
				3.0				
				3.2				
				3.4		SW	SAND. Grey/brown, loose to medium dense, saturated. Contains organic matter and trace medium stiff low plasticity clay.	3.40
0.3		BH20_3.5-3.6		3.6				
				3.8				3.90
							Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

MONITORING WELL LOG BH21 / MW21

PROJECT NUMBER	60438840	**DATE**	21 & 22 August 2015
PROJECT NAME	Burrows Industrial Estate	**BLANK**	0.0 to 0.895 m bgs
LOCATION	1-3 Burrows Road, Alexandria NSW	**SCREEN**	0.895 to 3.895 m bgs
DRILLING METHOD	Hand Auger / Push-tube / Solid Auger	**GRAVEL PACK**	0.5 to 3.895 m bgs
SAMPLING METHOD	Hand Auger / Push-tube	**SANITARY SEAL/BENTONITE**	0.1 to 0.5 m bgs
SURFACE ELEVATION	3.120 m AHD	**STABILISED WATER LEVEL**	2.024 m BTOC
WELL HEAD/TOC	3.04 m AHD	**GROUND WATER ELEVATION**	1.016 m AHD
LOGGED BY	L. Gibb & K. Pigram	**NORTHING**	6245494.973
COMMENTS		**EASTING**	331791.781

PID (ppm)	SAMPLE NUMBER	DEPTH (m BGS)	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
		0.0	CONCRETE	Concrete Slab	0.18
0.2	BH21_0.20-0.25	0.2	FILL	Silty Gravel FILL. Moist. Contains roadbase and blue metal gravels.	
0.1	BH21_0.25-0.35	0.4		Becoming yellow from 0.25 m bgs. Contains coarse grained sand and small blue metal gravels (<2 mm).	
0.1	BH21_0.7-0.8	0.6			
		0.8	FILL	Becoming light brown from 0.5 m bgs.	0.80
0.3	BH21_1.0-1.1	1.0		Black staining and strong chemical odour noted from 0.7 m bgs. Contains sandstone gravels, glass fragments and potential bonded ACM fragment.	
		1.2	FILL		1.20
		1.4		Sandy Gravel FILL. Yellow with black mottling. Contains sandstone, concrete and brick gravels.	
		1.6			
		1.8		Black staining and chemical odour noted from 1.0 m bgs.	
		2.0			
		2.2		Switch to push-tube on Geoprobe for continuation at 1.2 m bgs - completed on 22 August 2015.	
		2.4			
		2.6			2.70
0.2	BH21_2.7-2.8	2.8	FILL	No recovery in push-tube from 1.2 to 2.7 m bgs; metal fragment in base of push-tube blocking recovery, assumed FILL.	
2.1	BH21_3.0-3.1	3.0	SW		3.00
		3.2		Sandy Gravel FILL. Brown, loose to medium dense, saturated. Contains minor soft, low plasticity clay (10%), metal fragments and slag gravels (50%), medium grained sand (40%).	
		3.4			
		3.6			
		3.8		SAND. Grey/brown, loose to medium dense, saturated. Minor soft, low plasticity clay (10%). Clay content increasing with depth.	
1.3	BH21_3.8-3.9				3.90
				Borehole terminated at 3.9 m bgs; target depth reached Total Depth: 3.90 m	



60438840_BORELOGS_20150826.GPJ 28/9/15

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

BOREHOLE_ LOG BH22

PROJECT NUMBER 60438840
PROJECT NAME Burrows Industrial Estate
LOCATION 1-3 Burrows Road, Alexandria NSW
DRILLING METHOD Hand Auger / Push-tube / Solid Auger
SAMPLING METHOD Hand Auger / Push-tube
SURFACE ELEVATION 3.370 m AHD

DATE 21 Aug 15

LOGGED BY K. Pigram
COMMENTS

NORTHING 6245435.465
EASTING 331672.77

PID (ppm)	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGS)	GRAPHIC LOG	USCS CLASS	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
				0.2		CONCRETE	Concrete Slab	0.26
0.1		BH22_0.3-0.4 BH22_0.45	✳ ✳	0.4		FILL	Gravelly Sand FILL. Red/brown and grey/brown, loose to medium dense, dry. Contains ironstone and roadbase gravels.	
				0.6		FILL	Possible ACM fragment collected as bag sample	0.60
0.1		BH22_0.8-0.9	✳	0.8		FILL	Hand auger refusal at 0.6 m bgs; switch to solid auger.	0.80
				1.0			Gravelly Sand FILL. Red/brown and dark grey/brown medium dense, dry. Contains ironstone and roadbase gravels.	
0.1		BH22_1.3-1.4		1.2		FILL		1.30
				1.4			Clayey Sand FILL. Dark brown, medium dense, dry to slightly moist. Contains organic matter (possible peat) and slag (<10 mm) pieces.	
0.1		BH22_1.7-1.8		1.6		FILL	Band of ironstone gravel from 1.1 to 1.3 m bgs	1.70
				1.8			Clay FILL. Light grey, medium plasticity, slightly moist.	
				2.0			Gravelly Sand FILL. Dark brown. Contains sandstone gravels.	
0.1		BH22_2.2-2.3	✳	2.2		FILL	Pocket of low to medium plasticity, saturated clay encountered at 2.1 m bgs.	2.20
				2.4 ▽			Gravel FILL. Slag with minor sand. Grey/brown, saturated.	
				2.6			Water level measured within borehole with tape measure at 2.4 m bgs.	
				2.8			Sandstone boulder, dark brown, dense, slight to moderately weathered, saturated encountered at 2.7 m bgs, minimal push-tube recovery.	
				3.0				
				3.2				
				3.4				
				3.6				
				3.8				3.90
0.1		BH22_3.9-4.0		4.0		FILL	Gravel FILL. Slag with minor sand. Dark grey/brown, saturated.	
				4.2				
				4.4				4.50
26.7		BH22_4.5-4.7	✳	4.6		CL	Sandy CLAY. Light grey with dark grey/brown mottling, saturated, low to medium plasticity. Contains sand (30-40%) and clay (60-70%). Moderate hydrogen sulphide odour noted.	
				4.8				
				5.0				5.10
							Borehole terminated at 5.1 m bgs; target depth reached Total Depth: 5.10 m	

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SOIL BOREHOLE

BH100

Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	03/02/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	03/02/2020
Location:	1-3 Burrows Road, Alexandria NSW	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331555.408 m	**Ground El.:**	2.035 mRL
Drill Type:	diatube, hand auger, solid stem auger	**Northing:**	6245391.019 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	3.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: BITUMINOUS SEAL bitumen road base	D				
HA						FILL: SAND brown, fine to medium grain			◯	0.6	BH100_0.15-0.25
						FILL: sandy GRAVEL black/grey road base gravels (20-40 mm), sub rounded to sub angular. Sands; brown. Ceramic inclusions (50 mm). Minor clay component.					
		Water inflow/seepage at 0.70 m 03/02/2020				FILL: sandy GRAVEL Ironstone gravels. Sands; brown/grey. Minor clay component, shells (50 mm), fragments of glass and ceramics.	W		◯	0.0	BH100_0.7-0.8
						FILL: FILL brown/orange fragments (<10 mm), brittle. Grey sandy sponge like material throughout.			◯	0.6	BH100_0.8-0.9
			1			at 1.00 m: inclusions of brick, tiles and metal wire.					
SSA					CL	CLAY grey/black, medium plasticity.Rootlets					
			2								
			3						◯	0.2	BH100_3.4-3.5
						BH100 terminated at 3.50 m. Target depth					
			4								

Remarks: 0.15-3.50 m: No odour/staining observed

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SOIL BOREHOLE

BH101

Sheet: 1 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	31/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	31/01/2020
Location:	Unit 2	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331574.416 m	**Ground El.:**	2.422 mRL
Drill Type:	diatube, hand auger, solid stem auger, hand auger, solid stem auger, hand auger, solid stem auger	**Northing:**	6245336.499 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND pale brown, medium to coarse grain. Gravels; sandstone, white/yellow (20 - 40 mm). Minor slag and ironstone gravel (10 mm) inclusions.					BH101_0.16-0.26
SSA						at 0.27 m: sandstone cobble					
HA						FILL: SAND pale brown/white, fine to medium grain. Sandstone gravels (<10%) at 0.35 m: increase in sandstone gravel content (10-15%)				0.0	BH101_0.3-0.4
SSA											
HA						FILL: sandy GRAVEL black, road base gravels (<5 mm). Sands; black, medium to coarse grain. Inclusions of ironstone gravels (10-20 mm), glass (30 mm), brick fragments.					BH101_0.7-0.8
SSA			1			FILL: gravelly SAND dark brown/black, fine to medium grain. Gravels; road base (<10 mm). Minor clay content, low plasticity. Inclusions of ceramics, metal, glass and cotton buds. at 1.00 m: increase in clay and ironstone gravels (10 %). Increase size of road base gravels (10-15 mm)	M			0.6	BH101_1.5-1.6

Remarks: 0.16-4.00 m: No odour/staining observed
0.80 m: handauger refusal; switch to SSA

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SOIL BOREHOLE

BH101

Sheet: 2 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	31/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	31/01/2020
Location:	Unit 2	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331574.416 m	**Ground El.:**	2.422 mRL
Drill Type:	diatube, hand auger, solid stem auger, hand auger, solid stem auger, hand auger, solid stem auger	**Northing:**	6245336.499 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
SSA			2			FILL: gravelly SAND dark brown/black, fine to medium grain. Gravels; road base (<10 mm). Minor clay content, low plasticity. Inclusions of ceramics, metal, glass and cotton buds.	M				
		▼ Standing water level at 2.20 m 31/01/2020				FILL: gravelly SAND black, medium to coarse grain. Road base gravels (10 mm). Inclusions of brick (40 mm), metals, metal wire (1 m), ceramics, glass.	W		○	0.0	BH101_2.2-2.3
			3			at 2.80 m: minor clay content					
					CH	CLAY black/dark grey, medium to high plasticity			○	0.0	BH101_3.8-3.9

BH101 terminated at 4.00 m. Target depth

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MONITORING WELL MW102

Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	31/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	31/01/2020
Location:	Unit 2	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331627.004 m	**Top of Casing:**	2.300 mRL
Drill Type:	diatube, hand auger, solid stem auger	**Northing:**	6245313.221 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm	**Pipe Dia.:**	50 mm

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Depth (m)
DT						PAVEMENT: CONCRETE slab	D	0
HA		0.0	BH102_0.135-0.2			FILL: sandy GRAVEL grey road base gravels (10-30 mm). Sands; black/orange coarse grain. Rootlets		
		0.3	BH102_0.3-0.4			FILL: gravelly SAND orange/brown, medium to coarse grain. Gravels; white sandstone, sub angular to sub rounded. Minor ironstone gravels (10%), (20 mm) and glass. at 0.35 m: increase in gravels		
		0.0	BH102_0.5-0.6			FILL: gravelly SAND brown, fine to medium grain. Gravel; sandstone and ironstone (20 %) (50 mm). Inclusions of slag (10 -20 mm)		
		0.0	BH102_0.9-1.0			Minor clay inclusions; orange/black, low plasticity	M	1
SSA						at 0.62 m: inclusions of brick, glass, ceramics and rubber at 0.70 m: increase in slag (10-20 mm) and brick (40 mm) content (20-30 %)	W	
		0.1	BH102_1.3-1.4			FILL: gravelly SAND black, fine to medium grain, minor ironstone and white sandstone gravels. Minor clay content (5%).		
						FILL: sandy GRAVEL black, road base gravels (5-10 mm). Sands; black, coarse grain. Tile fragment (30 mm)		2
						at 2.30 m: minor clay inclusions (<5 %). brick (50 mm) and ceramics (30 mm)		
		0.0	BH102_3.4-3.5		CH	CLAY brown/dark grey to black, medium to high plasticity: medium to high plasticity		3
		0.0	BH102_4.4-4.5					4
						MW102 terminated at 4.50 m. Target depth. Groundwater monitoring well installed		

WELL CONSTRUCTION DETAILS

- 0.0 to 0.0 m: 50 mm Flush Gatic
- 0.0 to 0.5 m: Grout
- 0.5 to 1.0 m: Bentonite
- 0.0 to 1.5 m: 50 mm Solid PCV pipe
- Standing water level at 0.94 m 12/02/2020
- Temporary water level at 1.30 m 31/01/2020
- 1.0 to 4.5 m: Sand
- 1.5 to 4.5 m: 50 mm Slotted PVC pipe

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Remarks: 0.14-3.50 m: No odour/staining observed

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SOIL BOREHOLE

BH103

Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	03/02/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	03/02/2020
Location:	Unit 3	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331649.295 m	**Ground El.:**	2.786 mRL
Drill Type:	diatube, hand auger, solid stem auger, hand auger, solid stem auger	**Northing:**	6245352.702 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND orange, fine to medium grain. Gravels; sandstone cobbles (60-100 mm) orange/brown at 0.30 m: sandstone cobble			◯	0.1	BH103_0.15-0.25
SSA						FILL: as above with increase of sandstone gravels (30-40mm)					
HA			1			FILL: SAND brown, fine to medium grain. Minor ironstone gravels (15 mm) from 0.90 m, becoming black with minor ceramics			◯	0.1	BH103_0.85-0.95
						FILL: gravelly SAND light brown, fine to medium grain. Gravels; sandstone, grey (30 mm) from 1.40 m, becoming brown. No gravels.			◯	0.1	BH103_1.3-1.4
SSA		▼ Standing water level at 2.00 m 03/02/2020	2			FILL: gravelly SAND dark brown/black, fine to coarse grain. Gravels; black road base gravels (10 mm), sub rounded to sub angular. Inclusions of brick, ceramics. Minor clay component.	W		◯	0.0	BH103_2.0-2.1
			3								
			4		CH	CLAY dark grey/black, high plasticity.			◯	0.0	BH103_4.4-4.5
						BH103 terminated at 4.50 m. *Target depth*					

Remarks: 0.15-3.80 m: No odour/staining observed
3.80-4.50 m: Stong hydrogen sulfide odour

Final

2018_ANZ_ENV_02. SOIL BORE LOG BURROWSRD_RP_200206.GPJ AECOM_5-00.GDT AECOM_5-00AA_GOODMANBURROWS.GLB 26.2.2020

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SOIL BOREHOLE

BH104

Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	31/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	03/02/2020
Location:	Unit 3	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331621.782 m	**Ground El.:**	2.852 mRL
Drill Type:	diatube, hand auger, solid stem auger	**Northing:**	6245384.239 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND orange/brown sandstone sands, fine to medium grain. Gravels; sandstone (20-30 mm), white, sub rounded. becoming orange brown				0.1	BH104_0.15-0.25
						at 0.60 m: sandstone cobble					
			1			FILL: SAND black, fine to medium grain. Minor clay component				0.1	BH104_0.8-0.9
						at 0.90 m: tile fragment (10-20 mm), road base gravels (10-40 mm) sub rounded to sub angular					
						at 1.40 m: ash band				0.1	BH104_1.4-1.5
						FILL: SAND black, fine to medium grain. Minor road base gravels (10 mm), tile fragments (50 mm), brick fragments, metal wire.				0.2	BH104_1.6-1.7
						at 1.80 m: inclusion of red brick (20 - 30 mm), ceramics	M				
SSA		Standing water level at 2.00 m 03/02/2020	2			FILL: sandy GRAVEL black, road base gravels (10 mm), sub rounded to sub angular. Sands; black, coarse grain.	W			0.1	BH104_2.0-2.1
						at 2.60 m: minor clay component. Inclusions of terracotta tiles (40 mm), metal wire, brick (40 mm) and ceramic (40 mm) fragments.					
			3				M				
						SAND grey/black, fine to medium grain. With metal wire, brick fragments (30 - 40 mm) and ceramics.				2.4	BH104_3.3-3.4
					CL	CLAY dark grey/black, medium plasticity.					
			4								
						BH104 terminated at 4.50 m. Target depth					

Remarks: 0.15-4.50 m: No odour/staining observed

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MONITORING WELL MW105

Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	31/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	31/01/2020
Location:	1-3 Burrows Road, Alexandria NSW	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331627.489 m	**Top of Casing:**	3.202 mRL
Drill Type:	diatube, hand auger, push tube	**Northing:**	6245463.586 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm	**Pipe Dia.:**	50 mm

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Depth (m)
DT						PAVEMENT: BITUMINOUS SEAL bitumen road base	D	0
HA		0.1	BH105_0.15-0.2			FILL: sandy GRAVEL black/dark grey road base gravels (10 mm), sub angular to angular with inclusions of ironstone gravels (20-30 mm). Sands; black, medium to coarse grain. Minor ceramic inclusions.		
		0.1	BH105_0.4-0.5			FILL: sandy GRAVEL black/dark grey road base gravels (10 mm), sub angular to angular. Slag inclusions (10 -40 mm) with ash. Sands; black medium to coarse grain		
		0.1	BH105_0.65-0.75			at 0.50 m: inclusions of ironstone gravels (30 mm). Minor inclusions of glass, brick and ceramics (20 - 50 mm). Minor clay content		1
		0.1	BH105_0.85-0.95			FILL: sandy CLAY orange/brown, medium plasticity. Sands; brown medium grain. Minor black road base gravels (5 mm)		
PT						FILL: gravelly SAND orange/brown, medium to coarse grain with ironstone gravels (20-30 mm), minor inclusions of glass and ceramics	M	
		0.1	BH105_1.7-1.8			at 0.90 m: ash and charcoal. Becoming grey/brown		
						FILL: sandy GRAVEL black, sub angular to angular. Sands; orange, coarse grain		2
						at 1.80 m: inclusions of ironstone gravels (20 mm)		
						at 2.40 m: black clay band		
						at 2.50 m: shell band <5mm, white	W	
						at 2.90 m: minor glass fragments		3
		0.1	BH105_3.5-3.6			FILL: gravelly SAND orange brown, medium to coarse grain. Gravels black (10 mm) sub angular to sub rounded		
						at 3.70 m: minor clays		
					CH	CLAY black, medium to high plasticity. Rootlets		4
		0.2	BH105_4.4-4.5					
						MW105 terminated at 4.50 m. Target depth. Groundwater monitoring well installed		

WELL CONSTRUCTION DETAILS

- 0.0 to 0.0 m: 50 mm Flush Gatic
- 0.0 to 0.5 m: Grout
- 0.5 to 1.0 m: Bentonite
- 0.0 to 1.5 m: 50 mm Solid PCV pipe
- Standing water level at 1.81 m 12/02/2020
- Temporary water level at 2.60 m 31/01/2020
- 1.0 to 4.5 m: Sand
- 1.5 to 4.5 m: 50 mm Slotted PVC pipe

Remarks: 0.15-4.50 m: No odour/staining observed
1.50-3.50 m: Minimal push tube recovery

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SOIL BOREHOLE

BH106

Sheet: 1 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	28/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Kurtis Wathen	**End Date:**	28/01/2020
Location:	Unit 4	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331684.030 m	**Ground El.:**	3.467 mRL
Drill Type:	solid stem auger, hand auger, push tube	**Northing:**	6245461.203 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	6.3 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
SSA	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: SAND pale to dark brown, fine to coarse grain with ironstone gravels (<10 mm) and trace slag (<50 mm) and trace silts. at 0.30 m: becoming dark brown with sandstone gravels (20 mm), subangular to sub rounded. Trace sandstone cobbles subangular to sub rounded. Metal inclusions	M			1.7	BH106_0.2-0.3
										0.6	BH106_0.4-0.5
			1			FILL: clayey SAND dark brown, medium to coarse grain with ironstone gravels (< 10 mm) subangular to sub rounded. Trace slag (10 mm), ceramic tile, metal and vegetation.				0.1	BH106_0.8-0.9
PT		Standing water level at 1.70 m 28/01/2020				FILL: clayey SAND dark brown, medium to coarse grain. Clay; light brown. Brick inclusion (20-40 mm)	D				
							W			0.8	BH106_1.7-1.8
			2			FILL: SAND orange/brown, medium to coarse grain with ironstone gravels (10-20 mm), subangular to sub rounded. Trace glass					
											BH106_2.7-2.8
			3			FILL: GRAVEL slag with trace coarse sands					
			4		CL	sandy CLAY dark grey, low plasticity with white shell fragments (< 10 mm) trace rootlets				3.2	BH106_4.0-4.1

Remarks:
0.15-4.30 m: No odour/staining observed
1.50-2.70 m: Minimal pushtube recovery
2.90-3.10 m: No pushtube recovery
4.30-5.10 m: No pushtube recovery. Mild hydrogen sulfide odour

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SOIL BOREHOLE

BH106

Sheet: 2 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	28/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Kurtis Wathen	**End Date:**	28/01/2020
Location:	Unit 4	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331684.030 m	**Ground El.:**	3.467 mRL
Drill Type:	solid stem auger, hand auger, push tube	**Northing:**	6245461.203 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	6.3 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
			5		CL	sandy CLAY dark grey, low plasticity with white shell fragments (< 10 mm) trace rootlets from 5.10 m to 5.30 m: shell band	W				
			6						◯	0.5	BH106_6.0-6.1
						BH106 terminated at 6.30 m. Target depth					
			7								
			8								
			9								

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SOIL BOREHOLE

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Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	29/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	29/01/2020
Location:	Unit 8	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331731.264 m	**Ground El.:**	4.320 mRL
Drill Type:	diatube, hand auger, solid stem auger, hand auger, push tube, solid stem auger	**Northing:**	6245491.173 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
HA DT	None		0			PAVEMENT: CONCRETE slab	D				
SSA						FILL: SAND orange sandstone sands, medium to coarse grain	M			0.1	BH107_0.2-0.3
						FILL: silty SAND dark brown, medium to coarse grain with concrete gravels (10-40 mm). Brick (20 mm) at 0.28 m: concrete cobble. Use solid stem auger to pass, return to hand auger				0.2	BH107_0.4-0.5
HA						FILL: SAND black/grey with orange, medium to coarse grain. Crushed brick fragments	D			0.3	BH107_0.5-0.6
						FILL: silty SAND dark brown/pale grey fine to medium grain with slag (10-80 mm), brick (20 mm) and sandstone gravels (10-20 mm) subangular to sub rounded				0.9	BH107_0.8-1.0
			1			FILL: silty SAND dark brown. Pale grey, fine to medium grain with shell fragments (50 mm) and nodules of metals (40 mm)					
						FILL: gravelly SAND dark brown, fine to medium grain inclusions of ceramics (20 mm) and minor glass. at 1.00 m: ash and crushed brick				3.5	BH107_1.5-1.7
PT		Standing water level at 1.70 m 29/01/2020					W				
			2								
			3								
SSA						FILL: sandy GRAVEL grey gravels. Sands; grey, coarse grain. Inclusions of terracotta, brick, glass and ironstone gravels				0.5	BH107_3.9-4.0
			4		SC	clayey SAND black, fine to medium grained				0.3	BH107_4.8-5.0

BH107 terminated at 5.00 m. Target depth

Remarks:
0.15-4.80 m: No odour/staining observed
1.50-3.90 m: Minimal push tube recovery. Push tube sinking due to sands (1.5-2.7 m)
4.80-5.00 m: Hydrogen sulfide odour

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SOIL BOREHOLE

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Sheet: 1 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	28/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Kurtis Wathen	**End Date:**	28/01/2020
Location:	Unit 9	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331714.016 m	**Ground El.:**	4.935 mRL
Drill Type:	diatube, hand auger, hand auger, solid stem auger	**Northing:**	6245533.699 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.1 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
HADT	None		0			PAVEMENT: CONCRETE slab	D				
						FILL: sandy GRAVEL dark grey road base gravels (10-30 mm). Sand; medium to coarse grain				1.7	BH108_0.15-0.25
						PAVEMENT: CONCRETE slab					
						FILL: sandy GRAVEL dark brown road base gravels (10-60 mm) with slag (20-40 mm) and ironstone gravels (10 mm) from 0.50 m: becoming gravelly sand. Sand becoming orange brown, trace ceramic (20 mm) and glass				1.5	BH108_0.35-0.45
							M			0.6	BH108_0.5-0.6
						FILL: gravelly SAND red/brown, fine to coarse grain, mixed with ash (grey). Gravels; dark grey (10 mm) with slag gravels. Trace clay content and ironstone gravel (20 mm) and glass.				0.4	BH108_0.7-0.8
										0.3	BH108_0.85-0.9
			1			FILL: as above; no obvious ash or slag from 1.10 m: slag gravels and charcoal from 1.30 m to 1.40 m: ash band from 1.50 m: trace ceramics				2.4	BH108_1.3-1.4
			2			FILL: SAND red/orange, medium grain with ironstone gravel and trace slag				0.7	BH108_2.3-2.4
						from 2.50 m to 2.60 m: sands medium to coarse grain, blue/green colour					BH108_2.5-2.6
SSA						FILL: FILL mixed slag, ash and trace road base gravels				1.8	BH108_2.8-2.9
		Standing water level at 3.00 m 28/01/2020	3								
			4			FILL: clayey gravelly SAND red, medium to coarse grain. With ironstone gravels (10-60 mm), trace slag	W			3.8	BH108_4.1-4.2
					CL	sandy CLAY dark grey mottled grey, medium plasticity				1.6	BH108_4.3-4.4
					SC	clayey SAND pale to dark grey, fine to medium grain				2.7	BH108_4.9-5.0

Remarks: 0.14-4.30 m: No odour/staining observed
4.30-4.90 m: Hydrogen sulfide odour
4.90-5.10 m: No odour/staining observed

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SOIL BOREHOLE

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Client:	Goodman	**Project No:**	60623599	**Start Date:**	28/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Kurtis Wathen	**End Date:**	28/01/2020
Location:	Unit 9	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331714.016 m	**Ground El.:**	4.935 mRL
Drill Type:	diatube, hand auger, hand auger, solid stem auger	**Northing:**	6245533.699 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.1 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval PID (ppm)	Sample ID
			5		SC	clayey SAND pale to dark grey, fine to medium grain	W			
						BH108 terminated at 5.10 m. Target depth				
			6							
			7							
			8							
			9							

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Sheet: 1 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	27/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	27/01/2020
Location:	Unit 9	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331694.186 m	**Ground El.:**	4.924 mRL
Drill Type:	diatube, non-destructive drilling, solid stem auger, push tube	**Northing:**	6245515.801 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	6.3 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
NDD						FILL: SAND dark grey, medium to coarse grain. Inclusions of brick (90 mm), ceramic tiles and minor iron stone inclusions (20 mm) at 0.45 m: same as above, with ash 10 - 15 %				0.3	BH109_0.3-0.4
						FILL: gravelly SAND sandstone sands, mixture of red, brown, grey, medium to coarse grained sands. Inclusion of shale gravels (15-20 mm), sub angular, slag (30-40 mm)				0.4	BH109_0.6-0.7
SSA						FILL: gravelly SAND dark brown, medium to coarse grain, slag inclusions (20-50 mm)				0.3	BH109_0.9-1.0
			1			FILL: clayey SAND grey/brown, medium grained. Inclusions of sandstone angular gravels. Minor glass, ceramic, slag and tree roots. at 1.20 m: increase slag content					
						FILL: gravelly SAND black, medium grained. Road base gravels. Minor slag inclusions				1.2	BH109_1.5-1.6
						FILL: gravelly SAND orange and red, medium to coarse grain. Road base gravels (10-15 mm), sub angular. Minor clay inclusions and ceramic fragments	M				
			2								
PT		Standing water level at 2.70 m 27/02/2020					W			3.3	BH109_2.7-2.8
			3			from 2.90 m to 3.00 m: dark grey and green					
			4								
					CL	sandy CLAY dark grey, medium plasticity, sand medium grain.				0.2	BH109_4.5-4.6

Remarks:
0.28-6.30 m: No odour/staining observed
0.80-0.90 m: Hand auger refusal, switching to SSA
1.50-2.70 m: Minimal pushtube recovery, no sample recovery

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Sheet: 2 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	27/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	27/01/2020
Location:	Unit 9	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331694.186 m	**Ground El.:**	4.924 mRL
Drill Type:	diatube, non-destructive drilling, solid stem auger, push tube	**Northing:**	6245515.801 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	6.3 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
PT			5		CL		W				
					SC	clayey SAND grey, fine to medium grain sands, medium plasticity: clay content decreasing					
						from 5.80 m to 6.30 m: shell band; white, shells (5 -10 mm)					
			6							0.3	BH109_6.1-6.2
						BH109 terminated at 6.30 m. Target depth					
			7								
			8								
			9								

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Sheet: 1 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	27/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	27/01/2020
Location:	Unit 9	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331661.963 m	**Ground El.:**	4.888 mRL
Drill Type:	diatube, hand auger, push tube, solid stem auger	**Northing:**	6245491.955 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.1 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND dark grey, coarse to medium grain. Minor ironstone gravels, sub-rounded to sub-angular (20 mm), slag fragments (10-25 mm) at 0.40 m: fragments of terracotta pipe, orange (40 - 70 mm) at 0.45 m: metal inclusions (50 mm)				0.5 0.4	BH110_0.35-0.36 BH110_0.4-0.6
PT						from 0.50 m: increase in ironstone gravels and slag (20 - 30 mm), sub-rounded to sub-angular. Minor inclusions of glass (30 mm), ceramics, brick fragments and slag (10 mm)					
SSA			1			FILL: gravelly SAND brown, fine to medium grain. Ironstone gravels, sub-rounded to sub-angular (10-40 mm) Minor clays and sandstone gravels (10 mm), terracotta				0.5	BH110_0.9-1.0
						FILL: sandy GRAVEL dark grey, road base gravels (5-20 mm), sands medium to coarse grain. Inclusions of sandstone sands speckled with silver mineral deposits				0.7	BH110_1.2-1.3
			2								
			3			FILL: SAND sandstone sands, orange, inclusions of ceramic at 2.80 m: rubber inclusion	W				
			4								

Remarks: 0.33-5.10 m: No odour/staining observed
1.20-2.70 m: Minimal recovery for ACM sample
2.70-5.10 m: Minimal pushtube recovery

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Sheet: 2 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	27/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	27/01/2020
Location:	Unit 9	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331661.963 m	**Ground El.:**	4.888 mRL
Drill Type:	diatube, hand auger, push tube, solid stem auger	**Northing:**	6245491.955 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.1 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval PID (ppm)	Sample ID
		▼ Standing water level at 5.10 m 27/01/2020	5			FILL: SAND sandstone sands, orange, inclusions of ceramic	W			
					CL	silty CLAY grey, medium plasticity. *BH110 terminated at 5.10 m. Target depth*				
			6							
			7							
			8							
			9							

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Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	30/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	30/01/2020
Location:	Unit 6	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331718.244 m	**Ground El.:**	3.455 mRL
Drill Type:	diatube, hand auger, solid stem auger, hand auger, solid stem auger	**Northing:**	6245456.264 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: SAND orange mixed with brown, medium grain, 10% yellow fine grain sands. Minor road base gravels and glass (20 mm)				0.1	BH111_0.15-0.2
						FILL: gravelly SAND grey, medium to coarse grain with inclusions of ironstone (15 mm) and road base gravels, slag and ceramics (15 mm)				0.2	BH111_0.3-0.4
SSA						at 0.45 m: cobble (60 mm)					
						at 0.50 m: as above with increase size in ironstone gravels (20-30 mm)				0.1	BH111_0.65-0.75
HA			1			FILL: SAND red/brown, medium to coarse grain, minor ironstone gravels (10 mm) and ceramics (15 mm).					
						at 0.70 m: concrete cobble (70 mm)					
						at 1.20 m: sands becoming red with minor glass inclusions					
						FILL: clayey SAND orange/red, minor to coarse grain, minor inclusions of ceramics, glass and black gravels (5 mm)				0.1	BH111_1.5-1.6
			2			at 2.00 m: increase in slag content	M				
		Standing water level at 2.40 m 30/01/2020				FILL: sandy GRAVEL brown, medium to coarse grain. Gravels; black road base (5-10 mm), sub angular to sub rounded. Minor inclusions of plastic	W			0.0	BH111_2.3-2.4
SSA						at 2.60 m: increase size of road base gravels (30-50 mm)	M				
			3			at 3.00 m: inclusions of ceramics					
						FILL: gravelly SAND red/grey, medium to coarse grain. Gravels; black road base (5-10 mm), sub angular. Minor clays.				0.1	BH111_3.2-3.3
						at 3.40 m: black clay. Possibly natural					
			4		CL	CLAY black/dark grey, medium plasticity.	W				
										0.1	BH111_4.3-4.5
						BH111 terminated at 4.50 m. Target depth					

Remarks: 0.14-4.50 m: No odour/staining observed

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SOIL BOREHOLE

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Client:	Goodman	**Project No:**	60623599	**Start Date:**	29/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	29/01/2020
Location:	1-3 Burrows Road, Alexandria NSW	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331776.030 m	**Ground El.:**	3.473 mRL
Drill Type:	diatube, hand auger, solid stem auger, hand auger	**Northing:**	6245471.041 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	1.38 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND dark brown, medium to coarse grain. Slag gravels (10-15mm), minor tile inclusions				1.3	BH113_0.2-0.3
						at 0.40 m: sands becoming light brown. Minor modules metals				0.5	BH113_0.4-0.5
SSA						FILL: gravelly SAND moisture of pale yellow/brown and orange, medium to coarse grain. Gravels; road base (15-20 mm), pale yellow sandstone gravels and ironstone gravels (20 mm), minor glass inclusions (40 mm) at 0.67 m: minor orange clay inclusions grey cobble				0.2	BH113_0.6-0.7
HA			1			FILL: SAND yellow, fine to medium grain at 1.10 m: as above with inclusions of ironstone gravels (30 mm), slag and concrete gravels				0.8	BH113_1.0-1.1
						FILL: SAND brown, fine to medium grain with 5% ironstone gravels					BH113_1.3-1.38
			2			*BH113 terminated at 1.38 m.* *Possible services*					
			3								
			4								

Remarks: 0.15-1.38 m: No odour/staining

Final

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Final

SOIL BOREHOLE

BH114

Sheet: 1 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	03/02/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	03/02/2020
Location:	1-3 Burrows Road, Alexandria NSW	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331703.793 m	**Ground El.:**	4.335 mRL
Drill Type:	diatube, hand auger, solid stem auger	**Northing:**	6245481.454 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND black, medium to coarse grain. Gravels; black roadbase gravels (20 - 30 mm) at 0.20 m: ash at 0.27 m: brick fragment (50 - 70 mm) becoming brown/black. Increased size of roadbase gravels (10 - 30 mm). Inclusions of ironstone gravels. at 0.50 m: inclusions of slag, glass, bark chips, plastic and ceramics. Sands becoming orange/brown				0.0	BH114_0.15-0.25
										0.1	BH114_0.45-0.55
						FILL: SAND brown, medium to coarse grain. With ironstone gravels and bricks orange sandstone sands and white sandstone gravels (40 mm)				0.0	BH114_0.8-0.9
			1			FILL: gravelly SAND brown, medium to coarse grain. With ironstone and roadbase gravels (10 - 20 mm). Minor clay component, low to medum plasticity.	M				
		Standing water level at 1.30 m 03/02/2020				at 1.30 m: sand becoming coarse	W			0.0	BH114_1.3-1.4
			2			from 2.00 m: inclusions of brick (35 mm)m, glass, slag and strip of metal (1.5 x 70 mm)				0.0	BH114_2.3-2.4
SSA						FILL: SAND red, coarse grain				0.9	BH114_2.75-2.85
			3			FILL: clayey SAND brown, fine to medium grain. Clay; black, low to medium plasticity.					
						from 3.30 m: metals and rootlets				0.1	BH114_3.3-3.4
			4			from 4.30 m: as above with increasing clay component					

Remarks: 0.15-5.50 m: No odour/staining observed
4.30 m: Possibly Natural

Final

AECOM

Final

SOIL BOREHOLE

BH114

Sheet: 2 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	03/02/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	03/02/2020
Location:	1-3 Burrows Road, Alexandria NSW	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331703.793 m	**Ground El.:**	4.335 mRL
Drill Type:	diatube, hand auger, solid stem auger	**Northing:**	6245481.454 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
			5		CL	CLAY dark grey/black, medium plasticity:			◯	0.0	BH114_5.0-5.1
						BH114 terminated at 5.50 m. Target depth					
			6								
			7								
			8								
			9								

Final

AECOM

Final

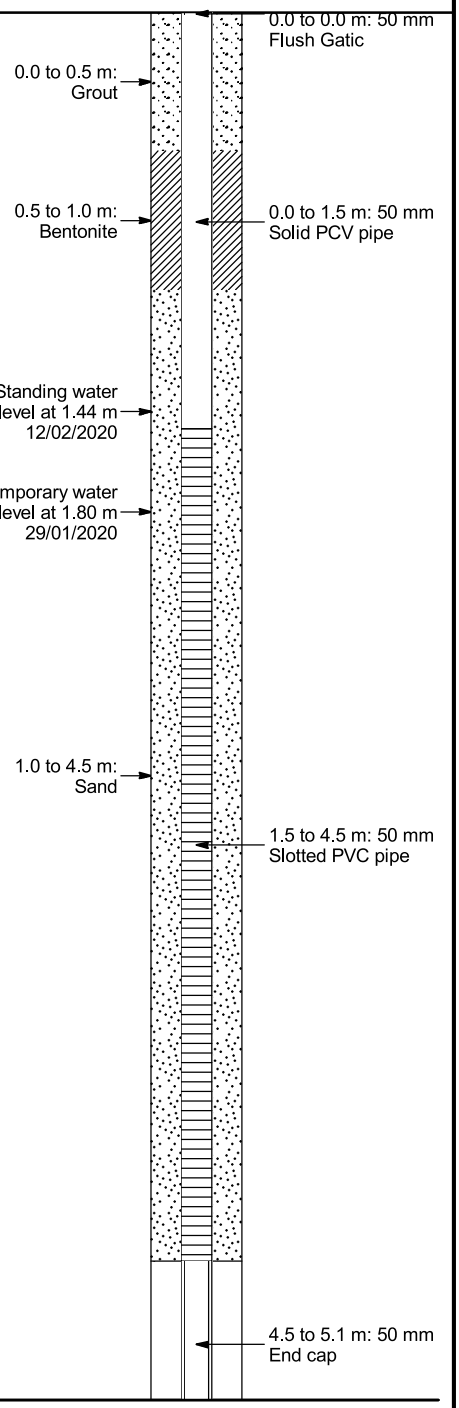
MONITORING WELL MW115

Sheet: 1 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	29/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	29/01/2020
Location:	1-3 Burrows Road, Alexandria NSW	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331673.500 m	**Top of Casing:**	2.843 mRL
Drill Type:	hand auger, solid stem auger, push tube	**Northing:**	6245404.400 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.1 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm	**Pipe Dia.:**	50 mm

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Depth (m)
HA		0.5	BH115_0.1-0.2			TOPSOIL: FILL TOPSOIL; brown, fine grain sands, inclusions of yellow sandstone gravels (30-50 mm)	D	0
						at 0.50 m: brick fragments(100-150 mm)		
		0.2	BH115_0.6-0.7			FILL: silty gravelly SAND dark grey, fine to medium grain. Inclusions of slag gravels (10-40 mm), minor ironstone gravels	M	
SSA		0.6	BH115_0.7-0.8			FILL: SAND light grey, fine to medium grain		
		0.7	BH115_1.0-1.1			FILL: gravelly SAND dark brown, fine to medium grain, slag gravels (10-25 mm)	D	1
						FILL: clayey SAND dark grey/orange. Clay; low plasticity. Minor ironstone inclusions (5-10 mm)		
							W	2
PT			BH115_2.5-2.6			FILL: sandy GRAVEL brown road base gravels, subangular to angular (5 mm). Minor clays, grey and ceramics at 2.60 m: slag inclusions(10 mm)		3
			BH115_3.8-3.9			from 3.90 m to : Material unknown due to no pushtube recovery		4

WELL CONSTRUCTION DETAILS



Final

Remarks:
0.00-5.10 m: No odour/staining observed
1.50-2.70 m: Minimal pushtube recovery
2.70-3.90 m: Very minimal pushtube recovery
3.90-5.10 m: No pushtube recovery

AECOM

Final

MONITORING WELL MW115

Sheet: 2 of 2

Client:	Goodman	**Project No:**	60623599	**Start Date:**	29/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	29/01/2020
Location:	1-3 Burrows Road, Alexandria NSW	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331673.500 m	**Top of Casing:**	2.843 mRL
Drill Type:	hand auger, solid stem auger, push tube	**Northing:**	6245404.400 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	5.1 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm	**Pipe Dia.:**	50 mm

Drill Method	Sample Interval PID (ppm)	Sample ID	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Depth (m)	WELL CONSTRUCTION DETAILS
PT					*MW115 terminated at 5.10 m. Target depth. Groundwater monitoring well installed*	W	5	
							6	
							7	
							8	
							9	

Final

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Final

SOIL BOREHOLE

BH116

Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	30/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	30/01/2020
Location:	Unit 5	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331707.577 m	**Ground El.:**	3.382 mRL
Drill Type:	diatube, hand auger, solid stem auger	**Northing:**	6245414.797 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	0.78 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND brown, coarse to medium grain. Minor inclusions of ironstone gravels (10-15 mm), brick (30-50 mm) and glass fragments (30-40 mm)				0.2	BH116_0.3-0.4
SSA						FILL: gravelly SAND black, fine to medium grain with slag (10-30 mm), minor ironstone gravel inclusions. at 0.62 m: Brick inclusion (50 mm) from 0.65 m: As above with inclusions of sandstone gravels (30 - 50 mm), orange/white. at 0.70 m: sands becoming black/light brown				0.3	BH116_0.6-0.65
						Possibly FILL: concrete slab/potential service.				0.2	BH116_0.75-0.78
						BH116 terminated at 0.78 m. *Target depth*					
			1								

Remarks: 0.33-0.78 m: No odour/staining observed

Final

AECOM

Final

SOIL BOREHOLE

BH117

Sheet: 1 of 1

Client:	Goodman	**Project No:**	60623599	**Start Date:**	30/01/2020
Project:	Burrows Industrial Estate (IE)	**Logged by:**	Rebekah Panozzo	**End Date:**	30/01/2020
Location:	Unit 5	**Checked by:**	Alex Latham	**Location Meth.:**	dGPS0.001
Driller:	EPOCA	**Easting:**	331695.246 m	**Ground El.:**	3.367 mRL
Drill Type:	diatube, hand auger, solid stem auger	**Northing:**	6245419.790 m	**Ver. Datum:**	AHD
Drill Model:	Geoprobe 7822DT	**Total Depth:**	4.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-55H
		Bore Dia.:	165 mm		

Drill Method	Casing	Groundwater Data and Comments	Depth (m)	Graphic Log	Classification	LITHOLOGICAL DESCRIPTION	Moisture	Consistency/ Relative Density	Sample Interval	PID (ppm)	Sample ID
DT	None		0			PAVEMENT: CONCRETE slab	D				
HA						FILL: gravelly SAND orange mixed with grey, fine to medium grain. Inclusions of ironstone (10-40 mm), subangular to sub rounded. Minor inclusions of orange sandstone gravels (40 mm) orange and clay.	D		◯	0.1	BH117_0.3-0.4
SSA						FILL: SAND black speckled with grey and brown, fine to medium grain, minor inclusions of slag gravels (5 -10 %) (10-20 mm)			◯	0.1	BH117_0.8-0.9
			1			FILL: clayey SAND black, fine to medium grain, minor ironstone gravels. Clay low to medium plasticity			◯	0.4	BH117_1.3-1.4
						at 1.40 m: concrete gravels (20 mm), minor inclusions of metal nails and glass.					
						at 1.70 m: increasing clay content	M				
		▼ Standing water level at 2.20 m 30/01/2020	2			FILL: sandy GRAVEL black road base gravels (10 - 15 mm). Sands; brown, coarse grain. Inclusions of tree rootlets (5%), nails, fragments of metal and ceramics (20 mm). Minor glass fragments	W		◯	0.3	BH117_2.2-2.3
						at 2.70 m: sands speckled with grey					
						at 2.80 m: minor concrete gravels					
			3						◯	0.5	BH117_3.1-3.2
						at 3.40 m: terracotta tile fragment					
			4		SC	clayey SAND light grey/grey			◯		BH117_3.9-4.0
					CL	sandy CLAY grey, low to medium plasticity.					
									◯		BH117_4.4-4.5
						BH117 terminated at 4.50 m. *Drill bit refusal on concrete slab*					

Remarks: 0.26-4.50 m: No odour/staining observed

Final

Appendix G

Laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1529109**	Page	: 1 of 69
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 Burrows	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 24-Aug-2015 16:00
C-O-C number	: ----	Date Analysis Commenced	: 26-Aug-2015
Sampler	: KATE PIGRAM, LAUREN GIBB	Issue Date	: 31-Aug-2015 18:23
Site	: ----		
		No. of samples received	: 124
Quote number	: ----	No. of samples analysed	: 52

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos

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.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200 Legend
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EG005T: Poor precision was obtained for some elements on sample ES1529109 #003 and #015 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.
- EG035T: Poor precision was obtained for Mercury on sample ES1529109 # 3 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.
- EP071: Poor duplicate precision and poor matrix spike recovery for sample QC202 due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EP075(SIM): Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP075(SIM) : Particular samples required dilution due to samples matrix interferences. LOR values have been adjusted accordingly.Poor Matrix Spike recovery due to samples matrix interferences.
- EP068 : Particular samples # ES1529109_19 required dilution prior to analysis due to matrix interferences. LOR values have been adjusted accordingly.
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) 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.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

Sub-Matrix: SOIL (Matrix: SOIL)				BH22_0.3-0.4	BH22_0.8-0.9	BH22_2.2-2.3	BH22_4.5-4.7	BH15_0.4-0.5
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-001	ES1529109-003	ES1529109-004	ES1529109-005	ES1529109-006
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	----	21.3	11.2	48.4	11.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	----	----	No
Asbestos Type	1332-21-4	-	--	Ch + Am	----	----	----	-
Sample weight (dry)	----	0.01	g	233	----	----	----	626
APPROVED IDENTIFIER:	----	-	--	G.MORGAN	----	----	----	G.MORGAN
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	357	119	13	<5
Cadmium	7440-43-9	1	mg/kg	----	1	3	<1	<1
Chromium	7440-47-3	2	mg/kg	----	19	29	20	100
Copper	7440-50-8	5	mg/kg	----	444	550	6	28
Lead	7439-92-1	5	mg/kg	----	554	6300	14	5
Nickel	7440-02-0	2	mg/kg	----	12	2700	7	89
Zinc	7440-66-6	5	mg/kg	----	862	14500	26	46
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	0.8	0.3	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH22_0.3-0.4	BH22_0.8-0.9	BH22_2.2-2.3	BH22_4.5-4.7	BH15_0.4-0.5
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-001	ES1529109-003	ES1529109-004	ES1529109-005	ES1529109-006
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH22_0.3-0.4	BH22_0.8-0.9	BH22_2.2-2.3	BH22_4.5-4.7	BH15_0.4-0.5
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-001	ES1529109-003	ES1529109-004	ES1529109-005	ES1529109-006
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH22_0.3-0.4	BH22_0.8-0.9	BH22_2.2-2.3	BH22_4.5-4.7	BH15_0.4-0.5
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-001	ES1529109-003	ES1529109-004	ES1529109-005	ES1529109-006
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	**4.6**	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	**10.9**	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<4.0	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	**8.5**	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	**103**	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	**29.4**	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	**160**	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	**144**	<0.5	<0.5	<0.5

Sub-Matrix: SOIL (Matrix: SOIL)				BH22_0.3-0.4	BH22_0.8-0.9	BH22_2.2-2.3	BH22_4.5-4.7	BH15_0.4-0.5
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-001	ES1529109-003	ES1529109-004	ES1529109-005	ES1529109-006
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**56.5**	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	**49.5**	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**32.5**	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	**15.1**	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**50.9**	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	**15.8**	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<4.0	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	**18.0**	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	**699**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	**63.6**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**63.8**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**64.1**	**1.2**	**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	>C10_C16	50	mg/kg	----	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	<0.2	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH22_0.3-0.4	BH22_0.8-0.9	BH22_2.2-2.3	BH22_4.5-4.7	BH15_0.4-0.5
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-001	ES1529109-003	ES1529109-004	ES1529109-005	ES1529109-006
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	----	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**96.9**	**99.8**	**98.4**	**94.5**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**87.4**	**100**	**102**	**83.5**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**77.7**	**74.3**	**89.0**	**77.3**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**92.7**	**94.2**	**103**	**95.4**
Anthracene-d10	1719-06-8	0.5	%	----	**77.9**	**112**	**115**	**102**
4-Terphenyl-d14	1718-51-0	0.5	%	----	**115**	**94.9**	**110**	**102**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	**91.0**	**82.5**	----
Toluene-D8	2037-26-5	0.2	%	----	----	**95.4**	**85.1**	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	**90.5**	**79.2**	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH14_0.45-0.55	BH14_1.8-1.9	BH14_4.0-4.1	BH09_4.0-4.2	BH09_4.5-4.6
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-007	ES1529109-008	ES1529109-009	ES1529109-010	ES1529109-011
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**16.8**	**20.2**	**39.2**	**52.3**	**52.2**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	**30**	----	**218**	**19**
Cadmium	7440-43-9	1	mg/kg	----	**3**	----	**25**	<1
Chromium	7440-47-3	2	mg/kg	----	**29**	----	**435**	**31**
Copper	7440-50-8	5	mg/kg	----	**298**	----	**4340**	**10**
Lead	7439-92-1	5	mg/kg	----	**478**	----	**3710**	**13**
Nickel	7440-02-0	2	mg/kg	----	**23**	----	**240**	**10**
Zinc	7440-66-6	5	mg/kg	----	**2060**	----	**14200**	**21**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	**2.7**	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH14_0.45-0.55	BH14_1.8-1.9	BH14_4.0-4.1	BH09_4.0-4.2	BH09_4.5-4.6
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-007	ES1529109-008	ES1529109-009	ES1529109-010	ES1529109-011
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	<0.5	----	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	<0.5	----	<0.5

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH14_0.45-0.55	BH14_1.8-1.9	BH14_4.0-4.1	BH09_4.0-4.2	BH09_4.5-4.6
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-007	ES1529109-008	ES1529109-009	ES1529109-010	ES1529109-011
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	<0.5	----	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	<5	----	<5
Chloromethane	74-87-3	5	mg/kg	----	----	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg	----	----	<5	----	<5
Bromomethane	74-83-9	5	mg/kg	----	----	<5	----	<5
Chloroethane	75-00-3	5	mg/kg	----	----	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	<5	----	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	<0.5	----	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	<0.5	----	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	<0.5	----	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	<0.5	----	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	<0.5	----	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	<0.5	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	<0.5	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	<0.5	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	<0.5	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	<0.5	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	<0.5	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	<0.5	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	<0.5	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	<0.5	----	<0.5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	<0.5	----	<0.5

Sub-Matrix: SOIL (Matrix: SOIL)				BH14_0.45-0.55	BH14_1.8-1.9	BH14_4.0-4.1	BH09_4.0-4.2	BH09_4.5-4.6
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-007	ES1529109-008	ES1529109-009	ES1529109-010	ES1529109-011
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	<0.5	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	<0.5	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	<0.5	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	<0.5	----	<0.5
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	<0.5	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	<0.5	----	<0.5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	----	<0.8
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	----	<0.8
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	----	<0.8
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	----	<2
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	----	<0.8
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	----	<0.8
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	----	<0.8
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	----	<0.8
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	----	<0.8
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	----	<0.8
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	----	<0.8
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	----	<0.8	<0.8
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.8	<0.8

Sub-Matrix: SOIL (Matrix: SOIL)				BH14_0.45-0.55	BH14_1.8-1.9	BH14_4.0-4.1	BH09_4.0-4.2	BH09_4.5-4.6
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-007	ES1529109-008	ES1529109-009	ES1529109-010	ES1529109-011
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.8	<0.8
^ 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
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	>C10_C16	50	mg/kg	----	----	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	----	<0.2

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH14_0.45-0.55	BH14_1.8-1.9	BH14_4.0-4.1	BH09_4.0-4.2	BH09_4.5-4.6
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-007	ES1529109-008	ES1529109-009	ES1529109-010	ES1529109-011
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	----	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	<1	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**79.1**	**76.2**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**80.6**	**98.3**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**84.6**	**79.0**	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	**69.5**	----	**68.4**
Toluene-D8	2037-26-5	0.5	%	----	----	**84.3**	----	**82.1**
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	**81.2**	----	**77.6**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**104**	**101**	**106**	**104**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**94.9**	**97.6**	**98.1**	**101**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**78.4**	**87.1**	**82.9**	**86.7**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**99.6**	**93.7**	**101**	**96.5**
Anthracene-d10	1719-06-8	0.5	%	----	**109**	**105**	**104**	**105**
4-Terphenyl-d14	1718-51-0	0.5	%	----	**102**	**99.6**	**110**	**101**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	**85.9**	----	**80.5**
Toluene-D8	2037-26-5	0.2	%	----	----	**88.0**	----	**85.7**
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	**88.1**	----	**82.3**

Sub-Matrix: SOIL (Matrix: SOIL)				BH06_1.0-1.1	BH10_4.0-4.1	QC101	BH04_0.5-0.6	BH04_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-012	ES1529109-013	ES1529109-014	ES1529109-015	ES1529109-016
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	9.9	45.9	17.1	27.4	40.5
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Sample weight (dry)	----	0.01	g	175	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	13	26	80	52	311
Cadmium	7440-43-9	1	mg/kg	<1	<1	9	2	1
Chromium	7440-47-3	2	mg/kg	8	31	106	28	105
Copper	7440-50-8	5	mg/kg	71	69	3150	218	293
Lead	7439-92-1	5	mg/kg	313	189	3480	1030	10400
Nickel	7440-02-0	2	mg/kg	6	16	214	48	24
Zinc	7440-66-6	5	mg/kg	366	417	4780	1590	1170
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.3	<0.1	0.8	1.0	1.6
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<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	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH06_1.0-1.1	BH10_4.0-4.1	QC101	BH04_0.5-0.6	BH04_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-012	ES1529109-013	ES1529109-014	ES1529109-015	ES1529109-016
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
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	----	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	6923-22-4	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	5598-13-0	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	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH06_1.0-1.1	BH10_4.0-4.1	QC101	BH04_0.5-0.6	BH04_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-012	ES1529109-013	ES1529109-014	ES1529109-015	ES1529109-016
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH06_1.0-1.1	BH10_4.0-4.1	QC101	BH04_0.5-0.6	BH04_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-012	ES1529109-013	ES1529109-014	ES1529109-015	ES1529109-016
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	**0.8**
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	**3.2**
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	**1.4**
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	**0.9**	**17.0**
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	**5.4**
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	**2.7**	**25.3**
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	**2.9**	**25.2**

Sub-Matrix: SOIL (Matrix: SOIL)				BH06_1.0-1.1	BH10_4.0-4.1	QC101	BH04_0.5-0.6	BH04_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-012	ES1529109-013	ES1529109-014	ES1529109-015	ES1529109-016
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	**1.4**	**13.7**
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	**1.4**	**11.9**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	<0.5	**1.9**	**16.2**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	**0.8**	**5.9**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	**1.6**	**13.4**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	**0.9**	**6.9**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	**1.9**
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	**1.2**	**9.4**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	**15.7**	**158**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	**2.1**	**19.8**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	**0.6**	**2.4**	**19.8**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	**1.2**	**2.6**	**19.8**
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	>C10_C16	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	**100**	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	**100**	----
^ >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	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH06_1.0-1.1	BH10_4.0-4.1	QC101	BH04_0.5-0.6	BH04_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-012	ES1529109-013	ES1529109-014	ES1529109-015	ES1529109-016
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**71.7**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**77.6**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**98.1**	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	**102**	**89.1**	**89.6**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	**104**	**107**	**100**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	**78.6**	**117**	**104**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	**100**	**88.1**	**90.2**
Anthracene-d10	1719-06-8	0.5	%	----	----	**104**	**123**	**117**
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	**102**	**97.2**	**92.7**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	**79.4**	----	**94.6**	----
Toluene-D8	2037-26-5	0.2	%	----	**81.8**	----	**101**	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	**80.2**	----	**93.2**	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH04_2.3-2.4	BH05_0.5-0.6	BH07A_0.5-0.6	BH11_0.2-0.3	BH11_2.3-2.4
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-017	ES1529109-018	ES1529109-019	ES1529109-020	ES1529109-021
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	53.7	27.1	32.2	14.3	32.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	Yes	----	----
Asbestos Type	1332-21-4	-	--	----	----	Ch	----	----
Sample weight (dry)	----	0.01	g	----	----	191	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	14	13	84	26	56
Cadmium	7440-43-9	1	mg/kg	<1	3	13	2	5
Chromium	7440-47-3	2	mg/kg	26	20	121	39	125
Copper	7440-50-8	5	mg/kg	17	296	4410	482	23300
Lead	7439-92-1	5	mg/kg	67	1470	6310	3480	2590
Nickel	7440-02-0	2	mg/kg	4	26	80	96	226
Zinc	7440-66-6	5	mg/kg	46	4070	20400	1540	6980
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.9	0.7	0.5	0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	<0.25	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	<0.25	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	<0.25	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	<0.25	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	<0.25	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.25	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.25	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.25	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.25	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.25	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.25	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.25	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.25	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.25	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.25	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH04_2.3-2.4	BH05_0.5-0.6	BH07A_0.5-0.6	BH11_0.2-0.3	BH11_2.3-2.4
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-017	ES1529109-018	ES1529109-019	ES1529109-020	ES1529109-021
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	<0.25	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	<0.25	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	<0.25	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	<0.25	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	<0.25	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	<1.0	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	<0.25	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	<1.0	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	<0.25	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	----	<0.05	<0.25	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	<0.25	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	<0.25	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	<1.0	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	<0.25	----	----
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	<0.25	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	<0.25	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	<1.0	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.05	<0.25	----	----
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	<0.25	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	<0.25	----	----
Parathion	56-38-2	0.2	mg/kg	----	<0.2	<1.0	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	<0.25	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	<0.25	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	<0.25	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	<0.25	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	<0.25	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.05	<0.25	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	<0.25	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	<0.25	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH04_2.3-2.4	BH05_0.5-0.6	BH07A_0.5-0.6	BH11_0.2-0.3	BH11_2.3-2.4
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-017	ES1529109-018	ES1529109-019	ES1529109-020	ES1529109-021
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH04_2.3-2.4	BH05_0.5-0.6	BH07A_0.5-0.6	BH11_0.2-0.3	BH11_2.3-2.4
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-017	ES1529109-018	ES1529109-019	ES1529109-020	ES1529109-021
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	----	----
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	----	----	----
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	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	**1.0**	<0.5	**1.0**	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	**1.9**	**0.6**	**1.8**	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	**2.0**	**0.6**	**1.8**	<0.5

Sub-Matrix: SOIL (Matrix: SOIL)				BH04_2.3-2.4	BH05_0.5-0.6	BH07A_0.5-0.6	BH11_0.2-0.3	BH11_2.3-2.4
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-017	ES1529109-018	ES1529109-019	ES1529109-020	ES1529109-021
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**1.0**	<0.5	**0.8**	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	**1.0**	<0.5	**0.9**	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**1.4**	**0.6**	**1.3**	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	**0.5**	<0.5	**0.5**	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**1.1**	**0.6**	**0.9**	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	**0.6**	<0.5	**0.6**	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	**0.7**	**0.6**	**0.8**	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	**11.2**	**3.0**	**10.4**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	**1.5**	**0.7**	**1.2**	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**1.7**	**1.0**	**1.5**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**2.0**	**1.3**	**1.7**	**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	**200**	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**200**	<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	>C10_C16	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	**230**	**140**	----	----	**150**
>C34 - C40 Fraction	----	100	mg/kg	**240**	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**470**	**140**	----	----	**150**
^ >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

Sub-Matrix: SOIL (Matrix: SOIL)				BH04_2.3-2.4	BH05_0.5-0.6	BH07A_0.5-0.6	BH11_0.2-0.3	BH11_2.3-2.4
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-017	ES1529109-018	ES1529109-019	ES1529109-020	ES1529109-021
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	**79.2**	**76.6**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	**99.1**	**110**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	**86.6**	**120**	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	**78.7**	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	**91.0**	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	**82.6**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**104**	**103**	**90.0**	**90.2**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**104**	**104**	**99.0**	**98.5**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**88.0**	**99.1**	**97.8**	**96.3**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**95.4**	**102**	**95.6**	**93.8**
Anthracene-d10	1719-06-8	0.5	%	----	**105**	**114**	**107**	**110**
4-Terphenyl-d14	1718-51-0	0.5	%	----	**100**	**107**	**93.8**	**96.3**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**99.3**	**93.3**	----	----	**83.7**
Toluene-D8	2037-26-5	0.2	%	**92.5**	**95.1**	----	----	**85.7**
4-Bromofluorobenzene	460-00-4	0.2	%	**88.0**	**88.6**	----	----	**76.3**

Sub-Matrix: SOIL (Matrix: SOIL)				BH11_3.3-3.4	BH05_1.0-1.1	BH05_2.3-2.4	BH08_0.17-0.18	BH08_1.0-1.1
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-022	ES1529109-023	ES1529109-024	ES1529109-025	ES1529109-026
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	44.5	43.7	39.8	17.4	33.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	19	12	19	52
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	1	3
Chromium	7440-47-3	2	mg/kg	----	70	14	24	33
Copper	7440-50-8	5	mg/kg	----	321	86	1020	396
Lead	7439-92-1	5	mg/kg	----	1000	113	1060	1930
Nickel	7440-02-0	2	mg/kg	----	27	4	23	39
Zinc	7440-66-6	5	mg/kg	----	750	522	1010	2630
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	2.5	<0.1	0.4	0.7
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<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	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH11_3.3-3.4	BH05_1.0-1.1	BH05_2.3-2.4	BH08_0.17-0.18	BH08_1.0-1.1
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-022	ES1529109-023	ES1529109-024	ES1529109-025	ES1529109-026
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----
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	----	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	6923-22-4	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	5598-13-0	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	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH11_3.3-3.4	BH05_1.0-1.1	BH05_2.3-2.4	BH08_0.17-0.18	BH08_1.0-1.1
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-022	ES1529109-023	ES1529109-024	ES1529109-025	ES1529109-026
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH11_3.3-3.4	BH05_1.0-1.1	BH05_2.3-2.4	BH08_0.17-0.18	BH08_1.0-1.1
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-022	ES1529109-023	ES1529109-024	ES1529109-025	ES1529109-026
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
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	----	**0.9**	----	----	**1.2**
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	**1.9**	----	----	**1.2**
Pyrene	129-00-0	0.5	mg/kg	----	**1.9**	----	----	**1.1**

Sub-Matrix: SOIL (Matrix: SOIL)				BH11_3.3-3.4	BH05_1.0-1.1	BH05_2.3-2.4	BH08_0.17-0.18	BH08_1.0-1.1
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-022	ES1529109-023	ES1529109-024	ES1529109-025	ES1529109-026
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**1.2**	----	----	**0.6**
Chrysene	218-01-9	0.5	mg/kg	----	**1.1**	----	----	**0.8**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**1.6**	----	----	**1.2**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	**0.7**	----	----	**0.6**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**1.3**	----	----	**0.7**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	**0.8**	----	----	**0.6**
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	----	**1.1**	----	----	**0.9**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	**12.5**	----	----	**8.9**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	**1.8**	----	----	**1.0**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**2.0**	----	----	**1.3**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**2.2**	----	----	**1.5**
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	**290**	----	<100	----	**230**
C29 - C36 Fraction	----	100	mg/kg	**480**	----	**150**	----	**160**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**770**	----	**150**	----	**390**
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	>C10_C16	50	mg/kg	<50	----	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	**650**	----	**210**	----	**350**
>C34 - C40 Fraction	----	100	mg/kg	**310**	----	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**960**	----	**210**	----	**350**
^ >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

Sub-Matrix: SOIL (Matrix: SOIL)				BH11_3.3-3.4	BH05_1.0-1.1	BH05_2.3-2.4	BH08_0.17-0.18	BH08_1.0-1.1
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-022	ES1529109-023	ES1529109-024	ES1529109-025	ES1529109-026
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	**77.5**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	**97.9**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	**82.4**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**91.9**	----	----	**91.9**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**97.5**	----	----	**83.0**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**109**	----	----	**106**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**91.9**	----	----	**90.7**
Anthracene-d10	1719-06-8	0.5	%	----	**108**	----	----	**121**
4-Terphenyl-d14	1718-51-0	0.5	%	----	**93.8**	----	----	**98.3**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**89.2**	----	**91.3**	----	**86.8**
Toluene-D8	2037-26-5	0.2	%	**93.2**	----	**96.8**	----	**93.7**
4-Bromofluorobenzene	460-00-4	0.2	%	**87.5**	----	**83.0**	----	**80.0**

Sub-Matrix: SOIL (Matrix: SOIL)				BH08_2.5-2.6	BH08_3.7-3.8	BH13_0.4-0.5	BH13_3.6-3.7	QC200
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-027	ES1529109-028	ES1529109-029	ES1529109-030	ES1529109-031
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**40.8**	**31.7**	**39.3**	**29.6**	**35.0**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**----**	**----**	**----**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**----**	**----**	**----**	**----**	**----**
Sample weight (dry)	----	0.01	g	**----**	**----**	**----**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**----**	**----**	**----**	**----**	**----**
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**42**	**18**	**35**	**----**	**76**
Cadmium	7440-43-9	1	mg/kg	**3**	<1	**10**	**----**	**4**
Chromium	7440-47-3	2	mg/kg	**200**	**20**	**258**	**----**	**69**
Copper	7440-50-8	5	mg/kg	**1280**	**447**	**971**	**----**	**634**
Lead	7439-92-1	5	mg/kg	**1470**	**85**	**1420**	**----**	**3180**
Nickel	7440-02-0	2	mg/kg	**51**	**17**	**58**	**----**	**42**
Zinc	7440-66-6	5	mg/kg	**4830**	**348**	**3040**	**----**	**890**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**3.4**	**6.0**	**0.9**	**----**	**15.2**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	**----**	**----**	**----**	<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	**----**

Sub-Matrix: SOIL (Matrix: SOIL)				BH08_2.5-2.6	BH08_3.7-3.8	BH13_0.4-0.5	BH13_3.6-3.7	QC200
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-027	ES1529109-028	ES1529109-029	ES1529109-030	ES1529109-031
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----
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	----	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	6923-22-4	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	5598-13-0	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	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH08_2.5-2.6	BH08_3.7-3.8	BH13_0.4-0.5	BH13_3.6-3.7	QC200
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-027	ES1529109-028	ES1529109-029	ES1529109-030	ES1529109-031
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH08_2.5-2.6	BH08_3.7-3.8	BH13_0.4-0.5	BH13_3.6-3.7	QC200
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-027	ES1529109-028	ES1529109-029	ES1529109-030	ES1529109-031
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
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	----	**0.8**	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	**4.5**	----	**2.8**	----	**0.9**
Pyrene	129-00-0	0.5	mg/kg	**4.5**	----	**2.7**	----	**0.8**

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH08_2.5-2.6	BH08_3.7-3.8	BH13_0.4-0.5	BH13_3.6-3.7	QC200
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-027	ES1529109-028	ES1529109-029	ES1529109-030	ES1529109-031
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	**2.5**	----	**1.3**	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	**3.9**	----	**1.4**	----	**0.5**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**4.0**	----	**2.2**	----	**1.2**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	**1.4**	----	**0.8**	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	**1.4**	----	**1.6**	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	**1.3**	----	**1.0**	----	<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	**1.7**	----	**1.4**	----	**0.7**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**25.2**	----	**16.0**	----	**4.1**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	**2.4**	----	**2.2**	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**2.6**	----	**2.4**	----	**0.7**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**2.9**	----	**2.6**	----	**1.3**
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	----	**270**	----	----	----
C29 - C36 Fraction	----	100	mg/kg	----	**130**	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	**400**	----	----	----
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	>C10_C16	50	mg/kg	----	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	**380**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	**380**	----	----	----
^ >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	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH08_2.5-2.6	BH08_3.7-3.8	BH13_0.4-0.5	BH13_3.6-3.7	QC200
				[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]	[20-Aug-2015]
				ES1529109-027	ES1529109-028	ES1529109-029	ES1529109-030	ES1529109-031
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	**75.8**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	**113**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	**99.5**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**90.5**	----	**90.3**	----	**93.3**
2-Chlorophenol-D4	93951-73-6	0.5	%	**83.1**	----	**84.8**	----	**95.8**
2.4.6-Tribromophenol	118-79-6	0.5	%	**110**	----	**94.9**	----	**106**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**88.7**	----	**92.7**	----	**93.4**
Anthracene-d10	1719-06-8	0.5	%	**113**	----	**110**	----	**116**
4-Terphenyl-d14	1718-51-0	0.5	%	**88.6**	----	**93.7**	----	**95.3**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	**90.2**	----	----	----
Toluene-D8	2037-26-5	0.2	%	----	**92.4**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	**87.4**	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH12_1.0-1.1	BH12_1.8-1.9	BH12_3.6-3.7	BH07B_1.2-1.3	BH07B_2.3-2.4
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-032	ES1529109-033	ES1529109-034	ES1529109-035	ES1529109-036
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	46.8	----	50.8	41.1	36.4
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	No	----
Asbestos Type	1332-21-4	-	--	----	-	----	-	----
Sample weight (dry)	----	0.01	g	----	100	----	101	----
APPROVED IDENTIFIER:	----	-	--	----	G.MORGAN	----	G.MORGAN	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	34	----	----	8	26
Cadmium	7440-43-9	1	mg/kg	2	----	----	2	1
Chromium	7440-47-3	2	mg/kg	47	----	----	128	19
Copper	7440-50-8	5	mg/kg	12400	----	----	85	183
Lead	7439-92-1	5	mg/kg	1530	----	----	7530	372
Nickel	7440-02-0	2	mg/kg	57	----	----	13	22
Zinc	7440-66-6	5	mg/kg	2040	----	----	1120	1460
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	1.0	----	----	6.2	0.6
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<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	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH12_1.0-1.1	BH12_1.8-1.9	BH12_3.6-3.7	BH07B_1.2-1.3	BH07B_2.3-2.4
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-032	ES1529109-033	ES1529109-034	ES1529109-035	ES1529109-036
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----
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	----	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	6923-22-4	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	5598-13-0	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	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH12_1.0-1.1	BH12_1.8-1.9	BH12_3.6-3.7	BH07B_1.2-1.3	BH07B_2.3-2.4
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-032	ES1529109-033	ES1529109-034	ES1529109-035	ES1529109-036
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH12_1.0-1.1	BH12_1.8-1.9	BH12_3.6-3.7	BH07B_1.2-1.3	BH07B_2.3-2.4
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-032	ES1529109-033	ES1529109-034	ES1529109-035	ES1529109-036
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
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	----	----	----	**0.9**	----
Anthracene	120-12-7	0.5	mg/kg	----	----	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	**2.2**	----
Pyrene	129-00-0	0.5	mg/kg	----	----	----	**2.2**	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH12_1.0-1.1	BH12_1.8-1.9	BH12_3.6-3.7	BH07B_1.2-1.3	BH07B_2.3-2.4
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-032	ES1529109-033	ES1529109-034	ES1529109-035	ES1529109-036
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	**1.3**	----
Chrysene	218-01-9	0.5	mg/kg	----	----	----	**1.6**	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	----	**2.5**	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	**0.8**	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	**1.9**	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	**1.1**	----
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	----	----	----	**1.5**	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	**16.0**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	**2.5**	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	**2.8**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	**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	----	----	**1220**	**490**	**230**
C29 - C36 Fraction	----	100	mg/kg	----	----	**600**	**440**	**170**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	**1820**	**930**	**400**
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	>C10_C16	50	mg/kg	----	----	**70**	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	**1660**	**850**	**360**
>C34 - C40 Fraction	----	100	mg/kg	----	----	**430**	**180**	**100**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	**2160**	**1030**	**460**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	**70**	<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

Sub-Matrix: SOIL (Matrix: SOIL)				BH12_1.0-1.1	BH12_1.8-1.9	BH12_3.6-3.7	BH07B_1.2-1.3	BH07B_2.3-2.4
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-032	ES1529109-033	ES1529109-034	ES1529109-035	ES1529109-036
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	**73.8**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	**103**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	**87.3**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	----	**96.8**	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	----	**107**	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	----	**97.4**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	----	**99.8**	----
Anthracene-d10	1719-06-8	0.5	%	----	----	----	**109**	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	----	**106**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	**85.4**	**102**	**95.5**
Toluene-D8	2037-26-5	0.2	%	----	----	**82.3**	**98.3**	**88.6**
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	**77.5**	**90.6**	**87.0**

Sub-Matrix: SOIL (Matrix: SOIL)				BH10_0.15-0.25	BH09_0.25-0.35	BH12_0.15-0.25	BH01_0.3-0.4	BH01_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-037	ES1529109-038	ES1529109-039	ES1529109-040	ES1529109-041
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	5.0	3.5	20.3	----	39.4
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	Yes	----
Asbestos Type	1332-21-4	-	--	----	----	----	Ch	----
Sample weight (dry)	----	0.01	g	----	----	----	183	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	S.SPOONER	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	<5	41	----	14
Cadmium	7440-43-9	1	mg/kg	----	<1	6	----	2
Chromium	7440-47-3	2	mg/kg	----	6	36	----	58
Copper	7440-50-8	5	mg/kg	----	7	2460	----	3040
Lead	7439-92-1	5	mg/kg	----	6	2290	----	1510
Nickel	7440-02-0	2	mg/kg	----	<2	75	----	26
Zinc	7440-66-6	5	mg/kg	----	30	5200	----	1560
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	1.7	----	2.3
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	<0.05

Sub-Matrix: SOIL (Matrix: SOIL)				BH10_0.15-0.25	BH09_0.25-0.35	BH12_0.15-0.25	BH01_0.3-0.4	BH01_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-037	ES1529109-038	ES1529109-039	ES1529109-040	ES1529109-041
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	<0.05
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	<0.05
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH10_0.15-0.25	BH09_0.25-0.35	BH12_0.15-0.25	BH01_0.3-0.4	BH01_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-037	ES1529109-038	ES1529109-039	ES1529109-040	ES1529109-041
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH10_0.15-0.25	BH09_0.25-0.35	BH12_0.15-0.25	BH01_0.3-0.4	BH01_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-037	ES1529109-038	ES1529109-039	ES1529109-040	ES1529109-041
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	**0.6**
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	**2.4**
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	**0.7**	----	**9.2**
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	**4.6**
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	**1.8**	----	**40.5**
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	**1.9**	----	**53.1**

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH10_0.15-0.25	BH09_0.25-0.35	BH12_0.15-0.25	BH01_0.3-0.4	BH01_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-037	ES1529109-038	ES1529109-039	ES1529109-040	ES1529109-041
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	**0.9**	----	**29.4**
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	**1.1**	----	**29.2**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	**1.4**	----	**33.6**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	**0.7**	----	**12.8**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	**1.1**	----	**29.1**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	**0.6**	----	**13.4**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	----	**3.4**
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	**0.9**	----	**16.2**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	**11.1**	----	**278**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	**1.5**	----	**41.9**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**0.6**	**1.7**	----	**41.9**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**1.2**	**2.0**	----	**41.9**
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	----	----	----	----	**540**
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	**450**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	**990**
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	>C10_C16	50	mg/kg	----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	----	**910**
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	----	**240**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	----	**1150**
^ >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

Sub-Matrix: SOIL (Matrix: SOIL)				BH10_0.15-0.25	BH09_0.25-0.35	BH12_0.15-0.25	BH01_0.3-0.4	BH01_1.0-1.1
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-037	ES1529109-038	ES1529109-039	ES1529109-040	ES1529109-041
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	----	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**70.2**	----	----	----	**74.0**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**114**	----	----	----	**94.7**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**75.1**	----	----	----	**69.1**
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**96.5**	**89.6**	----	**91.4**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**89.4**	**83.4**	----	**92.7**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**93.7**	**78.2**	----	**74.2**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**95.4**	**92.2**	----	**96.3**
Anthracene-d10	1719-06-8	0.5	%	----	**117**	**105**	----	**104**
4-Terphenyl-d14	1718-51-0	0.5	%	----	**94.3**	**94.6**	----	**102**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	----	----	**104**
Toluene-D8	2037-26-5	0.2	%	----	----	----	----	**84.0**
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	----	----	**87.2**

Sub-Matrix: SOIL (Matrix: SOIL)				BH01_3.8-3.9	BH16_0.7-0.8	BH17_1.0-1.1	BH21_0.7-0.8	QC202
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-042	ES1529109-043	ES1529109-044	ES1529109-045	ES1529109-046
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	28.6	21.3	27.6	21.9	20.3
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	Yes	----
Asbestos Type	1332-21-4	-	--	----	----	----	Ch	----
Sample weight (dry)	----	0.01	g	----	----	----	17.3	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	S.SPOONER	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	49	62	31	39
Cadmium	7440-43-9	1	mg/kg	----	15	16	1	1
Chromium	7440-47-3	2	mg/kg	----	429	54	12	10
Copper	7440-50-8	5	mg/kg	----	5480	26400	155	140
Lead	7439-92-1	5	mg/kg	----	2250	6060	234	201
Nickel	7440-02-0	2	mg/kg	----	520	1320	23	33
Zinc	7440-66-6	5	mg/kg	----	11600	21400	367	382
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	0.4	0.1	0.3	0.3
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<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	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH01_3.8-3.9	BH16_0.7-0.8	BH17_1.0-1.1	BH21_0.7-0.8	QC202
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-042	ES1529109-043	ES1529109-044	ES1529109-045	ES1529109-046
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----
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	----	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	6923-22-4	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	5598-13-0	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	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH01_3.8-3.9	BH16_0.7-0.8	BH17_1.0-1.1	BH21_0.7-0.8	QC202
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-042	ES1529109-043	ES1529109-044	ES1529109-045	ES1529109-046
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH01_3.8-3.9	BH16_0.7-0.8	BH17_1.0-1.1	BH21_0.7-0.8	QC202
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-042	ES1529109-043	ES1529109-044	ES1529109-045	ES1529109-046
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	**57.3**	**50.0**
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	**174**	**181**
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	**24.8**	**26.0**
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	**132**	**135**
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	**386**	**433**
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	**139**	**163**
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	**335**	**390**
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	**239**	**275**

Sub-Matrix: SOIL (Matrix: SOIL)				BH01_3.8-3.9	BH16_0.7-0.8	BH17_1.0-1.1	BH21_0.7-0.8	QC202
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-042	ES1529109-043	ES1529109-044	ES1529109-045	ES1529109-046
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	**171**	**175**
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	**105**	**115**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	**139**	**130**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	**49.3**	**54.2**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	**102**	**106**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	**45.8**	**36.8**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	**15.4**	**11.4**
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	**52.3**	**39.6**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	**2170**	**2320**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	**159**	**158**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**0.6**	----	**159**	**158**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**1.2**	----	**159**	**158**
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	**3720**	**1500**
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	**37000**	**25100**
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	**17800**	**11600**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	**58500**	**38200**
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	>C10_C16	50	mg/kg	<50	<50	<50	**7440**	**3740**
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	**47500**	**31900**
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	**10100**	**6230**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	**65000**	**41900**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	**7400**	**3720**
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<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	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Sub-Matrix: SOIL (Matrix: SOIL)				BH01_3.8-3.9	BH16_0.7-0.8	BH17_1.0-1.1	BH21_0.7-0.8	QC202
				[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
				ES1529109-042	ES1529109-043	ES1529109-044	ES1529109-045	ES1529109-046
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	**38**	**24**
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	**70.9**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	**115**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	**81.5**	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**100**	----	**93.3**	**88.6**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**106**	----	**91.0**	**95.7**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**79.9**	----	**110**	**98.3**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**101**	----	**89.0**	**81.7**
Anthracene-d10	1719-06-8	0.5	%	----	**105**	----	**109**	**88.2**
4-Terphenyl-d14	1718-51-0	0.5	%	----	**108**	----	**111**	**94.9**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**114**	**102**	**96.6**	**73.0**	**78.1**
Toluene-D8	2037-26-5	0.2	%	**93.4**	**91.8**	**93.8**	**81.2**	**87.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**95.8**	**86.2**	**86.3**	**81.7**	**92.0**

Sub-Matrix: SOIL
(Matrix: SOIL)

				QC102	BH21_2.7-2.8	BH21_3.0-3.1	BH19_2.0-2.2	BH17_2.0-2.1
				[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
				ES1529109-047	ES1529109-048	ES1529109-049	ES1529109-050	ES1529109-051
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	34.1	20.9	20.4	17.8	16.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	28	----	54	62
Cadmium	7440-43-9	1	mg/kg	----	3	----	1	4
Chromium	7440-47-3	2	mg/kg	----	244	----	33	607
Copper	7440-50-8	5	mg/kg	----	337	----	299	12200
Lead	7439-92-1	5	mg/kg	----	4430	----	559	1150
Nickel	7440-02-0	2	mg/kg	----	86	----	21	738
Zinc	7440-66-6	5	mg/kg	----	3170	----	5700	2560
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	3.2	----	0.7	0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				QC102	BH21_2.7-2.8	BH21_3.0-3.1	BH19_2.0-2.2	BH17_2.0-2.1
				[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
				ES1529109-047	ES1529109-048	ES1529109-049	ES1529109-050	ES1529109-051
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				QC102	BH21_2.7-2.8	BH21_3.0-3.1	BH19_2.0-2.2	BH17_2.0-2.1
				[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
				ES1529109-047	ES1529109-048	ES1529109-049	ES1529109-050	ES1529109-051
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				QC102	BH21_2.7-2.8	BH21_3.0-3.1	BH19_2.0-2.2	BH17_2.0-2.1
				[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
				ES1529109-047	ES1529109-048	ES1529109-049	ES1529109-050	ES1529109-051
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
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	----	----	----	----	**1.9**
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	----	**3.2**
Anthracene	120-12-7	0.5	mg/kg	----	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	----	**1.0**
Pyrene	129-00-0	0.5	mg/kg	----	----	----	----	**0.8**

Sub-Matrix: SOIL
(Matrix: SOIL)

				QC102	BH21_2.7-2.8	BH21_3.0-3.1	BH19_2.0-2.2	BH17_2.0-2.1
				[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
				ES1529109-047	ES1529109-048	ES1529109-049	ES1529109-050	ES1529109-051
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	----	**0.8**
Chrysene	218-01-9	0.5	mg/kg	----	----	----	----	**1.0**
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	----	----	----	----	**8.7**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	----	**0.7**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	----	**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	**1270**
C15 - C28 Fraction	----	100	mg/kg	<100	**560**	<100	**250**	**17800**
C29 - C36 Fraction	----	100	mg/kg	<100	**620**	**110**	**300**	**6350**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	**1180**	**110**	**550**	**25400**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	**16**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	**16**
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	**80**	<50	<50	**2610**
>C16 - C34 Fraction	----	100	mg/kg	<100	**960**	**150**	**440**	**22300**
>C34 - C40 Fraction	----	100	mg/kg	<100	**500**	<100	**270**	**1620**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	**1540**	**150**	**710**	**26500**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	**80**	<50	<50	**2610**
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	**0.9**	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<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	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	**0.9**	<0.2	<0.2	<0.2

Sub-Matrix: SOIL
(Matrix: SOIL)

				QC102	BH21_2.7-2.8	BH21_3.0-3.1	BH19_2.0-2.2	BH17_2.0-2.1
				[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
				ES1529109-047	ES1529109-048	ES1529109-049	ES1529109-050	ES1529109-051
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	----	----	**100**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	----	----	**100**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	----	----	**108**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	----	----	**94.6**
Anthracene-d10	1719-06-8	0.5	%	----	----	----	----	**104**
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	----	----	**116**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**99.0**	**96.4**	**96.4**	**92.2**	**88.4**
Toluene-D8	2037-26-5	0.2	%	**102**	**94.2**	**104**	**101**	**85.6**
4-Bromofluorobenzene	460-00-4	0.2	%	**110**	**101**	**111**	**107**	**96.7**

Sub-Matrix: SOIL (Matrix: SOIL)				BH16_2.0-2.1	----	----	----	----
				[22-Aug-2015]	----	----	----	----
				ES1529109-052	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**24.1**	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**136**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	**19**	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**109**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**3520**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**3290**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**167**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**7710**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**20.4**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH16_2.0-2.1	----	----	----	----
				[22-Aug-2015]	----	----	----	----
				ES1529109-052	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH16_2.0-2.1	----	----	----	----
				[22-Aug-2015]	----	----	----	----
				ES1529109-052	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH16_2.0-2.1	----	----	----	----
				[22-Aug-2015]	----	----	----	----
				ES1529109-052	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	----	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH16_2.0-2.1	----	----	----	----
				[22-Aug-2015]	----	----	----	----
				ES1529109-052	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	----	----
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	**210**	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	**240**	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**450**	----	----	----	----
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	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	**370**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	**220**	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**590**	----	----	----	----
^ >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	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH16_2.0-2.1	----	----	----	----
				[22-Aug-2015]	----	----	----	----
				ES1529109-052	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	----	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**116**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	**115**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**121**	----	----	----	----

Sub-Matrix: SOLID (Matrix: SOLID)				BH22_0.45	----	----	----	----
				[21-Aug-2015]	----	----	----	----
				ES1529109-002	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch + Am**	----	----	----	----
Sample weight (dry)	----	0.01	g	**54.9**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**S.SPOONER**	----	----	----	----

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH22_0.3-0.4 - [21-Aug-2015]	Mid brown clay soil with two pieces of bonded abestos cement sheeting approximately 45 x 35 x 5mm plus several pieces of friable asbestos cement sheeting approximately 4 x 4 x 1mm.
EA200: Description	BH15_0.4-0.5 - [21-Aug-2015]	Mid grey clay soil with grey rocks.
EA200: Description	BH06_1.0-1.1 - [21-Aug-2015]	Pale grey sandy soil with grey rocks.
EA200: Description	BH07A_0.5-0.6 - [20-Aug-2015]	Dark grey clay soil with grey rocks and slag debris plus one loose bundle of friable asbestos fibres approximately 4 x 1 x 0.5mm.
EA200: Description	BH12_1.8-1.9 - [21-Aug-2015]	Mid brown clay soil with grey rocks.
EA200: Description	BH07B_1.2-1.3 - [21-Aug-2015]	Mid brown clay soil with grey rocks.
EA200: Description	BH01_0.3-0.4 - [21-Aug-2015]	Dark grey-brown clay soil with grey rocks and slag debris plus one loose bundle of friable asbestos fibres approximately 3 x 1 x 0.5mm.
EA200: Description	BH21_0.7-0.8 - [21-Aug-2015]	Several pieces of heavily degraded and friable asbestos fibre board approximately 60 x 30 x 3mm with soil debris containing several loose bundles of friable asbestos fibres approximately 2 x 1 x 0.5mm.

Sub-Matrix: **SOLID**

EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	BH22_0.45 - [21-Aug-2015]	One piece of bonded asbestos cement sheeting approx 90 x 60 x 5 mm.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1529109**	Page	: 1 of 25
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 Burrows	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 24-Aug-2015
C-O-C number	: ----	Date Analysis Commenced	: 26-Aug-2015
Sampler	: KATE PIGRAM, LAUREN GIBB	Issue Date	: 31-Aug-2015
Site	: ----	No. of samples received	: 124
Quote number	: ----	No. of samples analysed	: 52

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

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

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

Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos

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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

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 (%)*
EA055: Moisture Content (QC Lot: 193748)									
ES1529100-017	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.0	18.1	0.624	0% - 50%
ES1529109-011	BH09_4.5-4.6	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	52.2	51.4	1.60	0% - 20%
EA055: Moisture Content (QC Lot: 193749)									
ES1529109-020	BH11_0.2-0.3	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	14.3	14.3	0.00	0% - 50%
ES1529109-031	QC200	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	35.0	36.5	4.20	0% - 20%
EA055: Moisture Content (QC Lot: 193750)									
ES1529109-042	BH01_3.8-3.9	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	28.6	31.9	10.8	0% - 20%
ES1529120-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	23.3	21.4	8.31	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 194934)									
ES1529109-003	BH22_0.8-0.9	EG005T: Cadmium	7440-43-9	1	mg/kg	1	1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	15	26.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	11	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	357	321	10.6	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	444	395	11.8	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	554	# 447	21.2	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	862	# 698	21.0	0% - 20%
ES1529109-015	BH04_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	2	2	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	28	24	14.3	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	48	# 33	36.4	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	52	34	41.3	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	218	185	16.1	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	1030	# 2190	72.0	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	1590	1390	13.6	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 195095)									
ES1529040-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	15	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	9	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	22	12	56.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	11	58.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	32	20	46.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	73	48	40.4	0% - 50%
ES1529108-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	18	27.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	8	7	23.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.00	No Limit

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 (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 195095) - continued									
ES1529108-001	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	16	15	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	19	23.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	27	24	14.3	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 195097)									
ES1529109-052	BH16_2.0-2.1	EG005T: Cadmium	7440-43-9	1	mg/kg	19	19	0.00	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	109	94	14.2	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	167	179	7.11	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	136	148	8.52	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	3520	3000	15.7	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	3290	3740	12.8	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	7710	7300	5.44	0% - 20%
ES1529109-038	BH09_0.25-0.35	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	8	14.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	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	7	8	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	8	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	30	34	12.6	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 194935)									
ES1529109-003	BH22_0.8-0.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.8	# 1.3	50.2	0% - 50%
ES1529109-015	BH04_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	1.0	0.8	19.2	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 195096)									
ES1529040-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1529108-001	Anonymous	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: 195098)									
ES1529109-052	BH16_2.0-2.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	20.4	21.5	5.48	0% - 20%
ES1529109-038	BH09_0.25-0.35	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 193040)									
ES1529109-043	BH16_0.7-0.8	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1529109-018	BH05_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 193039)									
ES1529109-043	BH16_0.7-0.8	EP068: 4.4`-DDD	72-54-8	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: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-BHC	319-84-6	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: beta-BHC	319-85-7	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: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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: 193039) - continued									
ES1529109-043	BH16_0.7-0.8	EP068: delta-BHC	319-86-8	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: Endosulfan sulfate	1031-07-8	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: Endrin aldehyde	7421-93-4	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: gamma-BHC	58-89-9	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: Heptachlor epoxide	1024-57-3	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: trans-Chlordane	5103-74-2	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
ES1529109-018	BH05_0.5-0.6	EP068: 4.4`-DDD	72-54-8	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: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-BHC	319-84-6	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: beta-BHC	319-85-7	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: cis-Chlordane	5103-71-9	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: Dieldrin	60-57-1	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	72-20-8	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: Endrin ketone	53494-70-5	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: Heptachlor	76-44-8	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: Hexachlorobenzene (HCB)	118-74-1	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: 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: 193039)									
ES1529109-043	BH16_0.7-0.8	EP068: Azinphos Methyl	86-50-0	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: Carbophenothion	786-19-6	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: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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: 193039) - continued									
ES1529109-043	BH16_0.7-0.8	EP068: Chlorpyrifos-methyl	5598-13-0	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: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dichlorvos	62-73-7	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: Ethion	563-12-2	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: Fenthion	55-38-9	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: Pirimphos-ethyl	23505-41-1	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: 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
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1529109-018	BH05_0.5-0.6	EP068: Azinphos Methyl	86-50-0	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: Carbophenothion	786-19-6	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: Chlorpyrifos	2921-88-2	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: Demeton-S-methyl	919-86-8	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: Dichlorvos	62-73-7	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: Ethion	563-12-2	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: Fenthion	55-38-9	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: Pirimphos-ethyl	23505-41-1	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: 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
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP074D: Fumigants (QC Lot: 193029)									
ES1529109-009	BH14_4.0-4.1	EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 193029)									

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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 193029) - continued									
ES1529109-009	BH14_4.0-4.1	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 193029)									
ES1529109-009	BH14_4.0-4.1	EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 193029)									
ES1529109-009	BH14_4.0-4.1	EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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 (%)*
EP074G: Trihalomethanes (QC Lot: 193029) - continued									
ES1529109-009	BH14_4.0-4.1	EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 193037)									
ES1529109-043	BH16_0.7-0.8	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	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-Dichlorophenol	120-83-2	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): 2.6-Dichlorophenol	87-65-0	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): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenol	108-95-2	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
ES1529109-018	BH05_0.5-0.6	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	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-Dichlorophenol	120-83-2	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): 2.6-Dichlorophenol	87-65-0	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): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenol	108-95-2	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: 193042)									
ES1529109-015	BH04_0.5-0.6	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	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-Dichlorophenol	120-83-2	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): 2.6-Dichlorophenol	87-65-0	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): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenol	108-95-2	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

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)A: Phenolic Compounds (QC Lot: 193042) - continued									
ES1529109-015	BH04_0.5-0.6	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1529109-045	BH21_0.7-0.8	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	38.0	39.2	3.12	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	11.8	13.0	9.44	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): Phenol	108-95-2	0.5	mg/kg	9.0	10.3	13.4	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	27	28	5.29	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<8	<8	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 193045)									
ES1529109-046	QC202	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	41.8	43.5	4.00	0% - 50%
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	14.0	14.6	4.31	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<4.0	<4.0	0.00	No Limit
		EP075(SIM): Phenol	108-95-2	0.5	mg/kg	9.7	10.3	5.63	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	29	31	5.57	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<8	<8	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 193037)									
ES1529109-043	BH16_0.7-0.8	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	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): Benzo(a)pyrene	50-32-8	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): Benzo(b+j)fluoranthene	205-99-2 205-82-3	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(k)fluoranthene	207-08-9	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): Dibenz(a.h)anthracene	53-70-3	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

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: 193037) - continued									
ES1529109-043	BH16_0.7-0.8	EP075(SIM): Fluorene	86-73-7	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): Naphthalene	91-20-3	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): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1529109-018	BH05_0.5-0.6	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.0	1.0	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.1	1.2	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.5	1.6	8.05	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.4	1.4	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.7	1.0	31.7	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.5	0.6	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.0	1.0	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): Fluoranthene	206-44-0	0.5	mg/kg	1.9	1.8	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	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	0.6	0.7	27.9	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.0	0.8	17.8	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	2.0	1.9	7.29	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	11.2	11.4	1.77	0% - 20%
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 193042)									
ES1529109-015	BH04_0.5-0.6	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.4	1.4	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.6	1.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.1	2.0	5.36	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.9	1.9	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	1.2	1.2	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.8	0.8	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.4	1.3	8.27	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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: 193042) - continued									
ES1529109-015	BH04_0.5-0.6	EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.7	2.5	9.53	No Limit
		EP075(SIM): Fluorene	86-73-7	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	0.9	0.8	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.9	0.8	11.3	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	2.9	2.7	8.17	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	15.7	14.9	5.23	0% - 20%
ES1529109-045	BH21_0.7-0.8	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	24.8	23.5	5.52	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	174	174	0.297	0% - 20%
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	139	140	0.700	0% - 20%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	171	161	5.95	0% - 20%
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	102	102	0.131	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	159	159	0.491	0% - 20%
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	139	139	0.00	0% - 20%
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	52.3	52.2	0.00	0% - 50%
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	49.3	47.7	3.31	0% - 50%
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	105	104	0.952	0% - 20%
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	15.4	15.8	2.50	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	335	337	0.555	0% - 20%
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	132	128	3.46	0% - 20%
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	45.8	45.7	0.262	0% - 50%
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	57.3	53.2	7.55	0% - 50%
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	386	387	0.121	0% - 20%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	239	238	0.446	0% - 20%
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2170	2150	0.871	0% - 20%
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 193045)									
ES1529109-046	QC202	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	26.0	26.9	3.40	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	181	187	3.08	0% - 20%
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	163	169	3.43	0% - 20%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	175	180	2.94	0% - 20%
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	106	103	2.16	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	158	161	1.49	0% - 20%
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	130	158	20.0	0% - 20%
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	39.6	40.6	2.42	0% - 50%
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	54.2	56.7	4.66	0% - 50%
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	115	120	4.27	0% - 20%

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: 193045) - continued									
ES1529109-046	QC202	EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	11.4	12.7	10.2	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	390	399	2.31	0% - 20%
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	135	138	1.84	0% - 20%
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	36.8	41.5	12.1	0% - 50%
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	50.0	51.0	2.11	0% - 50%
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	433	450	3.90	0% - 20%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	275	281	2.04	0% - 20%
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2320	2410	3.94	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 193028)									
ES1529109-024	BH05_2.3-2.4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1529109-009	BH14_4.0-4.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 193030)									
ES1529109-047	QC102	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1529141-027	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 193038)									
ES1529109-018	BH05_0.5-0.6	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: 193041)									
ES1529109-015	BH04_0.5-0.6	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
ES1529109-045	BH21_0.7-0.8	EP071: C15 - C28 Fraction	----	100	mg/kg	37000	32200	13.8	0% - 20%
		EP071: C29 - C36 Fraction	----	100	mg/kg	17800	16900	5.08	0% - 20%
		EP071: C10 - C14 Fraction	----	50	mg/kg	3720	3740	0.634	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 193044)									
ES1529141-028	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
ES1529109-046	QC202	EP071: C15 - C28 Fraction	----	100	mg/kg	25100	23000	8.82	0% - 20%
		EP071: C29 - C36 Fraction	----	100	mg/kg	11600	11400	1.24	0% - 20%
		EP071: C10 - C14 Fraction	----	50	mg/kg	1500	# 900	50.3	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 193028)									
ES1529109-024	BH05_2.3-2.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1529109-009	BH14_4.0-4.1	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: 193030)									
ES1529109-047	QC102	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1529141-027	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

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: 193038)									
ES1529109-018	BH05_0.5-0.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	140	110	22.6	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 193041)									
ES1529109-015	BH04_0.5-0.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	100	160	41.3	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
ES1529109-045	BH21_0.7-0.8	EP071: >C16 - C34 Fraction	----	100	mg/kg	47500	43500	8.74	0% - 20%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	10100	9050	10.8	0% - 20%
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	7440	7410	0.480	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 193044)									
ES1529141-028	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	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
ES1529109-046	QC202	EP071: >C16 - C34 Fraction	----	100	mg/kg	31900	30600	4.17	0% - 20%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	6230	5740	8.18	0% - 20%
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	3740	# 2760	30.2	0% - 20%
EP080: BTEXN (QC Lot: 193028)									
ES1529109-024	BH05_2.3-2.4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	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
ES1529109-009	BH14_4.0-4.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	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
EP080: BTEXN (QC Lot: 193030)									
ES1529109-047	QC102	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	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

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: BTEXN (QC Lot: 193030) - continued									
ES1529141-027	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	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

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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 194934)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	107	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.7	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.0	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	108	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	98.4	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	104	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	104	81	133
EG005T: Total Metals by ICP-AES (QCLot: 195095)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	108	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	101	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.4	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	104	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	102	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	106	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	103	81	133
EG005T: Total Metals by ICP-AES (QCLot: 195097)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.6	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	98.9	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	106	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	99.1	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	105	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	100	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 194935)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.7	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 195096)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.7	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 195098)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.2	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 193040)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	94.5	57	117
EP068A: Organochlorine Pesticides (OC) (QCLot: 193039)								
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.9	76	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 193039) - continued								
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	69	117
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	89.2	67	127
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	68	118
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	71	113
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	69	119
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	69	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	76	120
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	67	121
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	65	113
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	66	118
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	60	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	67	123
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	57	115
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	65	123
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	71	115
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	68	116
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	68	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	66	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	87.0	65	129
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	68	120
EP068B: Organophosphorus Pesticides (OP) (QCLot: 193039)								
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	72.5	42	126
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	68	116
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	67	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	70	118
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	68	114
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	55	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	64	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	73	117
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	56	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	64	124
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	70	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	64	120
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	71	115
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	70	120
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	67.4	54	122
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	83.6	68	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	81.4	69	123
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	69	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 193039) - continued								
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	68	116
EP074D: Fumigants (QCLot: 193029)								
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	83.0	66	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	95.0	69	127
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	88.8	55	133
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	79.2	54	124
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	76.0	51	125
EP074E: Halogenated Aliphatic Compounds (QCLot: 193029)								
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	81.0	62	122
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	88.5	62	126
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	84.2	56	132
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	86.8	70	130
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	93.7	66	132
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	104	54	126
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	90.7	64	128
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.6	65	135
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	79.9	53	129
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	99.3	65	123
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	87.8	72	128
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	73.6	47	141
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	84.0	59	125
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	128	49	143
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	79.4	41	141
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	90.3	66	132
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	83.5	55	129
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	92.8	65	127
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	67.6	30	148
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	95.0	48	136
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	46.2	43	129
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	77.0	20	134
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	82.8	67	143
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	87.0	62	130
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	89.9	54	128
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	90.4	64	120
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	105	49	135
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	92.2	43	147
EP074F: Halogenated Aromatic Compounds (QCLot: 193029)								
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	89.9	60	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 193029) - continued								
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	90.4	54	134
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	92.5	66	128
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	88.4	63	129
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	86.8	63	129
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	90.7	64	130
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	91.1	62	130
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	86.6	67	127
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	89.5	70	128
EP074G: Trihalomethanes (QCLot: 193029)								
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	89.9	61	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	85.4	60	126
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	95.6	62	120
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	79.3	63	121
EP075(SIM)A: Phenolic Compounds (QCLot: 193037)								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	96.8	69	112
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	99.0	57	111
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	95.2	68	112
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	97.4	69	117
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	99.1	73	117
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	93.2	74	116
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	98.8	72	116
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	90.5	60	117
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	91.4	69	123
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	93.8	76	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	22.4	10	57
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	97.4	74	116
EP075(SIM)A: Phenolic Compounds (QCLot: 193042)								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	80.6	69	112
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	80.1	57	111
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	85.4	68	112
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	88.6	69	117
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	87.8	73	117
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	99.6	74	116
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	93.8	72	116
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	92.4	60	117
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	94.1	69	123
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	90.6	76	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	30.6	10	57

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 193042) - continued								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	89.9	74	116
EP075(SIM)A: Phenolic Compounds (QCLot: 193045)								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	91.7	69	112
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	92.5	57	111
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	91.6	68	112
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	90.6	69	117
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	95.3	73	117
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	93.8	74	116
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	95.6	72	116
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	92.5	60	117
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	87.9	69	123
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	95.4	76	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	20.4	10	57
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	90.0	74	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 193037)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.0	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	93.2	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.1	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.9	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	91.4	76	122
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.5	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	95.0	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.8	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	100	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	99.2	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	98.0	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.9	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	90.4	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	100	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	97.8	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.3	79	125
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 193042)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	95.3	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	96.7	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	89.5	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	97.5	76	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 193042) - continued								
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	99.0	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	98.5	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	97.4	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.7	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	90.9	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	97.4	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	94.4	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	87.7	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	101	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	100	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	98.3	79	125
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 193045)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	96.2	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	95.9	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.4	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.7	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	97.9	76	122
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.8	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	89.5	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.7	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.8	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	90.3	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.8	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.8	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	87.9	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	98.4	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	93.1	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	93.0	79	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193028)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	108	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193030)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.6	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193038)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	116	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193041)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	119	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193044)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	109	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	120	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	104	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193028)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	108	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193030)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.4	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193038)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	104	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	116	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	100	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193041)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	104	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	113	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	102	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193044)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	108	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	117	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	87.7	63	131
EP080: BTEXN (QCLot: 193028)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	98.7	62	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	94.1	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.6	62	138
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	60	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.5	62	128
EP080: BTEXN (QCLot: 193030)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.4	62	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	98.8	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.8	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	103	62	138
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	60	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 193030) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	62	128

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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 194934)							
ES1529109-003	BH22_0.8-0.9	EG005T: Arsenic	7440-38-2	50 mg/kg	# Not Determined	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	98.6	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	112	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	101	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.6	70	130
EG005T: Total Metals by ICP-AES (QCLot: 195095)							
ES1529040-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	107	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	102	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	101	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	99.8	70	130
EG005T: Total Metals by ICP-AES (QCLot: 195097)							
ES1529109-039	BH12_0.15-0.25	EG005T: Arsenic	7440-38-2	50 mg/kg	80.7	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.9	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	# Not Determined	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	# Not Determined	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	82.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	# Not Determined	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 194935)							
ES1529109-003	BH22_0.8-0.9	EG035T: Mercury	7439-97-6	5 mg/kg	112	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 195096)							
ES1529040-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	99.0	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 195098)							
ES1529109-039	BH12_0.15-0.25	EG035T: Mercury	7439-97-6	5 mg/kg	88.1	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 193040)							
ES1529109-018	BH05_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	97.5	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 193039)							
ES1529109-018	BH05_0.5-0.6	EP068: 4.4`-DDT	50-29-3	2 mg/kg	80.9	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	72.8	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	82.9	70	130
		EP068: Endrin	72-20-8	2 mg/kg	95.7	70	130
		EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.6	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	118	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 193039)							
ES1529109-018	BH05_0.5-0.6	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	109	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	119	70	130
		EP068: Diazinon	333-41-5	0.5 mg/kg	92.0	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	95.7	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	106	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 193029)							
ES1529109-009	BH14_4.0-4.1	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	82.9	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	91.7	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 193029)							
ES1529109-009	BH14_4.0-4.1	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	98.8	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 193037)							
ES1529109-018	BH05_0.5-0.6	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.8	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.3	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.7	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	70.1	20	130
		EP075(SIM): Phenol	108-95-2	10 mg/kg	99.5	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 193042)							
ES1529109-015	BH04_0.5-0.6	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.4	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	74.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.7	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	92.3	20	130
		EP075(SIM): Phenol	108-95-2	10 mg/kg	80.4	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 193045)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 193045) - continued							
ES1529109-046	QC202	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	82.1	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	97.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.6	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	75.7	20	130
		EP075(SIM): Phenol	108-95-2	10 mg/kg	103	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 193037)							
ES1529109-018	BH05_0.5-0.6	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.1	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.0	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 193042)							
ES1529109-015	BH04_0.5-0.6	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 193045)							
ES1529109-046	QC202	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	# Not Determined	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193028)							
ES1529109-009	BH14_4.0-4.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	123	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193030)							
ES1529109-047	QC102	EP080: C6 - C9 Fraction	----	32.5 mg/kg	107	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193038)							
ES1529109-018	BH05_0.5-0.6	EP071: C10 - C14 Fraction	----	523 mg/kg	88.1	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	106	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	126	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193041)							
ES1529109-015	BH04_0.5-0.6	EP071: C10 - C14 Fraction	----	523 mg/kg	105	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	104	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	122	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 193044)							
ES1529109-046	QC202	EP071: C10 - C14 Fraction	----	523 mg/kg	# 139	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	# Not Determined	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	# Not Determined	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193028)							
ES1529109-009	BH14_4.0-4.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	123	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193030)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193030) - continued							
ES1529109-047	QC102	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	103	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193038)							
ES1529109-018	BH05_0.5-0.6	EP071: >C10 - C16 Fraction	>C10_C16	860 mg/kg	101	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	109	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	114	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193041)							
ES1529109-015	BH04_0.5-0.6	EP071: >C10 - C16 Fraction	>C10_C16	860 mg/kg	98.9	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	113	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	113	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 193044)							
ES1529109-046	QC202	EP071: >C10 - C16 Fraction	>C10_C16	860 mg/kg	# 158	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	# Not Determined	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	# Not Determined	52	132
EP080: BTEXN (QCLot: 193028)							
ES1529109-009	BH14_4.0-4.1	EP080: Benzene	71-43-2	2.5 mg/kg	86.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.5	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	89.7	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	93.8	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.8	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	86.4	70	130
EP080: BTEXN (QCLot: 193030)							
ES1529109-047	QC102	EP080: Benzene	71-43-2	2.5 mg/kg	85.5	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	102	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	99.6	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	109	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	94.7	70	130

ALS Environmental

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1529109**	Page	: 1 of 10
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60438840/1.1 Burrows	Date Samples Received	: 24-Aug-2015
Site	: ----	Issue Date	: 31-Aug-2015
Sampler	: KATE PIGRAM, LAUREN GIBB	No. of samples received	: 124
Order number	: 60438840/1.1	No. of samples analysed	: 52

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO 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.**

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							
EG005T: Total Metals by ICP-AES	ES1529109--003	BH22_0.8-0.9	**Lead**	7439-92-1	21.2 %	0% - 20%	**RPD exceeds LOR based limits**
EG005T: Total Metals by ICP-AES	ES1529109--015	BH04_0.5-0.6	**Lead**	7439-92-1	72.0 %	0% - 20%	**RPD exceeds LOR based limits**
EG005T: Total Metals by ICP-AES	ES1529109--015	BH04_0.5-0.6	**Nickel**	7440-02-0	36.4 %	0% - 20%	**RPD exceeds LOR based limits**
EG005T: Total Metals by ICP-AES	ES1529109--003	BH22_0.8-0.9	**Zinc**	7440-66-6	21.0 %	0% - 20%	**RPD exceeds LOR based limits**
EG035T: Total Recoverable Mercury by FIMS	ES1529109--003	BH22_0.8-0.9	**Mercury**	7439-97-6	50.2 %	0% - 50%	**RPD exceeds LOR based limits**
EP080/071: Total Petroleum Hydrocarbons	ES1529109--046	QC202	**C10 - C14 Fraction**	----	50.3 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1529109--046	QC202	**>C10 - C16 Fraction**	>C10_C16	30.2 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	ES1529109--003	BH22_0.8-0.9	**Arsenic**	7440-38-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	ES1529109--039	BH12_0.15-0.25	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	ES1529109--039	BH12_0.15-0.25	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	ES1529109--039	BH12_0.15-0.25	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1529109--046	QC202	**Pyrene**	129-00-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Petroleum Hydrocarbons	ES1529109--046	QC202	**C10 - C14 Fraction**	----	139 %	73-137%	**Recovery greater than upper data quality objective**
EP080/071: Total Petroleum Hydrocarbons	ES1529109--046	QC202	**C15 - C28 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Petroleum Hydrocarbons	ES1529109--046	QC202	**C29 - C36 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1529109--046	QC202	**>C10 - C16 Fraction**	>C10_C16	158 %	73-137%	**Recovery greater than upper data quality objective**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1529109--046	QC202	**>C16 - C34 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1529109--046	QC202	**>C34 - C40 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

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 / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
BH04_0.5-0.6, BH04_1.0-1.1, BH04_2.3-2.4, BH05_0.5-0.6, BH07A_0.5-0.6, BH11_0.2-0.3, BH11_2.3-2.4, BH11_3.3-3.4, BH05_1.0-1.1, BH05_2.3-2.4, BH08_0.17-0.18, BH08_1.0-1.1, BH08_2.5-2.6, BH08_3.7-3.8, BH13_0.4-0.5, BH13_3.6-3.7, QC200	**20-Aug-2015**	**----**	----	----	**26-Aug-2015**	03-Sep-2015	✓
Soil Glass Jar - Unpreserved (EA055-103)							
BH22_0.8-0.9, BH22_2.2-2.3, BH22_4.5-4.7, BH15_0.4-0.5, BH14_0.45-0.55, BH14_1.8-1.9, BH14_4.0-4.1, BH09_4.0-4.2, BH09_4.5-4.6, BH06_1.0-1.1, BH10_4.0-4.1, QC101, BH12_1.0-1.1, BH12_3.6-3.7, BH07B_1.2-1.3, BH07B_2.3-2.4, BH10_0.15-0.25, BH09_0.25-0.35, BH12_0.15-0.25, BH01_1.0-1.1, BH01_3.8-3.9, BH16_0.7-0.8, BH17_1.0-1.1, BH21_0.7-0.8, QC202, QC102	**21-Aug-2015**	**----**	----	----	**26-Aug-2015**	04-Sep-2015	✓
Soil Glass Jar - Unpreserved (EA055-103)							
BH21_2.7-2.8, BH21_3.0-3.1, BH19_2.0-2.2, BH17_2.0-2.1, BH16_2.0-2.1	**22-Aug-2015**	**----**	----	----	**26-Aug-2015**	05-Sep-2015	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Separate bag received (EA200)							
BH07A_0.5-0.6	**20-Aug-2015**	**----**	----	----	**26-Aug-2015**	16-Feb-2016	✓
Snap Lock Bag - Separate bag received (EA200)							
BH15_0.4-0.5, BH06_1.0-1.1, BH12_1.8-1.9, BH07B_1.2-1.3, BH01_0.3-0.4, BH21_0.7-0.8	**21-Aug-2015**	**----**	----	----	**26-Aug-2015**	17-Feb-2016	✓
Soil Glass Jar - Unpreserved (EA200)							
BH22_0.3-0.4	**21-Aug-2015**	**----**	----	----	**26-Aug-2015**	17-Feb-2016	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH04_0.5-0.6, BH04_1.0-1.1, BH04_2.3-2.4, BH05_0.5-0.6, BH07A_0.5-0.6, BH11_0.2-0.3, BH11_2.3-2.4, BH05_1.0-1.1, BH05_2.3-2.4, BH08_0.17-0.18, BH08_1.0-1.1, BH08_2.5-2.6, BH08_3.7-3.8, BH13_0.4-0.5, QC200	**20-Aug-2015**	**27-Aug-2015**	16-Feb-2016	✓	**28-Aug-2015**	16-Feb-2016	✓
Soil Glass Jar - Unpreserved (EG005T)							
BH22_0.8-0.9, BH22_2.2-2.3, BH22_4.5-4.7, BH15_0.4-0.5, BH14_1.8-1.9, BH09_4.0-4.2, BH09_4.5-4.6, BH06_1.0-1.1, BH10_4.0-4.1, QC101, BH12_1.0-1.1, BH07B_1.2-1.3, BH07B_2.3-2.4, BH09_0.25-0.35, BH12_0.15-0.25, BH01_1.0-1.1, BH16_0.7-0.8, BH17_1.0-1.1, BH21_0.7-0.8, QC202	**21-Aug-2015**	**27-Aug-2015**	17-Feb-2016	✓	**28-Aug-2015**	17-Feb-2016	✓
Soil Glass Jar - Unpreserved (EG005T)							
BH21_2.7-2.8, BH19_2.0-2.2, BH17_2.0-2.1, BH16_2.0-2.1	**22-Aug-2015**	**27-Aug-2015**	18-Feb-2016	✓	**28-Aug-2015**	18-Feb-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH04_0.5-0.6, BH04_1.0-1.1, BH04_2.3-2.4, BH05_0.5-0.6, BH07A_0.5-0.6, BH11_0.2-0.3, BH11_2.3-2.4, BH05_1.0-1.1, BH05_2.3-2.4, BH08_0.17-0.18, BH08_1.0-1.1, BH08_2.5-2.6, BH08_3.7-3.8, BH13_0.4-0.5, QC200	**20-Aug-2015**	**27-Aug-2015**	17-Sep-2015	✓	**28-Aug-2015**	17-Sep-2015	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH22_0.8-0.9, BH22_2.2-2.3, BH22_4.5-4.7, BH15_0.4-0.5, BH14_1.8-1.9, BH09_4.0-4.2, BH09_4.5-4.6, BH06_1.0-1.1, BH10_4.0-4.1, QC101, BH12_1.0-1.1, BH07B_1.2-1.3, BH07B_2.3-2.4, BH09_0.25-0.35, BH12_0.15-0.25, BH01_1.0-1.1, BH16_0.7-0.8, BH17_1.0-1.1, BH21_0.7-0.8, QC202	**21-Aug-2015**	**27-Aug-2015**	18-Sep-2015	✓	**28-Aug-2015**	18-Sep-2015	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH21_2.7-2.8, BH19_2.0-2.2, BH17_2.0-2.1, BH16_2.0-2.1	**22-Aug-2015**	**27-Aug-2015**	19-Sep-2015	✓	**28-Aug-2015**	19-Sep-2015	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
BH05_0.5-0.6, BH07A_0.5-0.6, BH08_0.17-0.18, BH13_3.6-3.7	**20-Aug-2015**	**27-Aug-2015**	03-Sep-2015	✓	**28-Aug-2015**	06-Oct-2015	✓
Soil Glass Jar - Unpreserved (EP066)							
BH14_0.45-0.55, BH14_1.8-1.9, BH06_1.0-1.1, BH07B_1.2-1.3, BH10_0.15-0.25, BH01_1.0-1.1, BH16_0.7-0.8	**21-Aug-2015**	**27-Aug-2015**	04-Sep-2015	✓	**28-Aug-2015**	06-Oct-2015	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH05_0.5-0.6, BH07A_0.5-0.6, BH08_0.17-0.18, BH13_3.6-3.7	**20-Aug-2015**	**27-Aug-2015**	03-Sep-2015	✓	**28-Aug-2015**	06-Oct-2015	✓
Soil Glass Jar - Unpreserved (EP068)							
BH14_0.45-0.55, BH14_1.8-1.9, BH06_1.0-1.1, BH07B_1.2-1.3, BH10_0.15-0.25, BH01_1.0-1.1, BH16_0.7-0.8	**21-Aug-2015**	**27-Aug-2015**	04-Sep-2015	✓	**28-Aug-2015**	06-Oct-2015	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
BH04_0.5-0.6, BH04_2.3-2.4, BH05_0.5-0.6, BH11_2.3-2.4, BH11_3.3-3.4, BH05_2.3-2.4, BH08_1.0-1.1, BH08_3.7-3.8	**20-Aug-2015**	**27-Aug-2015**	03-Sep-2015	✓	**28-Aug-2015**	06-Oct-2015	✓
Soil Glass Jar - Unpreserved (EP071)							
BH22_2.2-2.3, BH22_4.5-4.7, BH14_4.0-4.1, BH09_4.5-4.6, BH10_4.0-4.1, BH12_3.6-3.7, BH07B_1.2-1.3, BH07B_2.3-2.4, BH01_1.0-1.1, BH01_3.8-3.9, BH16_0.7-0.8, BH17_1.0-1.1, BH21_0.7-0.8, QC202, QC102	**21-Aug-2015**	**27-Aug-2015**	04-Sep-2015	✓	**28-Aug-2015**	06-Oct-2015	✓
Soil Glass Jar - Unpreserved (EP071)							
BH21_2.7-2.8, BH21_3.0-3.1, BH19_2.0-2.2, BH17_2.0-2.1, BH16_2.0-2.1	**22-Aug-2015**	**27-Aug-2015**	05-Sep-2015	✓	**28-Aug-2015**	06-Oct-2015	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
BH05_0.5-0.6	**20-Aug-2015**	**27-Aug-2015**	27-Aug-2015	✓	**27-Aug-2015**	27-Aug-2015	✓
Soil Glass Jar - Unpreserved (EP074)							
BH14_4.0-4.1, BH09_4.5-4.6	**21-Aug-2015**	**27-Aug-2015**	28-Aug-2015	✓	**27-Aug-2015**	28-Aug-2015	✓
EP075(SIM)T: PAH Surrogates							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH04_0.5-0.6, BH04_1.0-1.1, BH05_0.5-0.6, BH07A_0.5-0.6, BH11_0.2-0.3, BH11_2.3-2.4, BH05_1.0-1.1, BH08_1.0-1.1, BH08_2.5-2.6, BH13_0.4-0.5, QC200	**20-Aug-2015**	**27-Aug-2015**	03-Sep-2015	✓	**27-Aug-2015**	06-Oct-2015	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH22_0.8-0.9, BH22_2.2-2.3, BH22_4.5-4.7, BH15_0.4-0.5, BH14_1.8-1.9, BH14_4.0-4.1, BH09_4.0-4.2, BH09_4.5-4.6, QC101, BH07B_1.2-1.3, BH09_0.25-0.35, BH12_0.15-0.25, BH01_1.0-1.1, BH16_0.7-0.8, BH21_0.7-0.8, QC202	**21-Aug-2015**	**27-Aug-2015**	04-Sep-2015	✓	**27-Aug-2015**	06-Oct-2015	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH17_2.0-2.1	**22-Aug-2015**	**27-Aug-2015**	05-Sep-2015	✓	**27-Aug-2015**	06-Oct-2015	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080S: TPH(V)/BTEX Surrogates							
Soil Glass Jar - Unpreserved (EP080)							
BH04_0.5-0.6, BH04_2.3-2.4, BH05_0.5-0.6, BH11_2.3-2.4, BH11_3.3-3.4, BH05_2.3-2.4, BH08_1.0-1.1, BH08_3.7-3.8	**20-Aug-2015**	**27-Aug-2015**	03-Sep-2015	✓	**27-Aug-2015**	03-Sep-2015	✓
Soil Glass Jar - Unpreserved (EP080)							
BH22_2.2-2.3, BH22_4.5-4.7, BH14_4.0-4.1, BH09_4.5-4.6, BH10_4.0-4.1, BH12_3.6-3.7, BH07B_1.2-1.3, BH07B_2.3-2.4, BH01_1.0-1.1, BH01_3.8-3.9, BH16_0.7-0.8, BH17_1.0-1.1	**21-Aug-2015**	**27-Aug-2015**	04-Sep-2015	✓	**27-Aug-2015**	04-Sep-2015	✓
Soil Glass Jar - Unpreserved (EP080)							
BH21_0.7-0.8, QC202, QC102	**21-Aug-2015**	**27-Aug-2015**	04-Sep-2015	✓	**28-Aug-2015**	04-Sep-2015	✓
Soil Glass Jar - Unpreserved (EP080)							
BH21_2.7-2.8, BH21_3.0-3.1, BH19_2.0-2.2, BH17_2.0-2.1, BH16_2.0-2.1	**22-Aug-2015**	**27-Aug-2015**	05-Sep-2015	✓	**28-Aug-2015**	05-Sep-2015	✓

Matrix: **SOLID**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag - ACM/Asbestos Grab Sample bag (EA200)							
BH22_0.45	**21-Aug-2015**	**----**	----	----	**27-Aug-2015**	17-Feb-2016	✓

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	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	14	**14.29**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	11	**18.18**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	**18.18**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	**33.33**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	**33.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	**33.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	**33.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
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 (SnCl2)(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 SnCl2 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)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) 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	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds	EP074	SOIL	(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. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) 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	(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.
Asbestos Identification in Bulk Solids	EA200	SOLID	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

Preparation Methods	Method	Matrix	Method Descriptions
Tumbler Extraction of Solids	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1529109**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 Burrows	Page	: 1 of 6
Order number	: 60438840/1.1	Quote number	: EB2015AECOMAU0580 (EN/004/15)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: KATE PIGRAM, LAUREN GIBB		

Dates

Date Samples Received	: 24-Aug-2015 4:00 PM	Issue Date	: 25-Aug-2015
Client Requested Due Date	: 31-Aug-2015	Scheduled Reporting Date	: **31-Aug-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 6	Temperature	: 2.8'c - Ice present
Receipt Detail	:	No. of samples received / analysed	: 124 / 52

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
- **Sample BH06_1.0-1.1 and BH16_0.11-0.15 were not received.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Sample QC100 and QC201 forwared to ENVIROLAB
- Sample BH10_1.0-1.1, BH11_3.6-3.7 and BH-_0.25-0.30 received extra and place on hold, Please confirm.
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

- **No sample container / preservation non-compliance exist.**

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.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1529109-001	[21-Aug-2015]	BH22_0.3-0.4		☐				
ES1529109-003	[21-Aug-2015]	BH22_0.8-0.9	☐		☐	☐		
ES1529109-004	[21-Aug-2015]	BH22_2.2-2.3	☐					☐
ES1529109-005	[21-Aug-2015]	BH22_4.5-4.7	☐					☐
ES1529109-006	[21-Aug-2015]	BH15_0.4-0.5	☐	☐	☐	☐		
ES1529109-007	[21-Aug-2015]	BH14_0.45-0.55	☐				☐	
ES1529109-008	[21-Aug-2015]	BH14_1.8-1.9	☐		☐	☐	☐	
ES1529109-009	[21-Aug-2015]	BH14_4.0-4.1	☐					
ES1529109-010	[21-Aug-2015]	BH09_4.0-4.2	☐		☐	☐		
ES1529109-011	[21-Aug-2015]	BH09_4.5-4.6	☐					
ES1529109-012	[21-Aug-2015]	BH06_1.0-1.1	☐	☐		☐	☐	
ES1529109-013	[21-Aug-2015]	BH10_4.0-4.1	☐					
ES1529109-014	[21-Aug-2015]	QC101	☐		☐	☐		
ES1529109-015	[20-Aug-2015]	BH04_0.5-0.6	☐					☐
ES1529109-016	[20-Aug-2015]	BH04_1.0-1.1	☐		☐	☐		
ES1529109-017	[20-Aug-2015]	BH04_2.3-2.4	☐					
ES1529109-018	[20-Aug-2015]	BH05_0.5-0.6	☐					
ES1529109-019	[20-Aug-2015]	BH07A_0.5-0.6	☐	☐	☐	☐	☐	
ES1529109-020	[20-Aug-2015]	BH11_0.2-0.3	☐		☐	☐		
ES1529109-021	[20-Aug-2015]	BH11_2.3-2.4	☐					☐
ES1529109-022	[20-Aug-2015]	BH11_3.3-3.4	☐					
ES1529109-023	[20-Aug-2015]	BH05_1.0-1.1	☐		☐	☐		
ES1529109-024	[20-Aug-2015]	BH05_2.3-2.4	☐					
ES1529109-025	[20-Aug-2015]	BH08_0.17-0.18	☐			☐	☐	
ES1529109-026	[20-Aug-2015]	BH08_1.0-1.1	☐					☐
ES1529109-027	[20-Aug-2015]	BH08_2.5-2.6	☐		☐	☐		
ES1529109-028	[20-Aug-2015]	BH08_3.7-3.8	☐					
ES1529109-029	[20-Aug-2015]	BH13_0.4-0.5	☐		☐	☐		
ES1529109-030	[20-Aug-2015]	BH13_3.6-3.7	☐				☐	
ES1529109-031	[20-Aug-2015]	QC200	☐		☐	☐		
ES1529109-032	[21-Aug-2015]	BH12_1.0-1.1	☐			☐		
ES1529109-033	[21-Aug-2015]	BH12_1.8-1.9		☐				
ES1529109-034	[21-Aug-2015]	BH12_3.6-3.7	☐					
ES1529109-035	[21-Aug-2015]	BH07B_1.2-1.3	☐	☐			☐	☐
ES1529109-036	[21-Aug-2015]	BH07B_2.3-2.4	☐					

			SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1529109-037	[21-Aug-2015]	BH10_0.15-0.25	☐				☐	
ES1529109-038	[21-Aug-2015]	BH09_0.25-0.35	☐		☐	☐		
ES1529109-039	[21-Aug-2015]	BH12_0.15-0.25	☐		☐	☐		
ES1529109-040	[21-Aug-2015]	BH01_0.3-0.4		☐				
ES1529109-041	[21-Aug-2015]	BH01_1.0-1.1	☐				☐	☐
ES1529109-042	[21-Aug-2015]	BH01_3.8-3.9	☐					
ES1529109-043	[21-Aug-2015]	BH16_0.7-0.8	☐				☐	☐
ES1529109-044	[21-Aug-2015]	BH17_1.0-1.1	☐					
ES1529109-045	[21-Aug-2015]	BH21_0.7-0.8	☐	☐				☐
ES1529109-046	[21-Aug-2015]	QC202	☐					☐
ES1529109-047	[21-Aug-2015]	QC102	☐					
ES1529109-048	[22-Aug-2015]	BH21_2.7-2.8	☐					
ES1529109-049	[22-Aug-2015]	BH21_3.0-3.1	☐					
ES1529109-050	[22-Aug-2015]	BH19_2.0-2.2	☐					
ES1529109-051	[22-Aug-2015]	BH17_2.0-2.1	☐					☐
ES1529109-052	[22-Aug-2015]	BH16_2.0-2.1	☐					

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) SOIL No analysis requested	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - S-04 TRH/BTEXN	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-19 TRH/BTEXN/P/Ph/OC/OP/PCB/8 metals	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1529109-009	[21-Aug-2015]	BH14_4.0-4.1		☐	☐	☐			
ES1529109-011	[21-Aug-2015]	BH09_4.5-4.6		☐					☐
ES1529109-013	[21-Aug-2015]	BH10_4.0-4.1					☐		
ES1529109-017	[20-Aug-2015]	BH04_2.3-2.4					☐		
ES1529109-018	[20-Aug-2015]	BH05_0.5-0.6		☐				☐	
ES1529109-022	[20-Aug-2015]	BH11_3.3-3.4				☐			
ES1529109-024	[20-Aug-2015]	BH05_2.3-2.4					☐		
ES1529109-028	[20-Aug-2015]	BH08_3.7-3.8					☐		
ES1529109-034	[21-Aug-2015]	BH12_3.6-3.7				☐			
ES1529109-036	[21-Aug-2015]	BH07B_2.3-2.4					☐		
ES1529109-042	[21-Aug-2015]	BH01_3.8-3.9				☐			
ES1529109-044	[21-Aug-2015]	BH17_1.0-1.1					☐		
ES1529109-047	[21-Aug-2015]	QC102				☐			
ES1529109-048	[22-Aug-2015]	BH21_2.7-2.8					☐		

			(On Hold) SOIL No analysis requested	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - S-04 TRH/BTEXN	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-19 TRH/BTEXN/P/Ph/OC/OP/PCB/8 metals	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1529109-049	[22-Aug-2015]	BH21_3.0-3.1				☐			
ES1529109-050	[22-Aug-2015]	BH19_2.0-2.2					☐		
ES1529109-052	[22-Aug-2015]	BH16_2.0-2.1					☐		
ES1529109-053	[21-Aug-2015]	BH22_1.3-1.4	☐						
ES1529109-054	[21-Aug-2015]	BH22_1.7-1.8	☐						
ES1529109-055	[21-Aug-2015]	BH22_3.9-4.0	☐						
ES1529109-056	[21-Aug-2015]	BH14_1.0-1.1	☐						
ES1529109-057	[21-Aug-2015]	BH14_3.0-3.1	☐						
ES1529109-058	[21-Aug-2015]	BH09_1.5-1.6	☐						
ES1529109-059	[21-Aug-2015]	BH09_2.2-2.3	☐						
ES1529109-060	[21-Aug-2015]	BH09_3.0-3.1	☐						
ES1529109-062	[21-Aug-2015]	BH10_2.1-2.2	☐						
ES1529109-063	[21-Aug-2015]	BH10_3.0-3.1	☐						
ES1529109-064	[20-Aug-2015]	BH04_0.15-0.25	☐						
ES1529109-065	[20-Aug-2015]	BH04_1.5-1.6	☐						
ES1529109-066	[20-Aug-2015]	BH04_2.7-2.8	☐						
ES1529109-067	[20-Aug-2015]	BH04_3.5-3.6	☐						
ES1529109-068	[20-Aug-2015]	BH05_0.25-0.35	☐						
ES1529109-069	[20-Aug-2015]	BH08_4.4-4.5	☐						
ES1529109-070	[20-Aug-2015]	BH07A_0.15-0.25	☐						
ES1529109-071	[20-Aug-2015]	BH07_0.4-0.5	☐						
ES1529109-072	[20-Aug-2015]	BH11_0.5-0.6	☐						
ES1529109-073	[20-Aug-2015]	BH11_1.0-1.1	☐						
ES1529109-074	[20-Aug-2015]	BH11_2.0-2.1	☐						
ES1529109-075	[20-Aug-2015]	BH11_3.0-3.1	☐						
ES1529109-076	[20-Aug-2015]	BH13_0.2-0.3	☐						
ES1529109-077	[20-Aug-2015]	BH05_1.5-1.6	☐						
ES1529109-078	[20-Aug-2015]	BH05_2.7-2.8	☐						
ES1529109-079	[20-Aug-2015]	BH05_3.0-3.1	☐						
ES1529109-080	[20-Aug-2015]	BH05_37-3.8	☐						
ES1529109-081	[20-Aug-2015]	BH08_0.5-0.6	☐						
ES1529109-082	[20-Aug-2015]	BH08_4.0-4.2	☐						
ES1529109-083	[20-Aug-2015]	BH13_0.6-0.7	☐						
ES1529109-084	[20-Aug-2015]	BH13_1.0-1.1	☐						
ES1529109-085	[20-Aug-2015]	BH13_1.5-1.6	☐						
ES1529109-086	[20-Aug-2015]	BH13_2.7-2.8	☐						
ES1529109-087	[20-Aug-2015]	BH13_3.0-3.1	☐						
ES1529109-088	[21-Aug-2015]	BH07B_0.2-0.3	☐						
ES1529109-089	[21-Aug-2015]	BH07B_0.5-0.6	☐						
ES1529109-090	[21-Aug-2015]	BH07B_0.8-0.9	☐						
ES1529109-091	[21-Aug-2015]	BH07B_1.0-1.1	☐						

			(On Hold) SOIL No analysis requested	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - S-04 TRH/BTEXN	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-19 TRH/BTEXN/P/Ph/OC/OP/PCB/8 metals	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1529109-092	[21-Aug-2015]	BH12_1.5-1.6	☐						
ES1529109-093	[21-Aug-2015]	BH12_3.7-3.8	☐						
ES1529109-094	[21-Aug-2015]	BH07B_1.6-1.7	☐						
ES1529109-095	[21-Aug-2015]	BH07B_2.8-2.9	☐						
ES1529109-096	[21-Aug-2015]	BH10_0.4-0.5	☐						
ES1529109-097	[21-Aug-2015]	BH09_0.15-0.25	☐						
ES1529109-098	[21-Aug-2015]	BH09_0.4-0.5	☐						
ES1529109-099	[21-Aug-2015]	BH12_0.5-0.6	☐						
ES1529109-100	[21-Aug-2015]	BH12_0.6-0.7	☐						
ES1529109-101	[21-Aug-2015]	BH01_2.0-2.1	☐						
ES1529109-102	[21-Aug-2015]	BH01_2.8-3.0	☐						
ES1529109-104	[21-Aug-2015]	BH16_1.0-1.1	☐						
ES1529109-105	[21-Aug-2015]	BH16_0.5-0.6	☐						
ES1529109-106	[21-Aug-2015]	BH17_0.7-0.8	☐						
ES1529109-107	[21-Aug-2015]	BH17_0.2-0.3	☐						
ES1529109-108	[21-Aug-2015]	BH19_0.11-0.15	☐						
ES1529109-109	[21-Aug-2015]	BH21_0.25-0.35	☐						
ES1529109-110	[21-Aug-2015]	BH21_0.20-0.25	☐						
ES1529109-111	[21-Aug-2015]	BH21_1.0-1.1	☐						
ES1529109-112	[22-Aug-2015]	BH21_3.8-3.9	☐						
ES1529109-113	[22-Aug-2015]	BH19_0.6-0.7	☐						
ES1529109-114	[22-Aug-2015]	BH19_1.0-1.1	☐						
ES1529109-115	[22-Aug-2015]	BH19_1.4-1.5	☐						
ES1529109-116	[22-Aug-2015]	BH19_3.0-3.1	☐						
ES1529109-117	[22-Aug-2015]	BH19_3.8-3.9	☐						
ES1529109-118	[22-Aug-2015]	BH16_3.0-3.1	☐						
ES1529109-119	[22-Aug-2015]	BH16_4.0-4.1	☐						
ES1529109-120	[22-Aug-2015]	BH16_5.0-5.1	☐						
ES1529109-121	[22-Aug-2015]	QC103	☐						
ES1529109-122	[21-Aug-2015]	BH09_4.2-4.3	☐						
ES1529109-123	[21-Aug-2015]	BH12_3.2-3.3	☐						
ES1529109-124	[21-Aug-2015]	BH10_1.0-1.1	☐						
ES1529109-125	[20-Aug-2015]	BH11_3.6-3.7	☐						
ES1529109-126	[21-Aug-2015]	BH19_0.25-0.30	☐						

Matrix: **SOLID**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOLID - EA200B Asbestos Identification in Bulk Solids (Excluding
ES1529109-002	[21-Aug-2015]	BH22_0.45	☐

Proactive Holding Time Report

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

Requested Deliverables

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- A4 - AU Tax Invoice (INV)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com

AP_CUSTOMER SERVICE ANZ

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

KATE PIGRAM

- *AU Certificate of Analysis - NATA (COA)	Email	kate.pigram@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.pigram@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.pigram@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.pigram@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.pigram@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.pigram@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.pigram@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.pigram@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	kate.pigram@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.pigram@aecom.com

LAUREN GIBB

- *AU Certificate of Analysis - NATA (COA)	Email	Lauren.Gibb@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Lauren.Gibb@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Lauren.Gibb@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Lauren.Gibb@aecom.com
- A4 - AU Tax Invoice (INV)	Email	Lauren.Gibb@aecom.com
- Chain of Custody (CoC) (COC)	Email	Lauren.Gibb@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	Lauren.Gibb@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Lauren.Gibb@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	Lauren.Gibb@aecom.com
- EDI Format - XTab (XTAB)	Email	Lauren.Gibb@aecom.com

Chain of Custody

AECOM

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com; Kate.Pigram@aecom.com; Lauren.Gibb@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Subcon / Forward Lab / Split WO
Lab / Analysis: NEWCASTLE: ASBESTOS ENVIRONS: QC100, QC20
Organised By / Date:
Relinquished By / Date: Kate
Courier:
WO No +
Attach By PD / Internal Sheet:
Other: ESB2401

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: fil'ed	acid	ice	other	Container (No. & type)	TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence	ACM Fragment	Phenols	VHCs	HOLD
(1)	BH22_0.3-0.4	21/08/2015	X					X		1 x 250mL soil jar					X				
(2)	BH22_0.45	21/08/2015	X					X		1 x bag						X			
(3)	BH22_0.8-0.9	21/08/2015	X					X		1 x 250mL soil jar		X	X						
53	BH22_1.3-1.4	21/08/2015	X					X		1 x 250mL soil jar									
51	BH22_1.7-1.8	21/08/2015	X					X		1 x 250mL soil jar									X
(4)	BH22_2.2-2.3	21/08/2015	X					X		1 x 250mL soil jar	X	X	X						X
55	BH22_3.9-4.0	21/08/2015	X					X		1 x 250mL soil jar									
(5)	BH22_4.5-4.7	21/08/2015	X					X		1 x 250mL soil jar	X	X	X						X
(6)	BH15_0.4-0.5	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag		X	X		X				
(7)	BH14_0.45-0.55	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag				X					
56	BH14_1.0-1.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									
(8)	BH14_1.8-1.9	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag		X	X	X					X

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Relinquished by: Kate Pigram Signed: Date: 24/08/2015
Recieved by: Signed: Date:
Relinquished by: Signed: Date:
Recieved by: Signed: Date: 24/8/15

Lab Report No. Esky ID

Environmental Division
Sydney
Work Order Reference
ES1529109

Telephone : + 61-2-8784 8555

Printed copies of this document are uncontrolled

Chain of Custody

AECOM

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Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com; Kate.Pigram@aecom.com; Lauren.Gibb@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By. Kate Pigram & Lauren Gibb | AECOM Project No: 60438840/1.1 | Project Name: Burrows | PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email :	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presen	ACM Fragment	Phenols	VHCs	HOLD	Other
57	BH14_3.0-3.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
(9)	BH14_4.0-4.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X						X	X		
58	BH09_1.5-1.6	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
59	BH09_2.2-2.3	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
60	BH09_3.0-3.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
(10)	BH09_4.0-4.2	21/08/2015	X					X		1 x 250 ml soil jar		X	X							
(11) 122	BH09_4.2-4.3	21/08/2015	X					X		1 x 250 ml soil jar									X	
(12)	BH09_4.5-4.6	21/08/2015	X					X		1 x 250 ml soil jar	X	X	X				X	X		
(12)	BH06_0.7-0.8	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag			X	X	X					
N-R 61	BH06_1.0-1.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
62	BH10_2.1-2.2	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
63	BH10_3.0-3.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No. | Esky ID

Relinquished by: Kate Pigram | Signed: | Date: 24/08/2015
Recieved by: | Signed: | Date:
Relinquished by: | Signed: | Date:
Recieved by: Fazi | Signed: | Date: 24/8/15

4pm

Chain of Custody

AECOM

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com;
Kate.Pigram@aecom.com; Lauren.Gibb@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email: _____	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Present	ACM Fragment	Phenols	VHCs	HOLD	Other
(13)	BH10_4.0-4.1	21/08/2015	X					X		1 x 250ml soil jar	X		X							
	QC100	21/08/2015	X					X		1 x 250ml soil jar	X	X	X							Please forward sample QC100 to Envirolab with copy of COC
(14)	QC101	21/08/2015	X					X		1 x 250ml soil jar		X	X							
64	BH04_0.15-0.25	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(15)	BH04_0.5-0.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X	X	X							
(16)	BH04_1.0-1.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X							
65	BH04_1.5-1.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(17)	BH04_2.3-2.4	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X		X							
66	BH04_2.7-2.8	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
67	BH04_3.5-3.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
68	BH05_0.25-0.35	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(18)	BH05_0.5-0.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X	X	X	X		X	X			

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: . Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No

Esky ID

Relinquished by:	Kate Pigram	Signed:	Date: 24/08/2015	Relinquished by:	Signed: Date:
Recieved by:		Signed:	Date:	Recieved by:	Signed: Date: 24/8/15

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Chain of Custody

AECOM

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Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com; Kate.Pigram@aecom.com; Lauren.Gibb@aecom.com

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Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix			Preservation				Container	Analysis Request															Other				
			soil	water	other	filt'ed	acid	ice	other	(No. & type)	TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Present	ACM Fragment	Phenols	VHCs							HOLD						
69	BH08_4.4-4.5	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					
70	BH07A_0.15-0.25	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					
(19)	BH07A_0.5-0.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X	X	X														
71	BH07_0.4-0.5	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					
(20)	BH11_0.2-0.3	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X																
72	BH11_0.5-0.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					
73	BH11_1.0-1.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					
74	BH11_2.0-2.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					
(21)	BH11_2.3-2.4	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X	X	X																
75	BH11_3.0-3.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					
(22)	BH11_3.3-3.4	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X																		
76	BH13_0.2-0.3	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag														X					

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: - Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

Esky ID

Relinquished by:	Kate Pigram	Signed:		Date: 24/08/2015	Relinquished by:	Signed:	Date:
Recieved by:		Signed:		Date:	Recieved by:	Signed:	Date: 24/8/15

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Laboratory Details
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Contact Name:
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Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix			Preservation				Container	Analysis Request															Other					
			soil	water	other	filt'ed	acid	ice	other	(No. & type)	TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Present	ACM Fragment	Phenols	VHCs								HOLD						
(23)	BH05_1.0-1.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X																		
77	BH05_1.5-1.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag																X					
(24)	BH05_2.3-2.4	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X		X																		
78	BH05_2.7-2.8	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag																X					
79	BH05_3.0-3.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag																X					
80	BH05_3.7-3.8	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag																X					
(25)	BH08_0.17-0.18	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag			X	X																	
81	BH08_0.5-0.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag																X					
(26)	BH08_1.0-1.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X	X	X																		
(27)	BH08_2.5-2.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X																		
(28)	BH08_3.7-3.8	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X		X																		
82	BH08_4.0-4.2	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag																X					

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

Esky ID

Relinquished by:	Kate Pigram	Signed:		Date: 24/08/2015	Relinquished by:	Signed:	Date:
Recieved by:		Signed:		Date:	Recieved by:	Signed:	Date: 24/8/15

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Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
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5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix			Preservation				Container	Analysis Request															Other					
			soil	water	other	filt'ed	acid	ice	other	(No. & type)	TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence	ACM Fragment	Phenols	VHCs							HOLD							
(29)	BH13_0.4-0.5	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X																		
83	BH13_0.6-0.7	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
84	BH13_1.0-1.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
85	BH13_1.5-1.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
86	BH13_2.7-2.8	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
87	BH13_3.0-3.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
(30)	BH13_3.6-3.7	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag				X																	
(31)	QC200	20/08/2015	X					X		1 x 250 mL soil jar		X	X																		
88	BH07B_0.2-0.3	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
89	BH07B_0.5-0.6	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
90	BH07B_0.8-0.9	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						
91	BH07B_1.0-1.1	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag															X						

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

Esky ID

Relinquished by:	Kate Pigram	Signed:		Date: 24/08/2015	Relinquished by:	Signed:	Date:
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Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence	ACM Fragment	Phenols	VHCs	HOLD	Other
(32)	BH12_1.0-1.1	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag			X							
92	BH12_1.5-1.6	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(33)	BH12_1.8-1.9	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag					X					
(123)	BH12_3.2-3.3	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(34)	BH12_3.6-3.7	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X									
93	BH12_3.7-3.8	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
✔	QC201	21/08/2015	X					X		1 x 250 mL soil jar	X	X	X	X			X	X	Please forward sample QC201 to Envirolab with COC	

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

Esky ID

Relinquished by:	Kate Pigram	Signed:		Date: 24/08/2015	Relinquished by:	Signed:	Date:
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Sampled By: Kate Pigram & Lauren Gibb
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3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email :	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: Ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence	ACM Fragment	Phenols	VHCs	HOLD	Other
(35)	BH07B_1.2-1.3	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X	X	X	X	X					
94	BH07B_1.6-1.7	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(36)	BH07B_2.3-2.4	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X		X							
95	BH07B_2.8-2.9	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(37)	BH10_0.15-0.25	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag				X						
96	BH10_0.4-0.5	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
97	BH09_0.15-0.25	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(38)	BH09_0.25-0.35	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X							
98	BH09_0.4-0.5	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(39)	BH12_0.15-0.25	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X							
99	BH12_0.5-0.6	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
100	BH12_0.6-0.7	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

Esky ID

Relinquished by: Kate Pigram Signed: [signature] Date: 24/08/2015

Recieved by: Signed: Date:

Relinquished by: Signed: Date:

Recieved by: [signature] Signed: [signature] Date: 24/8/15

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Sampled By: Kate Pigram & Lauren Gibb
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Project Name: Burrows
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3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email :	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence	ACM Fragment	Phenols	VHCs	HOLD	Other
(40)	BH01_0.3-0.4	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag					X					
(41)	BH01_1.0-1.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X	X	X	X						
101	BH01_2.0-2.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
102	BH01_2.8-3.0	21/08/2015	X					X		1 x 250mL soil jar									X	
(42)	BH01_3.8-3.9	21/08/2015	X					X		1 x 250mL soil jar	X									
N.R 103	BH16_0.11-0.15	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
(43)	BH16_0.7-0.8	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X	X	X	X						
104	BH16_1.0-1.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
105	BH16_0.5-0.6	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
106	BH17_0.7-0.8	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
(44)	BH17_1.0-1.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X		X							
107	BH17_0.2-0.3	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No

Esky ID

Relinquished by:	Kate Pigram	Signed:		Date: 24/08/2015	Relinquished by:	Signed:	Date:
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2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
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6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix			Preservation				Container	Analysis Request															Other					
			soil	water	other	filt'ed	acid	ice	other	(No. & type)	TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Present	ACM Fragment	Phenols	VHCs								HOLD						
108	BH19_0.11-0.15	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag															X						
109	BH21_0.25-0.35	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag															X						
110	BH21_0.20-0.25	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag															X						
(45)	BH21_0.7-0.8	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X	X	X		X																
111	BH21_1.0-1.1	21/08/2015	X					X		1 x 250ml soil jar & 1 x bag															X						
(46)	QC202	21/08/2015	X					X		1 x 250ml soil jar	X	X	X																		
(47)	QC102	21/08/2015	X					X		1 x 250ml soil jar	X																				
(48)	BH21_2.7-2.8	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X		X																		
(49)	BH21_3.0-3.1	22/08/2015	X					X		1 x 250ml soil jar	X																				
112	BH21_3.8-3.9	22/08/2015	X					X		1 x 250ml soil jar															X						
113	BH19_0.6-0.7	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag															X						
114	BH19_1.0-1.1	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag															X						

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

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Relinquished by:	Kate Pigram	Signed:	Date: 24/08/2015	Relinquished by:		Signed:	Date:
Recieved by:		Signed:	Date:	Recieved by:	TAS	Signed:	Date: 24/8/15

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6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence	ACM Fragment	Phenols	VHCs	HOLD	Other
115	BH19_1.4-1.5	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
(50)	BH19_2.0-2.2	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X		X							
116	BH19_3.0-3.1	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
117	BH19_3.8-3.9	22/08/2015	X					X		1 x 250ml soil jar									X	
(51)	BH17_2.0-2.1	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X	X	X							
(52)	BH16_2.0-2.1	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag	X		X							
118	BH16_3.0-3.1	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
119	BH16_4.0-4.1	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
120	BH16_5.0-5.1	22/08/2015	X					X		1 x 250ml soil jar & 1 x bag									X	
121	QC103	22/08/2015	X					X		1 x 250ml soil jar									X	

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

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Recieved by:		Signed:	Date:	Recieved by: TAS!	Signed: Date: 24/8/15

Received Extra Sample

(124) BH10_1.0 1-1 21-8-15
(125) BH11_3-6-3-7 20-8-15
(126) BH9_0.25-0.30 21-8-15

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Fadi Soro

From: Barbara Hanna
Sent: Monday, 24 August 2015 3:56 PM
To: Fadi Soro; Wael Saleh
Subject: FW: Burrows COCs 60438840
Attachments: 60438840_Signed COCs_20150804.pdf

COC's for AECOM samples on hold

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

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Smithfield NSW 2164 Australia

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F +61 2 8784 8500

www.alsglobal.com

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From: Pigram, Kate [mailto:Kate.Pigram@aecom.com]
Sent: Monday, 24 August 2015 3:30 PM

To: Barbara Hanna
Cc: Latham, Alex
Subject: Burrows COCs 60438840

Hi Barbara,

Can you please forward the attached populated COCs to sample receipt for processing?

6 x eskies were picked up from Site (1-3 Burrows Road, Alexandria) on Friday afternoon (21 August), and 3 x eskies were picked up from AECOM Sydney Office today (24 August).

Kind Regards,

Kate Pigram
Senior Environmental Scientist
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Kate.Pigram@aecom.com

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enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 133208

Client:

AECOM Australia Pty Ltd (Sydney)
PO Box Q410
QVB Post Office
Sydney
NSW 1230

Attention: Alex Latham, Kate Pigram, Lauren Gibb

Sample log in details:

Your Reference:	**60438840/1.1, Burrows**
No. of samples:	2 Soils
Date samples received / completed instructions received	25/08/15 / 25/08/15

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	1/09/15 / 1/09/15
Date of Preliminary Report:	Not Issued

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Results Approved By:

Jacinta Hurst
Laboratory Manager

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

VHC's in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	 133208-2 QC201 21/08/2015 Soil
Date extracted	-	26/08/2015
Date analysed	-	27/08/2015
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
carbon tetrachloride	mg/kg	<1
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
bromoform	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
1,2,3-trichloropropane	mg/kg	<1
bromobenzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1

VHC's in soil		
Our Reference:	UNITS	133208-2
Your Reference	----------	QC201
Date Sampled	----------	21/08/2015
Type of sample		Soil
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	96
Surrogate aaa-Trifluorotoluene	%	77
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	94

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	133208-1	133208-2
Your Reference	----------	QC100	QC201
Date Sampled	----------	21/08/2015	21/08/2015
Type of sample		Soil	Soil
Date extracted	-	26/08/2015	26/08/2015
Date analysed	-	27/08/2015	27/08/2015
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	77

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	133208-1	133208-2
Your Reference	----------	QC100	QC201
Date Sampled	----------	21/08/2015	21/08/2015
Type of sample		Soil	Soil
Date extracted	-	26/08/2015	26/08/2015
Date analysed	-	26/08/2015	26/08/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	380
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	420
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	730
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	170
Surrogate o-Terphenyl	%	95	113

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	133208-1 QC100 21/08/2015 Soil	133208-2 QC201 21/08/2015 Soil
Date extracted	-	26/08/2015	26/08/2015
Date analysed	-	26/08/2015	26/08/2015
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.2
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.5
Anthracene	mg/kg	<0.1	0.2
Fluoranthene	mg/kg	<0.1	1.2
Pyrene	mg/kg	<0.1	1.4
Benzo(a)anthracene	mg/kg	<0.1	1
Chrysene	mg/kg	<0.1	1.0
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	2.6
Benzo(a)pyrene	mg/kg	<0.05	1.6
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	1.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	1.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	2.2
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	2.2
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	2.2
Total Positive PAHs	mg/kg	NIL (+)VE	12
Surrogate p-Terphenyl-d14	%	107	113

Organochlorine Pesticides in soil		
Our Reference:	UNITS	133208-2
Your Reference	----------	QC201
Date Sampled	----------	21/08/2015
Type of sample		Soil
Date extracted	-	26/08/2015
Date analysed	-	28/08/2015
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	104

Organophosphorus Pesticides		
Our Reference:	UNITS	133208-2
Your Reference	----------	QC201
Date Sampled	----------	21/08/2015
Type of sample		Soil
Date extracted	-	26/08/2015
Date analysed	-	28/08/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.30
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	104

PCBs in Soil		
Our Reference:	UNITS	133208-2
Your Reference	----------	QC201
Date Sampled	----------	21/08/2015
Type of sample		Soil
Date extracted	-	26/08/2015
Date analysed	-	28/08/2015
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	104

Acid Extractable metals in soil			
Our Reference:	UNITS	133208-1	133208-2
Your Reference	----------	QC100	QC201
Date Sampled	----------	21/08/2015	21/08/2015
Type of sample		Soil	Soil
Date prepared	-	26/08/2015	26/08/2015
Date analysed	-	26/08/2015	26/08/2015
Arsenic	mg/kg	9	25
Cadmium	mg/kg	<0.4	3
Chromium	mg/kg	11	180
Copper	mg/kg	8	430
Lead	mg/kg	29	14,000
Mercury	mg/kg	<0.1	15
Nickel	mg/kg	6	30
Zinc	mg/kg	64	2,600

Misc Soil - Inorg		
Our Reference:	UNITS	133208-2
Your Reference	----------	QC201
Date Sampled	----------	21/08/2015
Type of sample		Soil
Date prepared	-	26/08/2015
Date analysed	-	26/08/2015
Total Phenolics (as Phenol)	mg/kg	<5

Moisture			
Our Reference:	UNITS	133208-1	133208-2
Your Reference	----------	QC100	QC201
Date Sampled	----------	21/08/2015	21/08/2015
Type of sample		Soil	Soil
Date prepared	-	26/08/2015	26/08/2015
Date analysed	-	27/08/2015	27/08/2015
Moisture	%	39	43

Method ID	Methodology Summary
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL VHC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			27/08/2015	[NT]	[NT]	LCS-1	27/08/2015
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	97%
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	91%
2,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	86%
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	95%
1,1-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	82%
bromodichloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	88%
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	92%
1,2-dibromoethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-1	89%
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VHC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%		Org-014	97	[NT]	[NT]	LCS-1	97%
Surrogate aaa-Trifluorotoluene	%		Org-014	88	[NT]	[NT]	LCS-1	80%
Surrogate Toluene-d_8	%		Org-014	98	[NT]	[NT]	LCS-1	99%
Surrogate 4-Bromofluorobenzene	%		Org-014	94	[NT]	[NT]	LCS-1	98%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			27/08/2015	[NT]	[NT]	LCS-1	27/08/2015
TRHC_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	89%
TRHC_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	89%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	91%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	88%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	89%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	88%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	87%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	88	[NT]	[NT]	LCS-1	80%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
TRHC_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	112%
TRHC_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	105%
TRHC_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	91%
TRH>C_{10}-C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	112%
TRH>C_{16}-C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	105%
TRH>C_{34}-C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	91%
Surrogate o-Terphenyl	%		Org-003	92	[NT]	[NT]	LCS-1	80%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	89%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	93%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	97%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	91%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	95%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	89%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	106%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	110	[NT]	[NT]	LCS-1	106%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			28/08/2015	[NT]	[NT]	LCS-1	28/08/2015
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	73%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	87%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	83%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	89%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	91%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	89%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	96%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	88%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	80%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	87%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	99	[NT]	[NT]	LCS-1	93%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			28/08/2015	[NT]	[NT]	LCS-1	28/08/2015
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	72%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	91%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	105%
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	104%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	118%
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	92%
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	100%
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-008	99	[NT]	[NT]	LCS-1	101%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			28/08/2015	[NT]	[NT]	LCS-1	28/08/2015
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-1	103%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	99	[NT]	[NT]	LCS-1	94%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			26/08/2015	[NT]	[NT]	LCS-3	26/08/2015
Date analysed	-			26/08/2015	[NT]	[NT]	LCS-3	26/08/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-3	102%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-3	93%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	96%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	96%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	92%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-3	98%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	95%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	91%
QUALITY CONTROL Misc Soil - Inorg	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Date analysed	-			26/08/2015	[NT]	[NT]	LCS-1	26/08/2015
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	LCS-1	101%

Report Comments:

OP in soil: PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham, Kate Pigram, Lauren Gibb

Sample Login Details	
Your Reference	60438840/1.1, Burrows
Envirolab Reference	133208
Date Sample Received	25/08/2015
Date Instructions Received	25/08/2015
Date Results Expected to be Reported	01/09/2015

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 Soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	-1.5
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*VHC's in soil*	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Organochlorine Pesticides in soil*	*Organophosphorus Pesticides*	*PCBs in Soil*	*Acid Extractable metals in soil*	*Misc Soil - Inorg*
QC100		✓	✓	✓				✓	
QC201	✓	✓	✓	✓	✓	✓	✓	✓	✓

ENVIROLAB

Chain of Custody

AECOM

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com;
Kate.Pigram@aecom.com; Lauren.Gibb@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence)	ACM Fragment	Phenols	VHCs	HOLD	Other
(13)	BH10_4.0-4.1	21/08/2015	X					X		1 x 250ml soil jar	X		X							
1 **	QC100	21/08/2015	X					X		1 x 250ml soil jar	X	X	X							
(14)	QC101	21/08/2015	X					X		1 x 250ml soil jar		X	X							
64	BH04_0.15-0.25	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag										
(15)	BH04_0.5-0.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X	X	X							
(16)	BH04_1.0-1.1	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag		X	X							
65	BH04_1.5-1.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag										
(17)	BH04_2.3-2.4	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X		X						X	
66	BH04_2.7-2.8	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag										
67	BH04_3.5-3.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
68	BH05_0.25-0.35	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag										
(18)	BH05_0.5-0.6	20/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X	X	X	X		X	X		X	

Please forward sample QC100 to Envirolab with copy of COC

ENVIROLAB group
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 133208
Date Received: 25/8/15
Time Received: 1230
Received by: CB
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: . Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Relinquished by: Kate Pigram Signed: Date: 24/08/2015
Recieved by: Signed: CB Date: 25·8·15

Relinquished by: Signed: Date:
Recieved by: Signed: Date: 24/8/15

Lab Report No | Esky ID

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Chain of Custody

AECOM

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com;
Kate.Pigram@aecom.com; Lauren.Gibb@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram & Lauren Gibb
AECOM Project No: 60438840/1.1
Project Name: Burrows
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email :	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAHs	8 Metals	OCP, OPP, PCB	Asbestos in Soil(Absence/Presence	ACM Fragment	Phenols	VHCs	HOLD	Other
(32)	BH12_1.0-1.1	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag			X							
92	BH12_1.5-1.6	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(33)	BH12_1.8-1.9	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag					X					
(123)	BH12_3.2-3.3	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
(34)	BH12_3.6-3.7	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag	X									
93	BH12_3.7-3.8	21/08/2015	X					X		1 x 250 mL soil jar & 1 x bag									X	
2	QC201	21/08/2015	X					X		1 x 250 mL soil jar	X	X	X	X			X	X		Please forward sample QC201 to Envirolab with COC

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No: Esky ID:

Relinquished by:	Kate Pigram	Signed:	Date: 24/08/2015	Relinquished by:	Signed: Date:
Recieved by:		Signed:	Date:	Recieved by: TAS	Signed: Date: 24/8/15

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CERTIFICATE OF ANALYSIS

Work Order	: **ES1529984**	Page	: 1 of 7
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 Burrows	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 01-Sep-2015 10:50
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: ----	Issue Date	: 08-Sep-2015 16:47
Site	: ----		
		No. of samples received	: 10
Quote number	: ----	No. of samples analysed	: 10

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics

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.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EG035T: Poor precision was obtained for Mercury on sample ES1529984 # 4 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.
- EG050G-C: LOR raised for Hexavalent Chromium due to sample matrix.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) 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.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) 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.

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH01_3.8-3.9	BH11_3.3-3.4	BH12_3.6-3.7	BH16_3.0-3.1	BH21_3.0-3.1
			Client sampling date / time	[21-Aug-2015]	[20-Aug-2015]	[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
Compound	CAS Number	LOR	Unit	ES1529984-001	ES1529984-002	ES1529984-003	ES1529984-004	ES1529984-005
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	32.0	42.7	50.0	35.0	21.6
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	22	385	71	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	9	10	<1
Chromium	7440-47-3	2	mg/kg	----	23	36	182	7
Copper	7440-50-8	5	mg/kg	----	78	576	7430	11
Lead	7439-92-1	5	mg/kg	----	142	2770	4370	42
Nickel	7440-02-0	2	mg/kg	----	15	37	254	6
Zinc	7440-66-6	5	mg/kg	----	550	5750	14000	90
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	0.3	0.9	1.7	<0.1
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	----	----	----	----	----
After HCl pH	----	0.1	pH Unit	----	----	----	----	----
Extraction Fluid Number	----	1	-	----	----	----	----	----
Final pH	----	0.1	pH Unit	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	<0.5

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01_3.8-3.9	BH11_3.3-3.4	BH12_3.6-3.7	BH16_3.0-3.1	BH21_3.0-3.1
				Client sampling date / time	[21-Aug-2015]	[20-Aug-2015]	[21-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]
Compound	CAS Number	LOR	Unit		ES1529984-001	ES1529984-002	ES1529984-003	ES1529984-004	ES1529984-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **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**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**96.5**	----	----	----	**91.4**
2-Chlorophenol-D4	93951-73-6	0.5	%		**108**	----	----	----	**101**
2.4.6-Tribromophenol	118-79-6	0.5	%		**73.3**	----	----	----	**72.2**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**101**	----	----	----	**96.5**
Anthracene-d10	1719-06-8	0.5	%		**106**	----	----	----	**121**
4-Terphenyl-d14	1718-51-0	0.5	%		**104**	----	----	----	**99.5**

Sub-Matrix: SOIL
(Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Client sample ID	BH4_1.0-1.1	BH16_2.0-2.1	BH17_2.0-2.1	BH21_0.7-0.8	BH22_2.2-2.3
				Client sampling date / time	[20-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
					ES1529984-006	ES1529984-007	ES1529984-008	ES1529984-009	ES1529984-010
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		----	----	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		----	----	----	----	----
Chromium	7440-47-3	2	mg/kg		----	----	----	----	----
Copper	7440-50-8	5	mg/kg		----	----	----	----	----
Lead	7439-92-1	5	mg/kg		----	----	----	----	----
Nickel	7440-02-0	2	mg/kg		----	----	----	----	----
Zinc	7440-66-6	5	mg/kg		----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	----	----	----	----
EN33: TCLP Leach									
Initial pH	----	0.1	pH Unit		8.6	8.3	7.1	7.6	9.4
After HCl pH	----	0.1	pH Unit		1.9	2.2	1.8	1.5	1.6
Extraction Fluid Number	----	1	-		1	1	1	1	1
Final pH	----	0.1	pH Unit		5.9	5.4	6.2	4.9	5.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	----

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	BH4_1.0-1.1	BH16_2.0-2.1	BH17_2.0-2.1	BH21_0.7-0.8	BH22_2.2-2.3
				Client sampling date / time	[20-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
					ES1529984-006	ES1529984-007	ES1529984-008	ES1529984-009	ES1529984-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		----	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	----	----

Sub-Matrix: **TCLP LEACHATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	BH4_1.0-1.1	BH16_2.0-2.1	BH17_2.0-2.1	BH21_0.7-0.8	BH22_2.2-2.3
				Client sampling date / time	[20-Aug-2015]	[22-Aug-2015]	[22-Aug-2015]	[21-Aug-2015]	[21-Aug-2015]
					ES1529984-006	ES1529984-007	ES1529984-008	ES1529984-009	ES1529984-010
					Result	Result	Result	Result	Result
EG005C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		**0.4**	----	----	----	<0.1
Lead	7439-92-1	0.1	mg/L		**15.9**	----	----	----	**47.1**
Nickel	7440-02-0	0.1	mg/L		----	----	----	----	**0.6**
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.001	mg/L		----	<0.0010	----	----	----
EG050G: Hexavalent Chromium by Discrete Analyser									
Hexavalent Chromium	18540-29-9	0.01	mg/L		----	----	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	<0.5	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1	%		**22.2**	----	----	**20.0**	----
2-Chlorophenol-D4	93951-73-6	1	%		**47.3**	----	----	**38.9**	----
2.4.6-Tribromophenol	118-79-6	1	%		**39.5**	----	----	**40.7**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1	%		**72.8**	----	----	**67.6**	----
Anthracene-d10	1719-06-8	1	%		**87.0**	----	----	**61.5**	----
4-Terphenyl-d14	1718-51-0	1	%		**76.8**	----	----	**72.7**	----

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1529984**	Page	: 1 of 7
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 Burrows	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 01-Sep-2015
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: ----	Issue Date	: 08-Sep-2015
Site	: ----	No. of samples received	: 10
Quote number	: ----	No. of samples analysed	: 10

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

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics

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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

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 (%)*
EA055: Moisture Content (QC Lot: 201817)									
ES1529984-001	BH01_3.8-3.9	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	32.0	32.4	1.28	0% - 20%
ES1529986-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.3	19.2	5.27	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 204711)									
ES1529478-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	9	37.1	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	7	20.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	30	32	6.29	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	174	192	10.1	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	169	171	1.22	0% - 20%
ES1529984-003	BH12_3.6-3.7	EG005T: Cadmium	7440-43-9	1	mg/kg	9	5	57.3	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	36	32	11.6	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	37	30	19.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	385	326	16.6	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	576	674	15.8	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	2770	2280	19.2	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	5750	6570	13.3	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 204712)									
ES1529478-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	0.00	No Limit
ES1529984-003	BH12_3.6-3.7	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.9	0.7	19.2	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 201900)									
ES1529968-018	Anonymous	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.7	0.7	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): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.7	0.8	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.7	0.7	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): Fluoranthene	206-44-0	0.5	mg/kg	3.0	2.5	15.7	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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: 201900) - continued									
ES1529968-018	Anonymous	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): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.6	0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	2.5	2.2	14.1	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	8.2	8.0	2.47	0% - 50%
ES1529968-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.9	1.0	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.8	0.9	15.7	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.2	1.3	11.4	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.2	1.5	22.7	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	1.0	0.9	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.6	0.6	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.0	1.0	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): Fluoranthene	206-44-0	0.5	mg/kg	3.3	3.4	3.14	No Limit
		EP075(SIM): Fluorene	86-73-7	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	0.6	0.6	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.6	0.5	17.6	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	3.1	3.1	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	13.1	13.5	3.01	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005C: Leachable Metals by ICPAES (QC Lot: 204954)									
ES1529750-001	Anonymous	EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.00	No Limit
ES1529750-010	Anonymous	EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	0.1	0.1	0.00	No Limit
EG035C: Leachable Mercury by FIMS (QC Lot: 204825)									
ES1529750-001	Anonymous	EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit
ES1529750-011	Anonymous	EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit
EG050G: Hexavalent Chromium by Discrete Analyser (QC Lot: 205903)									
ES1529844-001	Anonymous	EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	0.29	0.29	0.00	0% - 20%

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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 204711)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	102	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.0	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.0	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.2	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	98.7	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	100	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 204712)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.7	70	105
EN33: TCLP Leach (QCLot: 203133)								
EN33a: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201900)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	92.6	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	93.2	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	99.4	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	89.5	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	98.1	76	122
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.7	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	96.5	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.7	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	90.6	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	95.5	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.9	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	91.0	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	87.6	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	96.6	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	96.7	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	95.8	79	125

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005C: Leachable Metals by ICPAES (QCLot: 204954)								
EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.1 mg/L	118	80	124
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	105	83	117
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	109	81	119
EG035C: Leachable Mercury by FIMS (QCLot: 204825)								
EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.8	79	119
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 205903)								
EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.5 mg/L	100	82	124
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 205072)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	92.0	63	117

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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 204711)							
ES1529478-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.0	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	90.6	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	102	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	89.6	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	90.1	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	79.7	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 204712)							
ES1529478-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.5	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201900)							
ES1529968-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.3	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	104	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005C: Leachable Metals by ICPAES (QCLot: 204954)							
ES1529750-002	Anonymous	EG005C: Arsenic	7440-38-2	1 mg/L	120	70	130
		EG005C: Lead	7439-92-1	1 mg/L	107	70	130
		EG005C: Nickel	7440-02-0	1 mg/L	107	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG035C: Leachable Mercury by FIMS (QCLot: 204825)							
ES1529750-002	Anonymous	EG035C: Mercury	7439-97-6	0.01 mg/L	82.0	70	130
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 205903)							
ES1529844-001	Anonymous	EG050G-C: Hexavalent Chromium	18540-29-9	0.5 mg/L	109	70	130

ALS Environmental

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1529984**	Page	: 1 of 6
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60438840/1.1 Burrows	Date Samples Received	: 01-Sep-2015
Site	: ----	Issue Date	: 08-Sep-2015
Sampler	: ----	No. of samples received	: 10
Order number	: 60438840/1.1	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Method Blanks (MB)					
TCLP for Non & Semivolatile Analytes	0	10	0.00	9.09	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	13	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	13	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Analysis Holding Time Compliance

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 / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BH11_3.3-3.4	**20-Aug-2015**	**----**	----	----	**03-Sep-2015**	03-Sep-2015	✓
Soil Glass Jar - Unpreserved (EA055-103) BH01_3.8-3.9, BH12_3.6-3.7	**21-Aug-2015**	**----**	----	----	**03-Sep-2015**	04-Sep-2015	✓
Soil Glass Jar - Unpreserved (EA055-103) BH16_3.0-3.1, BH21_3.0-3.1	**22-Aug-2015**	**----**	----	----	**03-Sep-2015**	05-Sep-2015	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BH11_3.3-3.4	**20-Aug-2015**	**07-Sep-2015**	16-Feb-2016	✓	**07-Sep-2015**	16-Feb-2016	✓
Soil Glass Jar - Unpreserved (EG005T) BH12_3.6-3.7	**21-Aug-2015**	**07-Sep-2015**	17-Feb-2016	✓	**07-Sep-2015**	17-Feb-2016	✓
Soil Glass Jar - Unpreserved (EG005T) BH16_3.0-3.1, BH21_3.0-3.1	**22-Aug-2015**	**07-Sep-2015**	18-Feb-2016	✓	**07-Sep-2015**	18-Feb-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH11_3.3-3.4	**20-Aug-2015**	**07-Sep-2015**	17-Sep-2015	✓	**08-Sep-2015**	17-Sep-2015	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH12_3.6-3.7	**21-Aug-2015**	**07-Sep-2015**	18-Sep-2015	✓	**08-Sep-2015**	18-Sep-2015	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH16_3.0-3.1, BH21_3.0-3.1	**22-Aug-2015**	**07-Sep-2015**	19-Sep-2015	✓	**08-Sep-2015**	19-Sep-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH01_3.8-3.9	**21-Aug-2015**	**03-Sep-2015**	04-Sep-2015	✓	**03-Sep-2015**	13-Oct-2015	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH21_3.0-3.1	**22-Aug-2015**	**03-Sep-2015**	05-Sep-2015	✓	**03-Sep-2015**	13-Oct-2015	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
BH4_1.0-1.1, BH22_2.2-2.3	**04-Sep-2015**	**07-Sep-2015**	02-Mar-2016	✓	**07-Sep-2015**	02-Mar-2016	✓
EG035C: Leachable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035C)							
BH16_2.0-2.1	**04-Sep-2015**	**----**	----	----	**07-Sep-2015**	02-Oct-2015	✓
EG050G: Hexavalent Chromium by Discrete Analyser							
Clear Plastic Bottle - NaOH (EG050G-C)							
BH17_2.0-2.1	**04-Sep-2015**	**----**	----	----	**07-Sep-2015**	02-Oct-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BH4_1.0-1.1, BH21_0.7-0.8	**04-Sep-2015**	**07-Sep-2015**	11-Sep-2015	✓	**08-Sep-2015**	17-Oct-2015	✓

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	EA055-103	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.76	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TCLP for Non & Semivolatile Analytes	EN33a	0	10	0.00	9.09	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	2	50.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Mercury by FIMS	EG035C	2	13	15.38	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	2	15	13.33	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	13	0.00	10.00	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	2	50.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Mercury by FIMS	EG035C	1	13	7.69	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	1	15	6.67	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	2	50.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Mercury by FIMS	EG035C	1	13	7.69	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	1	15	6.67	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Mercury by FIMS	EG035C	1	13	**7.69**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	1	15	**6.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	13	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Leachable Mercury by FIMS	EG035C	SOIL	In house: referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(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 SnCl2 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)
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	SOIL	In house: Referenced to APHA 3500 Cr-A & B. Hexavalent chromium is determined directly on leachate samples by Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) 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)

Preparation Methods	Method	Matrix	Method Descriptions
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
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.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1529984**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
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E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 Burrows	Page	: 1 of 3
Order number	: 60438840/1.1	Quote number	: EB2015AECOMAU0580 (EN/004/15)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 01-Sep-2015 10:50 AM	Issue Date	: 02-Sep-2015
Client Requested Due Date	: 08-Sep-2015	Scheduled Reporting Date	: **08-Sep-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1' C
Receipt Detail	: REBATCH OF ES1529109	No. of samples received / analysed	: 10 / 10

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
- **This is a rebatch of ES1529109.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

No sample container / preservation non-compliance exist.

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.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EG035C Leachable Mercury by FIMS	SOIL - EG050G-C Hexavalent Chromium by Discrete Analyser - SIM - PAH only	SOIL - EP075 SIM PAH only	SOIL - S-02 8 Metals (incl. Digestion)
ES1529984-001	[21-Aug-2015]	BH01_3.8-3.9	☐				☐	
ES1529984-002	[20-Aug-2015]	BH11_3.3-3.4	☐					☐
ES1529984-003	[21-Aug-2015]	BH12_3.6-3.7	☐					☐
ES1529984-004	[22-Aug-2015]	BH16_3.0-3.1	☐					☐
ES1529984-005	[22-Aug-2015]	BH21_3.0-3.1	☐				☐	☐
ES1529984-006	[20-Aug-2015]	BH4_1.0-1.1		☐			☐	
ES1529984-007	[22-Aug-2015]	BH16_2.0-2.1			☐			
ES1529984-008	[22-Aug-2015]	BH17_2.0-2.1				☐		
ES1529984-009	[21-Aug-2015]	BH21_0.7-0.8					☐	
ES1529984-010	[21-Aug-2015]	BH22_2.2-2.3		☐				

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER** Evaluation: = Holding time breach ; ☐ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EP075(SIM): PAH/Phenols (GC/MS - SIM)							
BH21_0.7-0.8	Amber Glass Bottle - Unpreserv	28-Aug-2015	07-Oct-2015	01-Sep-2015		----	----
BH4_1.0-1.1	Amber Glass Bottle - Unpreserv	27-Aug-2015	06-Oct-2015	01-Sep-2015		----	----

Requested Deliverables

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- A4 - AU Tax Invoice (INV)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com

AP_CUSTOMER SERVICE ANZ

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

KATE PIGRAM

- *AU Certificate of Analysis - NATA (COA)	Email	kate.pigram@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.pigram@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.pigram@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.pigram@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.pigram@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.pigram@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.pigram@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.pigram@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	kate.pigram@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.pigram@aecom.com

LAUREN GIBB

- *AU Certificate of Analysis - NATA (COA)	Email	Lauren.Gibb@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Lauren.Gibb@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Lauren.Gibb@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Lauren.Gibb@aecom.com
- A4 - AU Tax Invoice (INV)	Email	Lauren.Gibb@aecom.com
- Chain of Custody (CoC) (COC)	Email	Lauren.Gibb@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	Lauren.Gibb@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Lauren.Gibb@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	Lauren.Gibb@aecom.com
- EDI Format - XTab (XTAB)	Email	Lauren.Gibb@aecom.com

Dand 1/9 1050

Fadi Soro

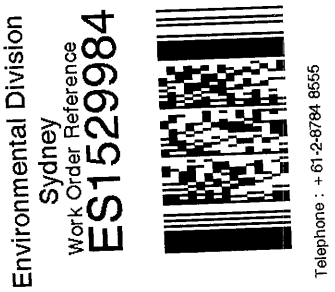
From: Barbara Hanna
Sent: Tuesday, 1 September 2015 10:40 AM
To: Fadi Soro
Subject: FW: 60438840 / 1.1 Burrows - Additional Analysis request ES1529109

Hi Guys,

Could you please arrange this rebatch.

Thanks!

Kind Regards



Barbara Hanna

Client Services Manager
ALS | Environmental Division

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Smithfield NSW 2164 Australia

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EnviroMail™ 52 [UPDATE] Sampling and Analysis of Soil Vapour using Canisters

EnviroMail™ 00 - Summary of all EnviroMails™ by Category

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From: Latham, Alex [mailto:Alex.Latham@aecom.com]
Sent: Tuesday, 1 September 2015 10:29 AM
To: Barbara Hanna
Subject: 60438840 / 1.1 Burrows - Additional Analysis request ES1529109

Hi Barbara,
Could you please arrange the following additional tests on batch ES1529109:

1 BH01_3.8-3.9 PAH
2 BH11_3.3-3.4 suite 8 metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn)
3 BH12_3.6-3.7 suite 8 metals
4 BH16_3.0-3.1 suite 8 metals
5 BH21_3.0-3.1 suite 8 metals, PAH

TCLP tests for waste classification

6 BH04_1.0-1.1 B(a)P, As, Pb
7 BH16_2.0-2.1 Hg
8 BH17_2.0-2.1 hexavalent Cr
9 BH21_0.7-0.8 B(a)P

\OBH22_2.2-2.3 As, Ni, Pb

Regards,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
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PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001
www.aecom.com

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1529729**	Page	: 1 of 11
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840 BURROWS INDUSTRIAL	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840	Date Samples Received	: 31-Aug-2015 15:45
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: KATE PIGRAM	Issue Date	: 08-Sep-2015 15:04
Site	: ----		
		No. of samples received	: 24
Quote number	: ----	No. of samples analysed	: 12

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics

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.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) 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.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH18_0.7-0.8	BH18_2.0-2.1	BH20_0.5-0.6	BH20_1.0-1.1	BH20_2.0-2.1
				[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]
				ES1529729-002	ES1529729-004	ES1529729-007	ES1529729-008	ES1529729-009
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**17.8**	**28.4**	**8.0**	**6.9**	**23.3**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	**----**	**No**	**No**	**----**
Asbestos Type	1332-21-4	-	--	**-**	**----**	**-**	**-**	**----**
Sample weight (dry)	----	0.01	g	**200**	**----**	**750**	**368**	**----**
APPROVED IDENTIFIER:	----	-	--	**C.OWLER**	**----**	**C.OWLER**	**C.OWLER**	**----**
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**20**	**48**	<5	**116**	**----**
Cadmium	7440-43-9	1	mg/kg	**2**	<1	<1	**4**	**----**
Chromium	7440-47-3	2	mg/kg	**28**	**63**	**8**	**9**	**----**
Copper	7440-50-8	5	mg/kg	**476**	**294**	**10**	**208**	**----**
Lead	7439-92-1	5	mg/kg	**469**	**1610**	**29**	**2030**	**----**
Nickel	7440-02-0	2	mg/kg	**68**	**45**	**6**	**41**	**----**
Zinc	7440-66-6	5	mg/kg	**704**	**2240**	**53**	**4290**	**----**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.1**	<0.1	<0.1	<0.1	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Pyrene	129-00-0	0.5	mg/kg	<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	**----**
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<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	**----**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<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	**----**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<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	**----**
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**----**

Sub-Matrix: SOIL (Matrix: SOIL)				BH18_0.7-0.8	BH18_2.0-2.1	BH20_0.5-0.6	BH20_1.0-1.1	BH20_2.0-2.1
				[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]
				ES1529729-002	ES1529729-004	ES1529729-007	ES1529729-008	ES1529729-009
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<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**	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	**70**
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	**2350**
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	**2060**
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	**4480**
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	>C10_C16	50	mg/kg	<50	----	----	----	**140**
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	**3940**
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	**780**
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	**4860**
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	<50	----	----	----	**140**
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**	1330-20-7	0.5	mg/kg	<0.5	----	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**89.6**	**101**	**97.7**	**97.4**	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**95.2**	**112**	**109**	**114**	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**88.1**	**72.8**	**77.0**	**75.3**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**96.4**	**103**	**101**	**93.6**	----

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

				BH18_0.7-0.8	BH18_2.0-2.1	BH20_0.5-0.6	BH20_1.0-1.1	BH20_2.0-2.1
				[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]
				ES1529729-002	ES1529729-004	ES1529729-007	ES1529729-008	ES1529729-009
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	0.5	%	**116**	**110**	**121**	**116**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%	**110**	**105**	**106**	**110**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**98.2**	**----**	**----**	**----**	**95.2**
Toluene-D8	2037-26-5	0.2	%	**90.8**	**----**	**----**	**----**	**87.9**
4-Bromofluorobenzene	460-00-4	0.2	%	**104**	**----**	**----**	**----**	**96.5**

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH03_0.2-0.3	BH03_1.0-1.2	BH03_3.0-3.1	BH02_0.4-0.5	BH02_2.0-2.1
				[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]
				ES1529729-011	ES1529729-013	ES1529729-016	ES1529729-018	ES1529729-020
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	13.4	16.6	49.0	8.3	36.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	Yes	----	No	----
Asbestos Type	1332-21-4	-	--	-	Ch	----	-	----
Sample weight (dry)	----	0.01	g	384	144	----	350	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	C.OWLER	----	C.OWLER	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	6	17	<5	59
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	12	23	7	33
Copper	7440-50-8	5	mg/kg	228	114	14	140	783
Lead	7439-92-1	5	mg/kg	338	731	31	79	1410
Nickel	7440-02-0	2	mg/kg	6	9	12	3	28
Zinc	7440-66-6	5	mg/kg	279	268	85	106	815
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	1.0	0.6	<0.1	0.2	0.6
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.6	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.4	----	<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	0.8	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	1.4	12.3	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	3.1	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	2.3	16.8	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	2.2	17.0	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	0.9	7.6	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	1.1	7.4	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.2	8.6	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	2.9	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.9	6.9	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3.2	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.9	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.7	4.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	10.7	94.0	----	<0.5	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH03_0.2-0.3	BH03_1.0-1.2	BH03_3.0-3.1	BH02_0.4-0.5	BH02_2.0-2.1
				[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]
				ES1529729-011	ES1529729-013	ES1529729-016	ES1529729-018	ES1529729-020
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	**1.1**	**10.1**	----	<0.5	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**1.4**	**10.1**	----	**0.6**	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.7**	**10.1**	----	**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	----	**280**	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	**160**	<100	<100	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	----	**440**	<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	>C10_C16	50	mg/kg	----	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	**380**	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	**110**	<100	<100	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	----	**490**	<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**	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**92.4**	**97.0**	----	**98.0**	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**106**	**112**	----	**109**	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**78.1**	**94.7**	----	**66.8**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**96.8**	**96.0**	----	**101**	----

Sub-Matrix: SOIL
(Matrix: SOIL)

				BH03_0.2-0.3	BH03_1.0-1.2	BH03_3.0-3.1	BH02_0.4-0.5	BH02_2.0-2.1
				[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]	[29-Aug-2015]
				ES1529729-011	ES1529729-013	ES1529729-016	ES1529729-018	ES1529729-020
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	0.5	%	**112**	**122**	**----**	**122**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%	**102**	**102**	**----**	**102**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**----**	**99.9**	**88.0**	**107**	**----**
Toluene-D8	2037-26-5	0.2	%	**----**	**88.1**	**76.9**	**90.5**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%	**----**	**104**	**88.0**	**106**	**----**

Sub-Matrix: SOIL (Matrix: SOIL)				BH02_3.0-3.1	QC111	----	----	----
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529729-021	ES1529729-024	--------	--------	--------
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**41.9**	**14.6**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	**60**	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	**7**	----	----	----
Chromium	7440-47-3	2	mg/kg	----	**68**	----	----	----
Copper	7440-50-8	5	mg/kg	----	**2240**	----	----	----
Lead	7439-92-1	5	mg/kg	----	**2230**	----	----	----
Nickel	7440-02-0	2	mg/kg	----	**107**	----	----	----
Zinc	7440-66-6	5	mg/kg	----	**3460**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	**1.0**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	**0.8**	----	----	----
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	----	**7.2**	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	**1.8**	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	**11.9**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	**12.1**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**5.4**	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	**5.2**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**5.9**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	**1.9**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**5.0**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	**2.3**	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	**0.6**	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	**3.2**	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	----	**63.3**	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH02_3.0-3.1	QC111	----	----	----
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529729-021	ES1529729-024	--------	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	**----**	**7.2**	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**----**	**7.2**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**----**	**7.2**	----	----	----
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	**220**	**220**	----	----	----
C29 - C36 Fraction	----	100	mg/kg	**240**	**150**	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	**460**	**370**	----	----	----
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	>C10_C16	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	**380**	**310**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	**160**	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	**540**	**310**	----	----	----
^ **>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**	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**----**	**97.5**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**----**	**110**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**----**	**97.8**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**----**	**95.5**	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				BH02_3.0-3.1	QC111	----	----	----
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529729-021	ES1529729-024	--------	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	0.5	%	----	**118**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	**105**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**97.1**	**105**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**88.4**	**92.1**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**98.1**	**105**	----	----	----

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH18_0.7-0.8 - [29-Aug-2015]	Pale brown clay soil with slag grains and glass debris
EA200: Description	BH20_0.5-0.6 - [29-Aug-2015]	Pale brown clay soil with grey rocks
EA200: Description	BH20_1.0-1.1 - [29-Aug-2015]	Pale brown sandy soil with plenty of slag debris
EA200: Description	BH03_0.2-0.3 - [29-Aug-2015]	Pale grey clay soil with brick and slag debris
EA200: Description	BH03_1.0-1.2 - [29-Aug-2015]	Mid brown clay soil with slag grains and several friable asbestos fibre bundles approx 5 x 2 x 2mm
EA200: Description	BH02_0.4-0.5 - [29-Aug-2015]	Pale brown sandy soil with grey rocks

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1529729**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840 BURROWS INDUSTRIAL	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840	Date Samples Received	: 31-Aug-2015
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: KATE PIGRAM	Issue Date	: 08-Sep-2015
Site	: ----	No. of samples received	: 24
Quote number	: ----	No. of samples analysed	: 12

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

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics

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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

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 (%)*
EA055: Moisture Content (QC Lot: 203955)									
ES1529729-002	BH18_0.7-0.8	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	17.8	21.7	19.8	0% - 20%
ES1529729-024	QC111	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	14.6	17.3	17.1	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 202940)									
ES1529722-010	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	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	11	78.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
ES1529729-002	BH18_0.7-0.8	EG005T: Cadmium	7440-43-9	1	mg/kg	2	3	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	28	25	14.2	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	68	77	12.8	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	20	18	8.83	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	476	405	16.0	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	469	464	1.25	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	704	727	3.20	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 202942)									
ES1529729-020	BH02_2.0-2.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	33	28	14.3	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	28	39	31.7	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	59	49	17.1	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	783	782	0.00	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	1410	1660	16.5	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	815	956	15.9	0% - 20%
ES1529810-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	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	12	10	13.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	94	100	6.42	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 202941)									
ES1529729-002	BH18_0.7-0.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.00	No Limit
ES1529729-020	BH02_2.0-2.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.6	0.9	41.4	No Limit

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: 201988)									
ES1529729-002	BH18_0.7-0.8	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	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): Benzo(a)pyrene	50-32-8	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): Benzo(b+j)fluoranthene	205-99-2 205-82-3	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(k)fluoranthene	207-08-9	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): Dibenz(a.h)anthracene	53-70-3	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): Fluorene	86-73-7	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): Naphthalene	91-20-3	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): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1530051-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	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): Anthracene	120-12-7	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): Benzo(a)pyrene	50-32-8	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): Benzo(b+j)fluoranthene	205-99-2 205-82-3	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(k)fluoranthene	207-08-9	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): Dibenz(a.h)anthracene	53-70-3	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): Fluorene	86-73-7	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): Naphthalene	91-20-3	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): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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 Petroleum Hydrocarbons (QC Lot: 201980)									
ES1530051-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1530051-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 201989)									
ES1529729-002	BH18_0.7-0.8	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
ES1530051-001	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 Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 201980)									
ES1530051-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1530051-001	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: 201989)									
ES1529729-002	BH18_0.7-0.8	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	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
ES1530051-001	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	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 201980)									
ES1530051-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	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
ES1530051-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	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

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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 202940)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.6	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	87.2	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	99.8	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.1	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	96.8	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.3	81	133
EG005T: Total Metals by ICP-AES (QCLot: 202942)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	102	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	97.2	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	88.4	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	101	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.1	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.5	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.5	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 202941)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	79.3	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201988)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	98.3	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	91.2	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.2	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.0	76	122
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.0	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	97.6	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.7	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.4	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	87.2	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	97.0	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	93.8	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	90.2	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.6	79	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201988) - continued								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.3	79	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201980)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	78.3	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201989)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	103	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	108	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	107	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201980)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	77.0	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201989)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	105	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	107	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	94.8	63	131
EP080: BTEXN (QCLot: 201980)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.4	62	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.2	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.4	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.6	62	138
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.2	60	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	82.5	62	128

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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 202940)							
ES1529729-002	BH18_0.7-0.8	EG005T: Arsenic	7440-38-2	50 mg/kg	86.1	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.5	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	85.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	74.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	126	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	112	70	130
EG005T: Total Metals by ICP-AES (QCLot: 202942)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 202942) - continued							
ES1529729-020	BH02_2.0-2.1	EG005T: Arsenic	7440-38-2	50 mg/kg	98.5	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	129	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	93.8	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	118	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	121	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 202941)							
ES1529729-002	BH18_0.7-0.8	EG035T: Mercury	7439-97-6	5 mg/kg	93.3	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 201988)							
ES1530051-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.2	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201980)							
ES1530051-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 201989)							
ES1530051-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	99.4	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	103	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	124	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201980)							
ES1530051-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 201989)							
ES1530051-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	860 mg/kg	92.0	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	119	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	116	52	132
EP080: BTEXN (QCLot: 201980)							
ES1530051-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.0	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.8	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	85.3	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.5	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	81.1	70	130

ALS Environmental

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1529729**	Page	: 1 of 5
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60438840 BURROWS INDUSTRIAL	Date Samples Received	: 31-Aug-2015
Site	: ----	Issue Date	: 08-Sep-2015
Sampler	: KATE PIGRAM	No. of samples received	: 24
Order number	: 60438840	No. of samples analysed	: 12

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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 / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
BH18_0.7-0.8,	BH18_2.0-2.1,	**29-Aug-2015**	**----**	----	----	**04-Sep-2015**	12-Sep-2015	✓
BH20_0.5-0.6,	BH20_1.0-1.1,							
BH20_2.0-2.1,	BH03_0.2-0.3,							
BH03_1.0-1.2,	BH03_3.0-3.1,							
BH02_0.4-0.5,	BH02_2.0-2.1,							
BH02_3.0-3.1,	QC111							
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Separate bag received (EA200)								
BH18_0.7-0.8,	BH20_0.5-0.6,	**29-Aug-2015**	**----**	----	----	**04-Sep-2015**	25-Feb-2016	✓
BH20_1.0-1.1,	BH03_0.2-0.3,							
BH03_1.0-1.2,	BH02_0.4-0.5							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH18_0.7-0.8,	BH18_2.0-2.1,	**29-Aug-2015**	**04-Sep-2015**	25-Feb-2016	✓	**04-Sep-2015**	25-Feb-2016	✓
BH20_0.5-0.6,	BH20_1.0-1.1,							
BH03_0.2-0.3,	BH03_1.0-1.2,							
BH03_3.0-3.1,	BH02_0.4-0.5,							
BH02_2.0-2.1,	QC111							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH18_0.7-0.8,	BH18_2.0-2.1,	**29-Aug-2015**	**04-Sep-2015**	26-Sep-2015	✓	**07-Sep-2015**	26-Sep-2015	✓
BH20_0.5-0.6,	BH20_1.0-1.1,							
BH03_0.2-0.3,	BH03_1.0-1.2,							
BH03_3.0-3.1,	BH02_0.4-0.5,							
BH02_2.0-2.1,	QC111							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
BH18_0.7-0.8, BH20_2.0-2.1, BH03_1.0-1.2, BH03_3.0-3.1, BH02_0.4-0.5, BH02_3.0-3.1, QC111	**29-Aug-2015**	**03-Sep-2015**	12-Sep-2015	✓	**04-Sep-2015**	13-Oct-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH18_0.7-0.8, BH18_2.0-2.1, BH20_0.5-0.6, BH20_1.0-1.1, BH03_0.2-0.3, BH03_1.0-1.2, BH02_0.4-0.5, QC111	**29-Aug-2015**	**03-Sep-2015**	12-Sep-2015	✓	**04-Sep-2015**	13-Oct-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
BH18_0.7-0.8, BH20_2.0-2.1, BH03_1.0-1.2, BH03_3.0-3.1, BH02_0.4-0.5, BH02_3.0-3.1, QC111	**29-Aug-2015**	**03-Sep-2015**	12-Sep-2015	✓	**04-Sep-2015**	12-Sep-2015	✓

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	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	16	**12.50**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	2	16	**12.50**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
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 (SnCl2)(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 SnCl2 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)
TRH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) 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	(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.

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1529729**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840 BURROWS INDUSTRIAL	Page	: 1 of 3
Order number	: 60438840	Quote number	: EB2015AECOMAU0580 (EN/004/15)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: KATE PIGRAM		

Dates

Date Samples Received	: 31-Aug-2015 3:45 PM	Issue Date	: 03-Sep-2015
Client Requested Due Date	: 07-Sep-2015	Scheduled Reporting Date	: **07-Sep-2015**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Intact.
No. of coolers/boxes	: ----	Temperature	: 18.2' C
Receipt Detail	:	No. of samples received / analysed	: 24 / 12

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

No sample container / preservation non-compliance exist.

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.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1529729-001	[29-Aug-2015]	BH18_0.25-0.35	☐						
ES1529729-002	[29-Aug-2015]	BH18_0.7-0.8		☐	☐				☐
ES1529729-003	[29-Aug-2015]	BH18_1.0-1.1	☐						
ES1529729-004	[29-Aug-2015]	BH18_2.0-2.1		☐		☐	☐		
ES1529729-005	[29-Aug-2015]	BH18_3.0-3.1	☐						
ES1529729-006	[29-Aug-2015]	BH18_3.8-3.9	☐						
ES1529729-007	[29-Aug-2015]	BH20_0.5-0.6		☐	☐	☐	☐		
ES1529729-008	[29-Aug-2015]	BH20_1.0-1.1		☐	☐	☐	☐		
ES1529729-009	[29-Aug-2015]	BH20_2.0-2.1		☐				☐	
ES1529729-010	[29-Aug-2015]	BH20_3.5-3.6	☐						
ES1529729-011	[29-Aug-2015]	BH03_0.2-0.3		☐	☐	☐	☐		
ES1529729-012	[29-Aug-2015]	BH03_0.5-0.6	☐						
ES1529729-013	[29-Aug-2015]	BH03_1.0-1.2		☐	☐				☐
ES1529729-014	[29-Aug-2015]	BH03_1.4-1.5	☐						
ES1529729-015	[29-Aug-2015]	BH03_2.0-2.1	☐						
ES1529729-016	[29-Aug-2015]	BH03_3.0-3.1		☐					
ES1529729-017	[29-Aug-2015]	BH03_3.8-3.9	☐						
ES1529729-018	[29-Aug-2015]	BH02_0.4-0.5		☐	☐				☐
ES1529729-019	[29-Aug-2015]	BH02_1.0-1.1	☐						
ES1529729-020	[29-Aug-2015]	BH02_2.0-2.1		☐			☐		
ES1529729-021	[29-Aug-2015]	BH02_3.0-3.1		☐				☐	
ES1529729-022	[29-Aug-2015]	BH02_3.8-3.9	☐						
ES1529729-023	[29-Aug-2015]	QC110	☐						
ES1529729-024	[29-Aug-2015]	QC111		☐					☐

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-05 TRH/BTEXN/8 Metals
ES1529729-016	[29-Aug-2015]	BH03_3.0-3.1	☐

Proactive Holding Time Report

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

Requested Deliverables

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- A4 - AU Tax Invoice (INV)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com

AP_CUSTOMER SERVICE ANZ

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

KATE PIGRAM

- *AU Certificate of Analysis - NATA (COA)	Email	kate.pigram@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.pigram@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.pigram@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.pigram@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.pigram@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.pigram@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.pigram@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.pigram@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	kate.pigram@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.pigram@aecom.com

Page 1 of 2

Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000

Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Stephen.Conaghan@aecom.com;
Kate.Pigram@aecom.com; James.Byrne@aecom.com;

New Zealand Geoy Only

Sampled By: Kate Pigram & James Byrne

AECOM Project No: 60285460

Specifications:

1. Urgent TAT Required? (please circle) 24hr 48hr ____day(s)
2. Past TAT Comments Received?
3. If any analytes have a short holding time, please advise us before start of analysis
4. % recoveries required for volatiles and surrogates to be reported as per NEPM Sch B
5. Special reporting requirements? (Details)
6. Chain of Custody Completed?
7. Report Format: Fax Hardcopy Email

Lab. ID	Sample ID	Sampling Date	Container Type				Preservation			Container Info					
			soil jar	glass	plastic	asbestos	HNO3	ice	other						
1	BH8_0.25-0.35	29/8/15	X					X							
2	BH8_0.7-0.8														
3	BH8_1.0-1.1														
4	BH8_2.0-2.1														
5	BH8_3.0-3.1														
6	BH8_3.8-3.9														
7	BH20_0.5-0.6														
8	BH20_1.0-1.1														
9	BH20_2.0-2.1														
10	BH20_3.5-3.6														
11	BH03_0.2-0.3														
12	BH03_0.5-0.6	↓	↓												

Environmental Division
Sydney
Work Order Reference
ES1529729

Telephone : +61-2-8784 8555

HBS ② of ②

Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000

Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Carolyn.Donato@aecom.com;
Katie.Pigram@aecom.com; Jess.Byrne@aecom.com;
Alex.Latsiou@aecom.com

Laboratory Details:
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ph:

Sampled By: Katie Pigram & Jess Byrne
AECOM Project No.: 60473840

Specifications:

1. Urgent TAT required? (Please circle: 24hr 48hr ____days)
2. Final TAT Confirmed (Date)?
3. Is any requested target Practical Limit of Reporting (PQL) not achievable?
4. Is preservation required / received from sampling SOP as specified on per AEPM (Y/N)?
5. Special storage instructions (if any): ____
6. Shipping Company Particulars:
7. Report Format: Fax Hardcopy Email

Lab ID	Sample ID	Sampling Date	Matrix					Analysis required					Comments
			soil	Water	other	Metals	asb	OCPs	OPPs	PCBs	other		
13	BH03_1.0-1.2	29/8/15	X					X		X			
14	BH03_1.4-1.5												
15	BH03_2.0-2.1												
16	BH03_3.0-3.1												
17	BH03_3.8-3.9												
18	BH02_0.4-0.5												
19	BH02_1.0-1.1												
20	BH02_2.0-2.1												
21	BH02_3.0-3.1												
22	BH02_3.8-3.9												
23	QC10												
24	QC11												

Total number of samples in shipping container:
Relinquished by: Katie Pigram & Jess Byrne
Received by:

PAGE (1) OF (2)

Chain of Custody

AECOM

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: ~~Clayton.Cowper@aecom.com~~;
Kate.Pigram@aecom.com; ~~Jess.Byrne@aecom.com~~
Alex.Cathrae@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram ~~& Jess Byrne~~
AECOM Project No: ~~60418818/12.08~~ 60433840
Project Name: ~~Guide~~ BURNS INDUSTRIAL PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email:	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: Metals (M8)	TRH (C6-C40), F1 & F2, BTEXN	PAHs	ASBESTOS (D/ND)	OCP, OPP, PCB	HOLD	Other: Filtered
	BH18_0.25-0.35	29/8/15	X					X								✓	
	BH18_0.7-0.8										✓	✓	✓	✓			
	BH18_1.0-1.1															✓	
	BH18_2.0-2.1										✓		✓				
	BH18_3.0-3.1															✓	
	BH18_3.8-3.9															✓	
	BH20_0.5-0.6										✓		✓	✓			
	BH20_1.0-1.1										✓		✓	✓			
	BH20_2.0-2.1											✓					
	BH20_3.5-3.6															✓	
	BH03_0.2-0.3										✓		✓	✓			
	BH03_0.5-0.6															✓	

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No.

Esky ID:

Relinquished by: Kate Pigram Signed: Date: 31/8/15

Recieved by: Signed: Date:

Relinquished by: Signed: Date:

Recieved by: Signed: Date:

Printed copies of this document are uncontrolled

PAGE (2) of (2)

AECOM

Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
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E-mail: ~~Clayton.Cowper@aecom.com;~~ Kate.Pigram@aecom.com; ~~Jesse.Byrne@aecom.com~~ Alex.Latham@aecom.com

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram ~~& Jesse Byrne~~
AECOM Project No: ~~60348048/60348~~ 60438840
Project Name: ~~Guide~~ BUILDERS INDUSTRIAL PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Metals (M8)	TRH (C6-C40), F1 & F2, BTEXN	PAHs	ASBESTOS (ID/ND)	OCP, OPP, PCB	FWCD	8 Metals	Other
	BH03_1.0-1.2	29/8/15	X					X		1x bag	✓	✓	✓	✓				
	BH03_1.4-1.5	↓	↓					↓		↓						✓		
	BH03_2.0-2.1															✓		
	BH03_3.0-3.1										✓	✓						
	BH03_3.8-3.9									1x jar 1x bag						✓		
	BH02_0.4-0.5										✓	✓	✓	✓				
	BH02_1.0-1.1															✓	✓	
	BH02_2.0-2.1										✓							
	BH02_3.0-3.1											✓						
	BH02_3.8-3.9									1x jar						✓	✓	
	QC110															✓		
	QC111	↓	↓					↓		↓	✓	✓	✓				✓	

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No:

Relinquished by: Kate Pigram	Signed:	Date: 31/8/15	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by:	Signed:	Date:

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1529728**	Page	: 1 of 12
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
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Project	: 60438840/1.1 BURROWS INDUSTRIAL	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 01-Sep-2015 12:10
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: KATE PIGRAM	Issue Date	: 08-Sep-2015 16:39
Site	: ----		
		No. of samples received	: 11
Quote number	: ----	No. of samples analysed	: 10

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos

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.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200 Legend
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) 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.

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

				SS01	**SS02**	**----**	**----**	**----**
				[29-Aug-2015]	[29-Aug-2015]	----	----	----
				ES1529728-008	**ES1529728-009**	**--------**	**--------**	**--------**
				Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**Yes + Trace**	**----**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**Ch + Am**	**Ch + Cr**	**----**	**----**	**----**
Sample weight (dry)	----	0.01	g	**169**	**381**	**----**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**S.SPOONER**	**S.SPOONER**	**----**	**----**	**----**

Sub-Matrix: SOLID (Matrix: SOLID)				SS04-FRAG	----	----	----	----
				[29-Aug-2015]	----	----	----	----
				ES1529728-011	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch + Am**	----	----	----	----
Sample weight (dry)	----	0.01	g	**42.3**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**S.SPOONER**	----	----	----	----

Sub-Matrix: **WATER**
(Matrix: **WATER**)

				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.001**	**0.009**	**0.008**	**0.009**	**0.006**
Cadmium	7440-43-9	0.0001	mg/L	**0.0002**	**0.0061**	<0.0001	**0.0002**	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	**0.001**	**0.153**	**0.002**	**0.002**	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	**0.009**	**0.004**	**0.004**	<0.001
Nickel	7440-02-0	0.001	mg/L	**0.004**	**0.128**	**0.007**	**0.026**	**0.003**
Zinc	7440-66-6	0.005	mg/L	**0.066**	**4.18**	**0.291**	**0.889**	**0.092**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E(SIM): Halogenated Aliphatic Compounds								
Vinyl chloride	75-01-4	1	µg/L	<1	<1	<1	<1	<1
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5

Sub-Matrix: **WATER**
(Matrix: **WATER**)

				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1	µg/L	**1.8**	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1	µg/L	**1.9**	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1	µg/L	**1.7**	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0

Sub-Matrix: **WATER**
(Matrix: **WATER**)

				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
	Pyrene	129-00-0	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
	Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
	Chrysene	218-01-9	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
	Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
	Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
	Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
	Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
	Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^	**Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	**5.4**	<0.5	<0.5	<0.5	<0.5
^	**Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
	C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
	C10 - C14 Fraction	----	50	µg/L	**160**	<50	<50	<50	<50
	C15 - C28 Fraction	----	100	µg/L	**150**	<100	<100	<100	<100
	C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^	**C10 - C36 Fraction (sum)**	----	50	µg/L	**310**	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
	C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^	**C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
	>C10 - C16 Fraction	>C10_C16	100	µg/L	**170**	<100	<100	<100	<100
	>C16 - C34 Fraction	----	100	µg/L	**120**	<100	<100	<100	<100
	>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^	**>C10 - C40 Fraction (sum)**	----	100	µg/L	**290**	<100	<100	<100	<100
^	**>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	**160**	<100	<100	<100	<100
EP080: BTEXN								
	Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
	Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
	Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
	meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
	ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^	**Total Xylenes**	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^	**Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	<1

Sub-Matrix: **WATER**
(Matrix: **WATER**)

				MW21	MW19	MW16	MW17	MW01
				[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]	[31-Aug-2015]
				ES1529728-001	ES1529728-002	ES1529728-003	ES1529728-004	ES1529728-005
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	**8**	<5	<5	<5	<5
EP074S(SIM) : VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	50	%	**85.8**	**104**	**88.6**	**95.3**	**98.1**
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**108**	**114**	**101**	**98.8**	**107**
Toluene-D8	2037-26-5	5	%	**122**	**123**	**107**	**103**	**116**
4-Bromofluorobenzene	460-00-4	5	%	**107**	**109**	**93.9**	**90.9**	**100**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1	%	**21.0**	**19.2**	**19.0**	**17.9**	**17.9**
2-Chlorophenol-D4	93951-73-6	1	%	**44.2**	**44.6**	**44.2**	**42.0**	**44.2**
2.4.6-Tribromophenol	118-79-6	1	%	**48.0**	**44.0**	**33.3**	**41.3**	**34.8**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1	%	**66.6**	**68.4**	**59.3**	**59.9**	**62.4**
Anthracene-d10	1719-06-8	1	%	**54.1**	**84.6**	**78.9**	**72.1**	**79.2**
4-Terphenyl-d14	1718-51-0	1	%	**73.1**	**71.9**	**69.3**	**68.9**	**65.6**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**111**	**118**	**104**	**102**	**111**
Toluene-D8	2037-26-5	2	%	**99.6**	**100**	**87.6**	**83.9**	**94.7**
4-Bromofluorobenzene	460-00-4	2	%	**119**	**120**	**104**	**101**	**111**

Sub-Matrix: WATER (Matrix: WATER)				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	ES1529728-007	--------	--------	--------
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	----
Copper	7440-50-8	0.001	mg/L	----	----	----	----	----
Lead	7439-92-1	0.001	mg/L	----	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	----	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	----	----	----
EP074E(SIM): Halogenated Aliphatic Compounds								
Vinyl chloride	75-01-4	1	µg/L	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	----	----	----
Chloromethane	74-87-3	50	µg/L	----	----	----	----	----
Bromomethane	74-83-9	50	µg/L	----	----	----	----	----
Chloroethane	75-00-3	50	µg/L	----	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	----	----	----	----	----
Iodomethane	74-88-4	5	µg/L	----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	----	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	----	----	----	----	----
Trichloroethene	79-01-6	5	µg/L	----	----	----	----	----
Dibromomethane	74-95-3	5	µg/L	----	----	----	----	----

Sub-Matrix: WATER (Matrix: WATER)				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	ES1529728-007	--------	--------	--------
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	----	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L	----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	----	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	----	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	----	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	----	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	----	----	----	----	----
Bromoform	75-25-2	5	µg/L	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1	µg/L	----	----	----	----	----
Acenaphthylene	208-96-8	1	µg/L	----	----	----	----	----
Acenaphthene	83-32-9	1	µg/L	----	----	----	----	----
Fluorene	86-73-7	1	µg/L	----	----	----	----	----
Phenanthrene	85-01-8	1	µg/L	----	----	----	----	----
Anthracene	120-12-7	1	µg/L	----	----	----	----	----
Fluoranthene	206-44-0	1	µg/L	----	----	----	----	----

Sub-Matrix: **WATER**
(Matrix: **WATER**)

				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	ES1529728-007	--------	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	1	µg/L	----	----	----	----	----
Benz(a)anthracene	56-55-3	1	µg/L	----	----	----	----	----
Chrysene	218-01-9	1	µg/L	----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1	µg/L	----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	----	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1	µg/L	----	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1	µg/L	----	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	----	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ **Total Xylenes**	1330-20-7	2	µg/L	<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	----	----	----

Sub-Matrix: WATER (Matrix: WATER)				QC201	TB	----	----	----
				[31-Aug-2015]	[31-Aug-2015]	----	----	----
				ES1529728-006	ES1529728-007	--------	--------	--------
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
EP074S(SIM) : VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	50	%	----	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	----	----	----	----
Toluene-D8	2037-26-5	5	%	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1	%	----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1	%	----	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1	%	----	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1	%	----	----	----	----	----
Anthracene-d10	1719-06-8	1	%	----	----	----	----	----
4-Terphenyl-d14	1718-51-0	1	%	----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**108**	**110**	----	----	----
Toluene-D8	2037-26-5	2	%	**94.4**	**86.2**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**108**	**107**	----	----	----

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	SS01 - [29-Aug-2015]	Dark brown clay soil with two pieces of friable asbestos fibre board approx 4 x 3 x 2 mm as well as several loose bundles of friable asbestos fibres approx 2 x 1 x 0.5 mm.
EA200: Description	SS02 - [29-Aug-2015]	Dark brown clay soil with four pieces of bonded asbestos cement sheeting approx 40 x 40 x 5 mm as well as several pieces of friable asbestos cement sheeting approx 7 x 6 x 4 mm plus several loose bundles of friable asbestos fibres approx 2 x 1 x 0.5 mm.

Sub-Matrix: **SOLID**

EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	SS04-FRAG - [29-Aug-2015]	Five pieces of bonded asbestos cement sheeting approx 50 x 30 x 5 mm.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1529728**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 BURROWS INDUSTRIAL	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 60438840/1.1	Date Samples Received	: 01-Sep-2015
C-O-C number	: ----	Date Analysis Commenced	: 03-Sep-2015
Sampler	: KATE PIGRAM	Issue Date	: 08-Sep-2015
Site	: ----	No. of samples received	: 11
Quote number	: ----	No. of samples analysed	: 10

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

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

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

Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos

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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 202036)									
ES1529728-001	MW21	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	66.9	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.066	0.071	8.28	0% - 50%
EG035F: Dissolved Mercury by FIMS (QC Lot: 202037)									
ES1529728-002	MW19	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP074D: Fumigants (QC Lot: 203729)									
ES1529728-001	MW21	EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
EP074E(SIM): Halogenated Aliphatic Compounds (QC Lot: 203730)									
ES1529728-001	MW21	EP074E(SIM): Vinyl chloride	75-01-4	1	µg/L	<1	<1	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 203729)									
ES1529728-001	MW21	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 203729) - continued									
ES1529728-001	MW21	EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 203729)									
ES1529728-001	MW21	EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 203729)									
ES1529728-001	MW21	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 203728)									
ES1529728-001	MW21	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 203728)									
ES1529728-001	MW21	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 203728)									
ES1529728-001	MW21	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	8	8	0.00	No Limit

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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 202036)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.8	85	115
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.2	85	115
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.3	85	115
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.3	85	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.4	85	115
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.1	85	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.0	85	115
EG035F: Dissolved Mercury by FIMS (QCLot: 202037)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.2	78	114
EP074D: Fumigants (QCLot: 203729)								
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	90.6	69	117
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	91.4	76	120
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	90.6	61	119
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	113	62	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	92.4	61	119
EP074E(SIM): Halogenated Aliphatic Compounds (QCLot: 203730)								
EP074E(SIM): Vinyl chloride	75-01-4	1	µg/L	<1	10 µg/L	114	67	131
EP074E: Halogenated Aliphatic Compounds (QCLot: 203729)								
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	95.1	66	114
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	84.3	61	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	95.2	70	124
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	102	75	123
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	91.9	75	119
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	93.9	69	123
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	90.2	73	119
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	92.2	74	128
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	102	66	136
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	89.0	78	122
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	96.7	79	121
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	89.7	56	140
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	91.1	63	121
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	107	63	135
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	69.7	67	130
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	92.0	77	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 203729) - continued								
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	76.9	71	128
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	91.6	74	118
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	72.1	61	138
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	91.5	58	132
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	76.3	70	128
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	111	72	126
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	79.4	72	124
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.6	71	119
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	76.3	60	120
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	87.9	74	120
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	90.1	65	131
EP074F: Halogenated Aromatic Compounds (QCLot: 203729)								
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	86.6	67	125
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	87.7	60	126
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	87.9	77	117
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	89.6	74	120
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	89.8	72	120
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	90.8	71	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	92.1	71	121
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	90.8	76	116
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	90.8	80	118
EP074G: Trihalomethanes (QCLot: 203729)								
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	92.1	64	118
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	102	74	126
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	94.5	76	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	102	65	115
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 202083)								
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	78.6	62	113
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	84.9	64	114
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	101	64	116
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	85.2	64	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	97.8	63	117
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	90.6	62	119
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	100	59	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	93.7	62	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	102	63	116
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	100	61	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 202083) - continued								
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	101	64	118
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	85.4	64	115
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	100	60	118
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	66.6	59	119
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	88.1	63	116
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	109	63	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 202084)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	95.2	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	96.6	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	92.8	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 203728)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.6	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 202084)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	92.7	59	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.0	74	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	95.8	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 203728)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	94.2	75	127
EP080: BTEXN (QCLot: 203728)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.0	70	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	84.7	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.1	69	121
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.1	70	124
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	92.5	72	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	82.7	65	129

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: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 202036)							
ES1529728-002	MW19	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	105	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	99.2	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020F: Dissolved Metals by ICP-MS (QCLot: 202036) - continued							
ES1529728-002	MW19	EG020A-F: Copper	7440-50-8	0.2 mg/L	101	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	97.4	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	# Not Determined	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 202037)							
ES1529728-001	MW21	EG035F: Mercury	7439-97-6	0.01 mg/L	93.2	70	130
EP074E(SIM): Halogenated Aliphatic Compounds (QCLot: 203730)							
ES1529728-001	MW21	EP074E(SIM): Vinyl chloride	75-01-4	25 µg/L	113	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 203729)							
ES1529728-001	MW21	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	72.0	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	87.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 203729)							
ES1529728-001	MW21	EP074: Chlorobenzene	108-90-7	25 µg/L	94.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 203728)							
ES1529728-001	MW21	EP080: C6 - C9 Fraction	----	325 µg/L	102	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 203728)							
ES1529728-001	MW21	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	99.5	70	130
EP080: BTEXN (QCLot: 203728)							
ES1529728-001	MW21	EP080: Benzene	71-43-2	25 µg/L	84.0	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	104	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	110	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70	130
		EP080: Toluene	108-88-3	25 µg/L	90.8	70	130

ALS Environmental

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1529728**	Page	: 1 of 5
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60438840/1.1 BURROWS INDUSTRIAL	Date Samples Received	: 01-Sep-2015
Site	: ----	Issue Date	: 08-Sep-2015
Sampler	: KATE PIGRAM	No. of samples received	: 11
Order number	: 60438840/1.1	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **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

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG020F: Dissolved Metals by ICP-MS	ES1529728--002	MW19	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	9	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	10	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	9	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	10	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Analysis Holding Time Compliance

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 / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Separate bag received (EA200)							
SS01, SS02	**29-Aug-2015**	**----**	----	----	**07-Sep-2015**	25-Feb-2016	✓

Matrix: **SOLID** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag - Separate bag received (EA200)							
SS04-FRAG	**29-Aug-2015**	**----**	----	----	**08-Sep-2015**	25-Feb-2016	✓

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**----**	----	----	**03-Sep-2015**	27-Feb-2016	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**----**	----	----	**07-Sep-2015**	28-Sep-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
MW21, MW19, MW16, MW17, MW01, QC201	**31-Aug-2015**	**03-Sep-2015**	07-Sep-2015	✓	**07-Sep-2015**	13-Oct-2015	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**05-Sep-2015**	14-Sep-2015	✓	**05-Sep-2015**	14-Sep-2015	✓
EP074E(SIM): Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074E(SIM))							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**05-Sep-2015**	14-Sep-2015	✓	**05-Sep-2015**	14-Sep-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
MW21, MW19, MW16, MW17, MW01	**31-Aug-2015**	**03-Sep-2015**	07-Sep-2015	✓	**07-Sep-2015**	13-Oct-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW21, MW19, MW16, MW17, MW01, QC201, TB	**31-Aug-2015**	**05-Sep-2015**	14-Sep-2015	✓	**05-Sep-2015**	14-Sep-2015	✓

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: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	10	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	10	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Vinyl Chloride Low level	EP074E(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	**20.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Identification in Bulk Solids	EA200	SOLID	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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)
TRH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Vinyl Chloride Low level	EP074E(SIM)	WATER	(USEPA SW 846 - 8260B, ALS QWI-ORG/EP074) Water samples are directly purged (ALSQWI-ORG/16) prior to analysis by Capillary GC/MS. Quantitation is achieved using internal standard and average response factor quantitation techniques against an established five point curve.
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1529728**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Barbara Hanna
Address	: LEVEL 21, 420 George Street SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60438840/1.1 BURROWS INDUSTRIAL	Page	: 1 of 3
Order number	: 60438840/1.1	Quote number	: EB2015AECOMAU0580 (EN/004/15)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: KATE PIGRAM		

Dates

Date Samples Received	: 01-Sep-2015 12:10 PM	Issue Date	: 03-Sep-2015
Client Requested Due Date	: 08-Sep-2015	Scheduled Reporting Date	: **08-Sep-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: ----	Temperature	: 4.2' C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 10

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
- **Sample QC200 to be forwarded to Envirolab.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

No sample container / preservation non-compliance exist.

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.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA200 Asbestos Identification in Soils -
ES1529728-008	[29-Aug-2015]	SS01		☐
ES1529728-009	[29-Aug-2015]	SS02		☐
ES1529728-010	[29-Aug-2015]	SS03-FRAG	☐	
ES1529728-011	[29-Aug-2015]	SS04-FRAG		☐

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 Vinyl Chloride SIM VOC SIM Vinyl Chloride Only	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES1529728-001	[31-Aug-2015]	MW21	☐	☐			☐
ES1529728-002	[31-Aug-2015]	MW19	☐	☐			☐
ES1529728-003	[31-Aug-2015]	MW16	☐	☐			☐
ES1529728-004	[31-Aug-2015]	MW17	☐	☐			☐
ES1529728-005	[31-Aug-2015]	MW01	☐	☐			☐
ES1529728-006	[31-Aug-2015]	QC201			☐		
ES1529728-007	[31-Aug-2015]	TB				☐	

Proactive Holding Time Report

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

Requested Deliverables

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- A4 - AU Tax Invoice (INV)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com

AP_CUSTOMER SERVICE ANZ

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

KATE PIGRAM

- *AU Certificate of Analysis - NATA (COA)	Email	kate.pigram@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.pigram@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.pigram@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.pigram@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.pigram@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.pigram@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.pigram@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.pigram@aecom.com
- EDI Format - HLAPro (HLAPro)	Email	kate.pigram@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.pigram@aecom.com

Updated COC

Subcon / Forward Lab / Split WO
Lab / Analysis: NEWCASTLE
Organised By / Date: Asbestos - 8.9.11
Relinquished By / Date: ENVIROLAB
Connote / Courier: QC200
WO No: ES1529728
Attach PO / Internal Sheet

Chain of Custody

AECOM

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com;
Kate.Pigram@aecom.com;

Laboratory Details
Lab. Name: ALS Sydney
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/15

Sampled By: Kate Pigram
AECOM Project No: 60438840/1.1
Project Name: Burrows Industrial
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email : _____	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 metals (dissolved)	VHC	Vinyl Chloride - low level		Asbestos (D / ND)	Hold							Other			With separate COC
1	MW21	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓														
2	MW19	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓														
3	MW16	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓														
4	MW17	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓														
5	MW01	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓	✓	✓	✓	✓														
6	QC200	31/08/2015		X				X		2 x v; 1 x a; 1 x p	SEND TO ENVIROLAB																✓		
6	QC201	31/08/2015		X				X		2 x v; 1 x a; 1 x p	✓																		
7	TB	31/08/2015		X				X		1 x v	✓																		
8	SS01	29/8/15	X							Bag							✓												
9	SS02	29/8/15	X							Bag.							✓												
10	SS03_Frag	29/8/15			X					Bag								✓											
11	SS04_Frag	29/8/15			X					Bag.							✓												

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No:

Relinquished by:	Signed:	Date:	Relinquished by: Signed:
Recieved by: Fonk	Signed:	Date: 1/9/15 1210	Recieved by: Signed:

Environmental Division
Sydney
Work Order Reference
ES1529728

Telephone : + 61-2-8784 8555

Printed copies of this document are uncontrolled

Revision: Jun 08

BMS-PM-DV-F046

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 133696

Client:

AECOM Australia Pty Ltd (Sydney)
PO Box Q410
QVB Post Office
Sydney
NSW 1230

Attention: Alex Latham, Kate Pigram

Sample log in details:

Your Reference:	**60438840/1.1**		
No. of samples:	1 Water		
Date samples received / completed instructions received	3/9/2015	/	3/9/2015

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	10/09/15	/	8/09/15
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

VHC's in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	 133696-1 QC200 31/08/2015 Water
Date extracted	-	03/09/2015
Date analysed	-	04/09/2015
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<0.3
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Carbon tetrachloride	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Bromoform	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Bromobenzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1

VHC's in water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	97
Surrogate toluene-d8	%	93
Surrogate 4-BFB	%	97

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date extracted	-	03/09/2015
Date analysed	-	04/09/2015
$TRHC_6$ - C_9	µg/L	<10
$TRHC_6$ - C_{10}	µg/L	<10
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	93
Surrogate 4-BFB	%	97

svTRH (C10-C40) in Water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date extracted	-	04/09/2015
Date analysed	-	04/09/2015
TRHC$_{10}$ - C$_{14}$	µg/L	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100
Surrogate o-Terphenyl	%	84

PAHs in Water		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date extracted	-	04/09/2015
Date analysed	-	04/09/2015
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	105

HM in water - dissolved		
Our Reference:	UNITS	133696-1
Your Reference	----------	QC200
Date Sampled	----------	31/08/2015
Type of sample		Water
Date prepared	-	04/09/2015
Date analysed	-	04/09/2015
Arsenic-Dissolved	µg/L	5
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	2
Zinc-Dissolved	µg/L	80

Method ID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL VHC's in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/09/2015	[NT]	[NT]	LCS-W2	03/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W2	04/09/2015
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	0.3	Org-013	<0.3	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	91%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	91%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	91%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	90%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	86%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	88%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	83%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W2	88%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VHC's in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-013	95	[NT]	[NT]	LCS-W2	88%
Surrogate toluene-d8	%		Org-013	94	[NT]	[NT]	LCS-W2	98%
Surrogate 4-BFB	%		Org-013	95	[NT]	[NT]	LCS-W2	88%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/09/2015	[NT]	[NT]	LCS-W2	03/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W2	04/09/2015
TRHC$_6$ - C$_9$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W2	87%
TRHC$_6$ - C$_{10}$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W2	87%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	89%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	89%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	85%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W2	86%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W2	87%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	101	[NT]	[NT]	LCS-W2	100%
Surrogate toluene-d8	%		Org-016	94	[NT]	[NT]	LCS-W2	98%
Surrogate 4-BFB	%		Org-016	95	[NT]	[NT]	LCS-W2	88%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
TRHC$_{10}$ - C$_{14}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	112%
TRHC$_{15}$ - C$_{28}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRHC$_{29}$ - C$_{36}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	97%
TRH>C$_{10}$ - C$_{16}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	112%
TRH>C$_{16}$ - C$_{34}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRH>C$_{34}$ - C$_{40}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	97%
Surrogate o-Terphenyl	%		Org-003	86	[NT]	[NT]	LCS-W1	77%
QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	78%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	82%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	84%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Benzo(b,j+k) fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	92%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	95	[NT]	[NT]	LCS-W1	90%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Date analysed	-			04/09/2015	[NT]	[NT]	LCS-W1	04/09/2015
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	101%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	96%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	105%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	96%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	94%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	96%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham, Kate Pigram

Sample Login Details	
Your Reference	60438840/1.1
Envirolab Reference	133696
Date Sample Received	03/09/2015
Date Instructions Received	03/09/2015
Date Results Expected to be Reported	10/09/2015

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on receipt (°C)	5.7
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*VHC's in water*	*vTRH(C6-C10)/BTEXN in Water*	*svTRH (C10-C40) in Water*	*PAHs in Water*	*HM in water - dissolved*
QC200	✓	✓	✓	✓	✓

AECOM

Chain of Custody

AECOM - Sydney
Level 21, 420 George Street,
Sydney, NSW 2000
Tel: (02) 8934 0000
Fax: (02) 8934 0001
E-mail: Alex.Latham@aecom.com;
Kate.Pigram@aecom.com;

Laboratory Details
Lab. Name: ENVIROLAB
Lab. Address:
Contact Name:
Lab. Ref:
Tel:
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:

Sampled By: Kate Pigram
AECOM Project No: 60438840/1.1
Project Name: Burrows Industrial
PO No.

Specifications:

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	
7. Report Format: Fax Hardcopy Email: _____	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 metals (dissolved)	VHC	low level vinyl chloride	Other
1.	QC200	31/08/2015		X				X		2 x v; 1 x a; 1 x p	X	X	X	X	X	

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 133696
Date Received: 3/9/15
Time Received: 12:45
Received by: D.F
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

* Metals Required (Delete elements not required): As Cd Cr Cu Ni Pb Zn Hg

Comments: Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury Zinc

Lab Report No
Esky ID

Relinquished by: K Pigram	Signed:	Date: 31/8/15	
Recieved by: Daniel Ford - ECS	Signed:	Date: 3/9/15	
Relinquished by:	Signed:	Date:	
Recieved by: Daniel Ford	Signed:	Date:	

ES1529728

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 235771

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60623599_1.1, Burrows IE**
Number of Samples	3 Soil
Date samples received	31/01/2020
Date completed instructions received	31/01/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	07/02/2020
Date of Issue	07/02/2020

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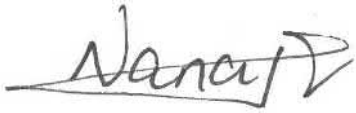
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Josh Williams, Senior Chemist
Loren Bardwell, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		235771-1	235771-2	235771-3
Your Reference	UNITS	QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	04/02/2020	04/02/2020	04/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	87	83	75

svTRH (C10-C40) in Soil				
Our Reference	UNITS	235771-1	235771-2	235771-3
Your Reference		QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	03/02/2020	03/02/2020	03/02/2020
Date analysed	-	06/02/2020	06/02/2020	06/02/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	120	<100
TRH C_{29} - C_{36}	mg/kg	<100	120	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	140	210	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	140	210	<50
Surrogate o-Terphenyl	%	79	84	70

PAHs in Soil				
Our Reference	UNITS	235771-1	235771-2	235771-3
Your Reference		QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	04/02/2020	04/02/2020	04/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	0.4	<0.1
Anthracene	mg/kg	<0.1	0.2	<0.1
Fluoranthene	mg/kg	0.3	0.7	<0.1
Pyrene	mg/kg	0.3	0.6	<0.1
Benzo(a)anthracene	mg/kg	0.2	0.5	<0.1
Chrysene	mg/kg	0.2	0.4	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.2	0.7	<0.2
Benzo(a)pyrene	mg/kg	0.1	0.5	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.4	<0.1
Total +ve PAH's	mg/kg	1.6	4.5	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.6	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.7	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.7	<0.5
Surrogate p-Terphenyl-d14	%	93	98	91

Acid Extractable metals in soil					
Our Reference		235771-1	235771-2	235771-3	235771-4
Your Reference	UNITS	QC 105	QC 106	QC 102	QC 105 - [TRIPLICATE]
Date Sampled		29/01/2020	29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Arsenic	mg/kg	7	12	44	6
Cadmium	mg/kg	4.4	1	10	5.0
Chromium	mg/kg	22	16	260	20
Copper	mg/kg	530	110	42,000	540
Lead	mg/kg	260	330	4,500	240
Mercury	mg/kg	0.4	0.4	2.8	0.5
Nickel	mg/kg	170	17	230	150
Zinc	mg/kg	350	450	12,000	340

Moisture				
Our Reference		235771-1	235771-2	235771-3
Your Reference	UNITS	QC 105	QC 106	QC 102
Date Sampled		29/01/2020	29/01/2020	29/01/2020
Type of sample		Soil	Soil	Soil
Date prepared	-	03/02/2020	03/02/2020	03/02/2020
Date analysed	-	04/02/2020	04/02/2020	04/02/2020
Moisture	%	15	12	24

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	[NT]
Date extracted	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Date analysed	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	122	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	122	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	117	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	119	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	125	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	124	[NT]
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	125	[NT]
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	93	1	87	82	6	98	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	[NT]
Date extracted	-			03/02/2020	1	03/02/2020	03/02/2020		03/02/2020	[NT]
Date analysed	-			06/02/2020	1	06/02/2020	06/02/2020		06/02/2020	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	85	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	160	46	88	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	230	79	108	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	85	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	140	360	88	88	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	140	33	108	[NT]
Surrogate o-Terphenyl	%		Org-003	72	1	79	81	2	91	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Date analysed	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Naphthalene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	112	[NT]
Acenaphthylene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	104	[NT]
Phenanthrene	mg/kg	0.1	Org-012/017	<0.1	1	0.3	0.2	40	98	[NT]
Anthracene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	<0.1	1	0.3	0.3	0	106	[NT]
Pyrene	mg/kg	0.1	Org-012/017	<0.1	1	0.3	0.3	0	112	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	<0.1	1	0.2	0.2	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	<0.1	1	0.2	0.2	0	84	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012/017	<0.2	1	0.2	0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	<0.05	1	0.1	0.1	0	128	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	91	1	93	92	1	104	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	[NT]
Date prepared	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Date analysed	-			04/02/2020	1	04/02/2020	04/02/2020		04/02/2020	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	7	7	0	112	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	4.4	4.9	11	109	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	22	28	24	114	[NT]
Copper	mg/kg	1	Metals-020	<1	1	530	660	22	111	[NT]
Lead	mg/kg	1	Metals-020	<1	1	260	490	61	120	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.4	0.5	22	90	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	170	150	12	113	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	350	380	8	118	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 235771-1 for Pb. Therefore a triplicate result has been issued as laboratory sample number 235771-4.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Rebekah Panozzo, Kurtis Wathen

Sample Login Details

Your reference	60623599_1.1, Burrows IE
Envirolab Reference	235771
Date Sample Received	31/01/2020
Date Instructions Received	31/01/2020
Date Results Expected to be Reported	07/02/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	3 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	17.0
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil
QC 105	✓	✓	✓	✓
QC 106	✓	✓	✓	✓
QC 102	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**
Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1**

Laboratory Details
Lab Name: Envirolab
Lab Address: 12 Ashley St, Chatswood
Contact Name: D Springer
Lab. Ref:
Tel: 9910 6200
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:
Project Name: Burrows IE PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
1	QC105	29/1/20	✓					✓		Jar	✓	✓	✓			
2	QC106	29/1/20	✓					✓		Jar	✓	✓	✓			
3	QC102	29/1/20	✓					✓		Jar	✓	✓	✓			

Envirolab Services
12 Ashley St
Chatswood NSW 2067
PH: (02) 9910 6200

Job No: 235771
Date Received: 31/1/20
Time Received: 1519
Received By: JD
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by: R. Panozzo	Signed:	Date: 29/1 ~~19/01/2019~~	Relinquished by:	Signed:	Date:
Recieved by: Jason Day	Signed:	Date: 31/1/20 1519	Recieved by:	Signed:	Date:

CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details

Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)
1	BH109_0.3-0.4	28/11/20	X					X		1 Jar 1 Bag						
2	BH109_0.6-0.7															
3	BH109_0.9-1.0															
4	QC102									1 Jar						
5	BH109_1.5-1.6									1 Jar 1 Bag						
6	BH109_2.7-2.8									" "						
7	BH109_4.5-4.6									1 Jar						
8	BH109_6.1-6.2									1 Jar						
9	QC300			X						2 vials						X
10	BH107_0.2-0.3															
11	BH107_0.4-0.5															
12	BH107_0.5-0.6															
13	BH107_0.8-1.0															
14	BH107_1.5-1.7															

Subcon / Forward Lab / Split WO
Lab / Analysis:
Organised By / Date: ENVIRO 29/11/20
Relinquished By / Date:
Consote / Courier:
WO No:
Attached By PO / Internal Sheet:

send requested soil QC samples to Envirolab with crushed ice please

Environmental Division Sydney
Work Order Reference
ES2002766

Telephone : +61-2-8784 8555

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by: K.Wathen	Signed:	Date: 29/11/20	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: ENVIRO	Signed: 29/11/20 3:45p	Date:

CS5771 8044

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details
Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Sampled By: Kutis Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2. FastTAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	send requested soil QC samples to Envirolab with crushed ice please
15	BH107 - 3.9-4.0	29/11	Y					Y		J+B							
16	BH107 - 4.8-5.0									J+B							
17	BH113 - 0.2-0.3									J+B							
18	BH113 - 0.4-0.5									J+B							
19	BH113 - 0.6-0.7									J+B							
20	QC106									J							
21	BH113 - 0.8-1.0									J+B							
22	BH113 - 1.3-1.38									J							

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by: R. Panozzo — Signed: — Date: 29/11

Recieved by: — Signed: — Date:

Relinquished by: — Signed: — Date:

Recieved by: — Signed: 29/11/20 3:40 — Date:

Field_Worksheet_FORM025_Dec04

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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 236880

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham
Address	PO Box Q410, QVB Post Office, Sydney, NSW, 1230

Sample Details

Your Reference	**60623599_1.0**
Number of Samples	1 water
Date samples received	17/02/2020
Date completed instructions received	17/02/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	24/02/2020
Date of Issue	24/02/2020

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Jaimie Loa-Kum-Cheung, Metals Supervisor
Josh Williams, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

VHC's in water		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date extracted	-	20/02/2020
Date analysed	-	20/02/2020
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<0.3
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Carbon tetrachloride	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Bromoform	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Bromobenzene	µg/L	<1

VHC's in water		
Our Reference	UNITS	236880-1
Your Reference		QC306_200212
Date Sampled		12/02/2020
Type of sample		water
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	109
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	109

vTRH(C6-C10)/BTEXN in Water		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date extracted	-	20/02/2020
Date analysed	-	20/02/2020
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	109
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	109

svTRH (C10-C40) in Water		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date extracted	-	19/02/2020
Date analysed	-	19/02/2020
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	112

HM in water - dissolved		
Our Reference		236880-1
Your Reference	UNITS	QC306_200212
Date Sampled		12/02/2020
Type of sample		water
Date prepared	-	19/02/2020
Date analysed	-	19/02/2020
Arsenic-Dissolved	µg/L	5
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	1
Zinc-Dissolved	µg/L	5

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VHC's in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
Date analysed	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	0.3	Org-013	<0.3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VHC's in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	100	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate toluene-d8	%		Org-013	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-013	108	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
Date analysed	-			20/02/2020	[NT]	[NT]	[NT]	[NT]	20/02/2020	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	117	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	100	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-016	108	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			19/02/2020	[NT]	[NT]	[NT]	[NT]	19/02/2020	[NT]
Date analysed	-			19/02/2020	[NT]	[NT]	[NT]	[NT]	19/02/2020	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
Surrogate o-Terphenyl	%		Org-003	114	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			19/02/2020	1	19/02/2020	19/02/2020		19/02/2020	[NT]
Date analysed	-			19/02/2020	1	19/02/2020	19/02/2020		19/02/2020	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	5	5	0	100	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	96	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	102	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		96	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	100	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	5	5	0	97	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	AECOM Australia Pty Ltd (Sydney)
Attention	Alex Latham

Sample Login Details

Your reference	60623599_1.0
Envirolab Reference	236880
Date Sample Received	17/02/2020
Date Instructions Received	17/02/2020
Date Results Expected to be Reported	24/02/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	VHC's in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	HM in water - dissolved
QC306_200212	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 236880

Sampled By: Kurtis Wathen
AECOM Project No: **60623599_1.0**
Date Received: 17/2/20
Time Received: 1633
Received by: CM
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/~~Broken~~/~~None~~

Laboratory Details

Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:

Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	8 Metals (dissolved)	VHC	vinyl chloride low level (EP074(SIM))	TRH C6-C10, BTEXN	
1	MW105 - 200212	12/02/20		X				X			X	X	X	X		
2	MW16 - 200212										X	X	X	X		
3	MW17 - 200212										X	X	X	X		
4	MW115 - 200212										X	X	X	X		
5	MW21 - 200212										X	X	X	X		
6	MW19 - 200212										X	X	X	X		
7	MW01 - 200212										X	X	X	X		
8	MW102 - 200212										X	X	X	X		
9	QC304 - 200212														X	
10	QC305 - 200212														X	
11	QC306 - 200212										X	X	X	X		

send the relevant **and requested** QC sample to Envirolab with crushed ice please

Subcon / Forward Lab / Split: ALS + Envirolab
Lab / Analysis: ~~ALS~~
Organised By / Date: ~~Envirolab~~
Relinquished By / Date: ~~ALS~~
Connote / Courier: ~~Envirolab~~
WO No: ~~ALS~~
Attach By PO / Internal Sheet: ~~Envirolab~~

Environmental Division
Sydney
Work Order Reference
[redacted]
[redacted]
Telephone : +61-2-8784 8555

please forward QC306 to ALS lab

Esky ID

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Relinquished by:	K. Wathen	Signed:	Date: 12/02/20	Relinquished by:	Signed:	Date:
Recieved by:	AJ	Signed:	Date: 13/2/20 1530	Recieved by: CHINTE MOON	Signed: CM	Date: 17/2/20 1633

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2002766**	Page	: 1 of 12
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 29-Jan-2020 15:45
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 06-Feb-2020 17:37
Sampler	: Kurtis Wathen, Rebekah Panozzo		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 19		
No. of samples analysed	: 8		

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
- Descriptive 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.

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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
ø = 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.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH109_0.3-0.4	BH109_0.9-1.0	BH107_0.4-0.5	BH107_0.5-0.6	BH107_1.5-1.7
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002766-001	ES2002766-003	ES2002766-010	ES2002766-011	ES2002766-013
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	25.4	23.6	----	15.6	32.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	No*	----	----
Asbestos Type	1332-21-4	-	--	Ch + Am + Cr	----	Ch	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	----	----
Sample weight (dry)	----	0.01	g	521	----	506	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	----	----
Organic Fibre	----	0.1	g/kg	No	----	No	----	----
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	0.150	----	0.0090	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	0.029	----	0.002	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	----	----
ø Weight Used for % Calculation	----	0.0001	kg	0.521	----	0.506	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	28	----	8	94
Cadmium	7440-43-9	1	mg/kg	1	13	----	6	2
Chromium	7440-47-3	2	mg/kg	16	241	----	29	180
Copper	7440-50-8	5	mg/kg	369	10800	----	785	986
Lead	7439-92-1	5	mg/kg	435	3780	----	280	5350
Nickel	7440-02-0	2	mg/kg	49	241	----	179	185
Zinc	7440-66-6	5	mg/kg	820	12400	----	307	1110
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.4	2.2	----	0.6	1.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH109_0.3-0.4	BH109_0.9-1.0	BH107_0.4-0.5	BH107_0.5-0.6	BH107_1.5-1.7
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002766-001	ES2002766-003	ES2002766-010	ES2002766-011	ES2002766-013
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<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
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<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
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<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
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<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
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<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
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**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**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	**110**	<100	----	**100**	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	**110**	<50	----	**100**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	**160**	<100	----	**150**	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	**160**	<50	----	**150**	<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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH109_0.3-0.4	BH109_0.9-1.0	BH107_0.4-0.5	BH107_0.5-0.6	BH107_1.5-1.7
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002766-001	ES2002766-003	ES2002766-010	ES2002766-011	ES2002766-013
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**84.7**	**81.4**	----	**77.5**	**82.2**
2-Chlorophenol-D4	93951-73-6	0.5	%	**88.9**	**86.7**	----	**80.0**	**86.7**
2.4.6-Tribromophenol	118-79-6	0.5	%	**80.8**	**83.5**	----	**73.0**	**77.5**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**97.7**	**96.6**	----	**98.2**	**96.9**
Anthracene-d10	1719-06-8	0.5	%	**91.9**	**91.5**	----	**78.6**	**93.8**
4-Terphenyl-d14	1718-51-0	0.5	%	**94.5**	**94.6**	----	**88.5**	**93.8**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**82.8**	**91.2**	----	**84.8**	**91.1**
Toluene-D8	2037-26-5	0.2	%	**85.7**	**100**	----	**81.9**	**99.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**88.2**	**104**	----	**74.6**	**99.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.0**	**12.1**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**No**	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch**	**-**	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**No**	**No**	----	----	----
Sample weight (dry)	----	0.01	g	**429**	**523**	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	**No**	----	----	----
Organic Fibre	----	0.1	g/kg	**No**	**No**	----	----	----
APPROVED IDENTIFIER:	----	-	--	**A. SMYLIE**	**A. SMYLIE**	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø **Asbestos (Fines and Fibrous <7mm)**	1332-21-4	0.0004	g	**0.0512**	<0.0004	----	----	----
ø **Asbestos (Fines and Fibrous FA+AF)**	----	0.001	% (w/w)	**0.012**	<0.001	----	----	----
ø **Asbestos Containing Material**	1332-21-4	0.1	g	<0.1	<0.1	----	----	----
ø **Asbestos Containing Material (as 15% Asbestos in ACM >7mm)**	1332-21-4	0.01	% (w/w)	<0.01	<0.01	----	----	----
ø **Weight Used for % Calculation**	----	0.0001	kg	**0.429**	**0.523**	----	----	----
ø **Fibrous Asbestos >7mm**	----	0.0004	g	<0.0004	<0.0004	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**46**	**18**	----	----	----
Cadmium	7440-43-9	1	mg/kg	**2**	**1**	----	----	----
Chromium	7440-47-3	2	mg/kg	**28**	**22**	----	----	----
Copper	7440-50-8	5	mg/kg	**776**	**732**	----	----	----
Lead	7439-92-1	5	mg/kg	**4840**	**336**	----	----	----
Nickel	7440-02-0	2	mg/kg	**69**	**21**	----	----	----
Zinc	7440-66-6	5	mg/kg	**1160**	**752**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**1.0**	**0.4**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
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	**0.34**	----	----	----	----
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	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	**0.34**	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	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	6923-22-4	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	5598-13-0	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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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)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	**0.8**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	**0.7**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	**1.5**	----	----	----
^ **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	**130**	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	**140**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	270	----	----	----
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	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	240	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	240	----	----	----
^ >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	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	81.8	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	89.5	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	74.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	76.7	83.8	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	81.3	88.8	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	63.8	83.9	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	93.9	98.1	----	----	----
Anthracene-d10	1719-06-8	0.5	%	90.1	90.4	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	91.8	96.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH113_0.2-0.3	BH113_0.6-0.7	----	----	----
				29-Jan-2020 00:00	29-Jan-2020 00:00	----	----	----
				ES2002766-016	ES2002766-018	--------	--------	--------
				Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**95.5**	**88.6**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**105**	**96.2**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**101**	**96.9**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC300 TB	----	----	----	----
				28-Jan-2020 00:00	----	----	----	----
				ES2002766-008	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**103**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**98.8**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**92.0**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH109_0.3-0.4 - 28-Jan-2020 00:00	Mid brown soil containing many fragments of degraded asbestos cement sheeting and large loose asbestos fibre bundles approximately 10x5x2mm.
EA200: Description	BH107_0.4-0.5 - 28-Jan-2020 00:00	Mid brown soil containing one fragment of degraded asbestos fibre board approximately 10x5x2mm.
EA200: Description	BH113_0.2-0.3 - 29-Jan-2020 00:00	Mid brown soil containing several fragments of degraded asbestos fibre board debris and several loose asbestos fibre bundles.
EA200: Description	BH113_0.6-0.7 - 29-Jan-2020 00:00	Mid brown soil.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
ompound	AS Numbe	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
ompound	AS Numbe	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2002766**	Page	: 1 of 12
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 29-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 06-Feb-2020
Sampler	: Kurtis Wathen, Rebekah Panozzo		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 19		
No. of samples analysed	: 8		

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 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

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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: 2836485)									
ES2002719-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	40	41	0.00	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	133	133	0.00	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	40	2.80	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	51	52	2.46	0% - 50%
ES2002807-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	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	8	9	20.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	12	38.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	111	119	7.33	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2836488)									
ES2002719-002	Anonymous	EA055: Moisture Content	----	0.1	%	5.9	5.6	4.70	No Limit
ES2002807-013	Anonymous	EA055: Moisture Content	----	0.1	%	15.8	13.3	17.2	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2836486)									
ES2002719-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2002807-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2834940)									
ES2002901-005	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2002766-016	BH113_0.2-0.3	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2834939)									

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: 2834939) - continued									
ES2002901-005	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: 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	33213-65-9	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: 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
ES2002766-016	BH113_0.2-0.3	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: 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	0.34	0.42	22.3	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: 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

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: 2834939) - continued									
ES2002766-016	BH113_0.2-0.3	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: 2834939)									
ES2002901-005	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-methyl	298-00-0	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
ES2002766-016	BH113_0.2-0.3	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
		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-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2834939) - continued									
ES2002766-016	BH113_0.2-0.3	EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2834938)									
ES2002901-005	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
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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): Sum of polycyclic aromatic hydrocarbons	----	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
ES2002766-016	BH113_0.2-0.3	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	25.3	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	0.6	26.4	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	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2834938) - continued									
ES2002766-016	BH113_0.2-0.3	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	1.2	82.4	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: 2834894)									
ES2002719-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2002901-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2834937)									
ES2002901-005	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
ES2002766-016	BH113_0.2-0.3	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 Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2834894)									
ES2002719-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2002901-001	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: 2834937)									
ES2002901-005	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
ES2002766-016	BH113_0.2-0.3	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: BTEXN (QC Lot: 2834894)									
ES2002719-001	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
ES2002901-001	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

Sub-Matrix: **WATER**

				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 Petroleum Hydrocarbons (QC Lot: 2837679)									
ES2002532-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES2002771-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2837679)									
ES2002532-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2002771-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2837679)									
ES2002532-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES2002771-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	102	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.9	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.7	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2836486)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.0	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2834940)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	108	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834939)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	100	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	78.0	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	76.6	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	102	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	100	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	92.8	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834939)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834939) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	76.8	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	76.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	77.9	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	84.2	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834938)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.7	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	112	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100.0	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	109	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	112	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	105	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	101	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	113	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	101	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	107	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	117	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	115	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	113	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834894)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	96.1	68.4	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834937)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	99.6	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	112	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	108	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834894)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.5	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834937)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	109	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	110	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	103	63.0	131
EP080: BTEXN (QCLot: 2834894)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.9	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	103	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	102	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	113	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2837679)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2837679)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.2	75.0	127
EP080: BTEXN (QCLot: 2837679)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	88.2	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	80.4	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.3	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	87.1	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.6	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.2	70.0	120

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Matrix Spike (MS) Report

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485)							
ES2002719-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.6	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	89.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	80.7	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	101	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	90.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	81.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	84.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2836486)							
ES2002719-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	88.9	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2834940)							
ES2002766-016	BH113_0.2-0.3	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834939)							
ES2002766-016	BH113_0.2-0.3	EP068: gamma-BHC	58-89-9	0.5 mg/kg	90.0	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	91.1	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	89.3	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	92.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	90.6	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	80.1	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834939)							
ES2002766-016	BH113_0.2-0.3	EP068: Diazinon	333-41-5	0.5 mg/kg	89.4	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	88.2	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	72.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	87.3	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834938)							
ES2002766-016	BH113_0.2-0.3	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.2	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834937)							
ES2002766-016	BH113_0.2-0.3	EP071: C10 - C14 Fraction	----	523 mg/kg	87.4	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	106	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	128	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	111	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834937)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834937) - continued							
ES2002766-016	BH113_0.2-0.3	EP071: >C10 - C16 Fraction	----	860 mg/kg	97.8	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	116	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	113	52.0	132
EP080: BTEXN (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.0	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	92.2	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	109	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	106	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	111	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	121	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2837679)							
ES2002532-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	115	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2837679)							
ES2002532-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	121	70.0	130
EP080: BTEXN (QCLot: 2837679)							
ES2002532-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	84.5	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	89.2	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.8	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	96.7	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	94.0	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2002766**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 29-Jan-2020
Site	: ----	Issue Date	: 06-Feb-2020
Sampler	: Kurtis Wathen, Rebekah Panozzo	No. of samples received	: 19
Order number	: 60623599_1.1	No. of samples analysed	: 8

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

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 / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH109_0.3-0.4,	BH109_0.9-1.0,	**28-Jan-2020**	**----**	----	----	**31-Jan-2020**	11-Feb-2020	✓
BH107_0.5-0.6,	BH107_1.5-1.7							
Soil Glass Jar - Unpreserved (EA055)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**----**	----	----	**31-Jan-2020**	12-Feb-2020	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH109_0.3-0.4,	BH107_0.4-0.5	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**----**	----	----	**03-Feb-2020**	27-Jul-2020	✓
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH109_0.3-0.4,	BH107_0.4-0.5	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**----**	----	----	**03-Feb-2020**	27-Jul-2020	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH109_0.3-0.4,	BH109_0.9-1.0,	**28-Jan-2020**	**01-Feb-2020**	26-Jul-2020	✓	**03-Feb-2020**	26-Jul-2020	✓
BH107_0.5-0.6,	BH107_1.5-1.7							
Soil Glass Jar - Unpreserved (EG005T)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	27-Jul-2020	✓	**03-Feb-2020**	27-Jul-2020	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH109_0.3-0.4,	BH109_0.9-1.0,	**28-Jan-2020**	**01-Feb-2020**	25-Feb-2020	✓	**03-Feb-2020**	25-Feb-2020	✓
BH107_0.5-0.6,	BH107_1.5-1.7							
Soil Glass Jar - Unpreserved (EG035T)								
BH113_0.2-0.3,	BH113_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	26-Feb-2020	✓	**03-Feb-2020**	26-Feb-2020	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
BH113_0.2-0.3		**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH113_0.2-0.3	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH113_0.2-0.3	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Feb-2020	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH109_0.3-0.4, BH109_0.9-1.0, BH107_0.5-0.6, BH107_1.5-1.7	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH113_0.2-0.3, BH113_0.6-0.7	**29-Jan-2020**	**31-Jan-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Feb-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300 - TB	**28-Jan-2020**	**05-Feb-2020**	11-Feb-2020	✓	**05-Feb-2020**	11-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300 - TB	**28-Jan-2020**	**05-Feb-2020**	11-Feb-2020	✓	**05-Feb-2020**	11-Feb-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300 - TB	**28-Jan-2020**	**05-Feb-2020**	11-Feb-2020	✓	**05-Feb-2020**	11-Feb-2020	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
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 (SnCl2) (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 SnCl2 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)
Polychlorinated Biphenyls (PCB)	EP066	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 method is compliant with NEPM (2013) Schedule B(3) (Method 504)
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.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (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, 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.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2002766**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1	Page	: 1 of 3
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen, Rebekah Panozzo		

Dates

Date Samples Received	: 29-Jan-2020 15:45	Issue Date	: 31-Jan-2020
Client Requested Due Date	: 06-Feb-2020	Scheduled Reporting Date	: **06-Feb-2020**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not intact.
No. of coolers/boxes	: 2	Temperature	: 6.3' C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 19 / 8

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is an updated SRN which indicates samples 19 and 21-28 being transferred from this work order to work order ES2003147.
- **Samples 19 and 21-28 have been transferred to work order ES2003147, as per Alex Latham.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

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 - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - S-16 TRH/BTEXN/PAH/OC/OP/PCB/8Metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2002766-001	28-Jan-2020 00:00	BH109_0.3-0.4		☐	☐		☐
ES2002766-002	28-Jan-2020 00:00	BH109_0.6-0.7	☐				
ES2002766-003	28-Jan-2020 00:00	BH109_0.9-1.0		☐			☐
ES2002766-004	28-Jan-2020 00:00	BH109_1.5-1.6	☐				
ES2002766-005	28-Jan-2020 00:00	BH109_2.7-2.8	☐				
ES2002766-006	28-Jan-2020 00:00	BH109_4.5-4.6	☐				
ES2002766-007	28-Jan-2020 00:00	BH109_6.1-6.2	☐				
ES2002766-009	28-Jan-2020 00:00	BH107_0.2-0.3	☐				
ES2002766-010	28-Jan-2020 00:00	BH107_0.4-0.5			☐		
ES2002766-011	28-Jan-2020 00:00	BH107_0.5-0.6		☐			☐
ES2002766-012	28-Jan-2020 00:00	BH107_0.8-1.0	☐				
ES2002766-013	28-Jan-2020 00:00	BH107_1.5-1.7		☐			☐
ES2002766-014	29-Jan-2020 00:00	BH107_3.9-4.0	☐				
ES2002766-015	29-Jan-2020 00:00	BH107_4.8-5.0	☐				
ES2002766-016	29-Jan-2020 00:00	BH113_0.2-0.3		☐	☐	☐	
ES2002766-017	29-Jan-2020 00:00	BH113_0.4-0.5	☐				
ES2002766-018	29-Jan-2020 00:00	BH113_0.6-0.7		☐	☐		☐
ES2002766-020	29-Jan-2020 00:00	BH113_1.3-1.38	☐				

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2002766-008	28-Jan-2020 00:00	QC300 TB	☐

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- Chromatogram (CHROM)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

30/1/20 13:40

60623599 Burrows IE 1 of 2

UPDATED COC

CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St) T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**
Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1**

Laboratory Details

Lab Name: ALS Tel: 8784 8515
Lab Address: 277 Woodpark Rd. Smithfield Fax:
Contact Name: Brenda Hong Preliminary Report by:
Lab. Ref: Final Report by:
Lab Quote No: **EN/004/16**
Project Name: Burrows IE PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Analysis Request

send requested soil QC samples to Envirolab with crushed ice please

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	HOLD		TRH > C10-C40 (EP071)
1	BH109_0.3-0.4	28/1/20	X					X		1 Jar 180g	✓	✓	✓		✓			
2	BH109_0.6-0.7															✓		
3	BH109_0.9-1.0										✓	✓	✓					
4	QC102									1 Jar	S	E	N	D		T	C	ENVIRO1
5	BH109_1.5-1.6									1 Jar 180g						✓		
6	BH109_2.7-2.8									" "						✓		
7	BH109_4.5-4.6									1 Jar						✓		
8	BH109_6.1-6.2									1 Jar						✓		
9	QC300			X						2 vials								✓
10	BH107_0.2-0.3															✓		
11	BH107_0.4-0.5														✓			
12	BH107_0.5-0.6										✓	✓	✓					
13	BH107_0.8-1.0															✓		
14	BH107_1.5-1.7										✓	✓	✓					

Environmental Division Sydney
Work Order Reference
ES2002766

Telephone : +61-2-8784 8555

Lab Report No Esky ID

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Relinquished by: K. Wathen Signed: Date: 29/1/20

Recieved by: Signed: Date:

Relinquished by: Signed: Date:

Recieved by: Signed: 29/1/20 3:45 Date:

30/11/20 13:40

60693599 BURROWS IE 2 of 2 **UPDATED COC**

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details
Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Analysis Request

| Lab. ID | Sample ID | Sampling Date | Matrix: soil | Matrix: water | Matrix: other | Preservation: filtered | Preservation: acid | Preservation: ice | Preservation: other | Container (No. & type) | TRH C6-C40, BTEXN | PAH | 8 Metals | OCP, OPP, PCB | Asbestos (EA200N) | | HOLD | | TRH > C10-C40 (EP071) | | |

CHAIN OF CUSTODY

AECOM Australia Pty Ltd		Laboratory Details	
Sydney (420 George St)	T: 02 8934 0451	Lab Name: **ALS**	Tel: 8784 8515
	M: 0400 973 821	Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**

Sampled By: Kurtis Wathen / Rebekah Panozzo | AECOM Project No: **60623599_1.1** | Project Name: Burrows IE | PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)
1	BH109_0.3-0.4	28/1/20	X					X		1 Jar 1 Bag						
2	BH109_0.6-0.7															
3	BH109_0.9-1.0															
4	QC102									1 Jar						
5	BH109_1.5-1.6									1 Jar 1 Bag						
6	BH109_2.7-2.8									" "						
7	BH109_4.5-4.6									1 Jar						
8	BH109_6.1-6.2									1 Jar						
9	QC300			X						2 vials						X
10	BH107_0.2-0.3															
11	BH107_0.4-0.5															
12	BH107_0.5-0.6															
13	BH107_0.8-1.0															
14	BH107_1.5-1.7															

send requested soil QC samples to Envirolab with crushed ice please

Subcon / Forward Lab / Split WO
Lab / Analysis: _____
Organised By / Date: ENVIROLAB
Relinquished By / Date: _____
Connote / Courier: _____
WO No: _____
Attached By PO / Internal Sheet: _____

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No. | Esky ID

Relinquished by: K. Wathen	Signed:	Date: 29/1/20	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: HAO	Signed: 29/1/20 3:45p	Date:

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details
Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Sampled By: Kurt Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1 - Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2 - Fast TAT Guarantee Required?	
3 - Is any sediment layer present in waters to be excluded from extractions?	
4 - Is extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5 - Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)
15	BH107 - 3.9-4.0	29/1	Y					Y		J+B
16	BH107 - 4.8-5.0									J+B
17	BH113 - 0.2-0.3									J+B
18	BH113 - 0.4-0.5									J+B
19	BH113 - 0.6-0.7									J+B
20	QC106									J
21	BH113 - 0.8-1.0									J+B
22	BH113 - 1.3-1.38									J

Analysis Request

TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)

send requested soil QC samples to Envirolab with crushed ice please

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by: R Panozzo — Signed: — Date: 29/1

Recieved by: — Signed: — Date:

Relinquished by: — Signed: — Date:

Recieved by: TAS — Signed: 29/1/16 3:40 — Date:

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2002807**	Page	: 1 of 13
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 28-Jan-2020 17:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 05-Feb-2020 20:53
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 21		
No. of samples analysed	: 8		

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
- Descriptive 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.

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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
ø = 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.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.6	46.0	----	31.0	15.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	No	No
Asbestos Type	1332-21-4	-	--	-	----	-	-	-
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	No	No
Sample weight (dry)	----	0.01	g	314	----	221	113	82.6
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	No	No
Organic Fibre	----	0.1	g/kg	No	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	<0.001	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	<0.1	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.314	----	0.221	0.113	0.0826
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	8	----	6	30
Cadmium	7440-43-9	1	mg/kg	2	<1	----	<1	96
Chromium	7440-47-3	2	mg/kg	9	6	----	46	320
Copper	7440-50-8	5	mg/kg	86	7	----	171	15500
Lead	7439-92-1	5	mg/kg	232	18	----	255	3160
Nickel	7440-02-0	2	mg/kg	12	3	----	95	823
Zinc	7440-66-6	5	mg/kg	426	111	----	238	23400
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.3	<0.1	----	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
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	72-54-8/72-55-9/50-29-3	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	6923-22-4	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	5598-13-0	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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	**0.6**	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	**2.1**	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	**2.2**	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	**1.1**	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	**1.2**	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**2.1**	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	**0.8**	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	**1.9**	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	**1.2**	<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
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	**1.6**	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**14.8**	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	**2.4**	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**2.7**	**0.6**	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**2.9**	**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	**120**	<100	----	----	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**120**	<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
>C16 - C34 Fraction	----	100	mg/kg	**180**	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**180**	<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
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**84.6**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**88.0**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**68.8**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**74.4**	**69.3**	----	**68.6**	**71.9**
2-Chlorophenol-D4	93951-73-6	0.5	%	**82.0**	**80.0**	----	**80.6**	**84.1**
2.4.6-Tribromophenol	118-79-6	0.5	%	**60.0**	**45.3**	----	**43.9**	**42.2**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**94.4**	**94.3**	----	**104**	**102**
Anthracene-d10	1719-06-8	0.5	%	**90.8**	**93.4**	----	**101**	**99.8**
4-Terphenyl-d14	1718-51-0	0.5	%	**93.3**	**95.3**	----	**104**	**104**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH106_0.2-0.3	BH106_4.0-4.1	BH108_0.15-0.25	BH108_0.35-0.45	BH108_1.3-1.4
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00
				ES2002807-001	ES2002807-006	ES2002807-008	ES2002807-009	ES2002807-013
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**106**	**80.7**	**----**	**----**	**110**
Toluene-D8	2037-26-5	0.2	%	**99.1**	**81.0**	**----**	**----**	**103**
4-Bromofluorobenzene	460-00-4	0.2	%	**94.0**	**72.7**	**----**	**----**	**92.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	34.5	----	----	----
Moisture Content	----	1.0	%	22.1	----	9.8	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----
Sample weight (dry)	----	0.01	g	65.1	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----
Organic Fibre	----	0.1	g/kg	No	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	0.0651	----	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	48	----	6	----	----
Cadmium	7440-43-9	1	mg/kg	5	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	300	----	8	----	----
Copper	7440-50-8	5	mg/kg	5050	----	46	----	----
Lead	7439-92-1	5	mg/kg	3880	----	113	----	----
Nickel	7440-02-0	2	mg/kg	65	----	10	----	----
Zinc	7440-66-6	5	mg/kg	4280	----	106	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<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	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----
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**	72-54-8/72-55-9/50-29-3	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	6923-22-4	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	5598-13-0	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	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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)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	----	**1.8**	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	**0.7**	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	**5.3**	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	**5.0**	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	**2.3**	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	**2.3**	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	**3.3**	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	**1.2**	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	**3.1**	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	**1.7**	----	----
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	----	**2.2**	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	**28.9**	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	**4.0**	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	**4.2**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	----	**4.5**	----	----
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	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	**110**	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	**110**	----	----
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	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	**170**	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	**170**	----	----
^ >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	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	**102**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	**90.1**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	**80.9**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**73.2**	----	**76.3**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**81.0**	----	**84.2**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**46.2**	----	**62.4**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**92.2**	----	**96.7**	----	----
Anthracene-d10	1719-06-8	0.5	%	**91.1**	----	**91.6**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH108_2.3-2.4	BH108_4.1-4.2	QC100	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	----	----
				ES2002807-014	ES2002807-017	ES2002807-020	--------	--------
				Result	Result	Result	----	----
EP075(SIM)T: PAH Surrogates - Continued								
4-Terphenyl-d14	1718-51-0	0.5	%	**95.0**	**----**	**94.3**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**89.0**	**116**	**89.3**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%	**83.0**	**107**	**97.4**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%	**77.3**	**102**	**92.8**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH106_0.2-0.3 - 28-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH108_0.15-0.25 - 28-Jan-2020 00:00	Mid grey soil.
EA200: Description	BH108_0.35-0.45 - 28-Jan-2020 00:00	Mid grey soil.
EA200: Description	BH108_1.3-1.4 - 28-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH108_2.3-2.4 - 28-Jan-2020 00:00	Mid brown soil.

Surrogate Control Limits

Sub-Matrix: **SOIL**

		Recovery Limits (%)	
		Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2002807**	Page	: 1 of 11
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 28-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 31-Jan-2020
C-O-C number	: ----	Issue Date	: 05-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 21		
No. of samples analysed	: 8		

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 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

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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: 2836485)									
ES2002719-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	40	41	0.00	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	133	133	0.00	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	40	2.80	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	51	52	2.46	0% - 50%
ES2002807-006	BH106_4.0-4.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	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	8	9	20.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	12	38.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	111	119	7.33	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2836488)									
ES2002719-002	Anonymous	EA055: Moisture Content	----	0.1	%	5.9	5.6	4.70	No Limit
ES2002807-013	BH108_1.3-1.4	EA055: Moisture Content	----	0.1	%	15.8	13.3	17.2	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2836601)									
ES2002645-001	Anonymous	EA055: Moisture Content	----	0.1	%	10.0	10.8	8.20	0% - 20%
ES2002856-003	Anonymous	EA055: Moisture Content	----	0.1	%	10.8	10.5	2.05	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2836486)									
ES2002719-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2002807-006	BH106_4.0-4.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2834945)									

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 (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2834945) - continued									
ES2002729-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2834944)									
ES2002729-001	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: 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	33213-65-9	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: 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: 2834944)									
ES2002729-001	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

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: 2834944) - continued									
ES2002729-001	Anonymous	EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	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)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2834942)									
ES2002807-014	BH108_2.3-2.4	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	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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): Sum of polycyclic aromatic hydrocarbons	----	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
ES2002729-001	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
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

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: 2834942) - continued									
ES2002729-001	Anonymous	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	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: 2834520)									
ES2002547-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2002547-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2834894)									
ES2002719-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2002901-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2834943)									
ES2002807-014	BH108_2.3-2.4	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
ES2002729-001	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 Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2834520)									
ES2002547-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2002547-011	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: 2834894)									
ES2002719-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2002901-001	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: 2834943)									
ES2002807-014	BH108_2.3-2.4	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
ES2002729-001	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: BTEXN (QC Lot: 2834520)									
ES2002547-001	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
ES2002547-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

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: BTEXN (QC Lot: 2834520) - continued									
ES2002547-011	Anonymous	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
EP080: BTEXN (QC Lot: 2834894)									
ES2002719-001	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
ES2002901-001	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	102	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	111	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.9	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.7	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2836486)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.0	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2834945)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834944)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	102	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	93.1	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834944)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834944) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	105	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	78.2	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	95.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	106	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	66.3	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834942)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	99.3	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	105	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	106	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	109	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	112	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	96.8	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	99.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	93.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	97.8	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	98.3	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	98.4	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834520)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	89.2	68.4	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834894)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	96.1	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834943)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.6	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	94.2	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	89.7	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834520)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.0	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834894)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.5	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834943)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	94.6	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	92.0	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	78.3	63.0	131
EP080: BTEXN (QCLot: 2834520)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	108	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.7	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.7	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	95.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.8	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.7	63.0	119
EP080: BTEXN (QCLot: 2834894)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.9	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	103	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	102	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	113	63.0	119

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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2836485) - continued							
ES2002719-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.6	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	89.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	80.7	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	101	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	90.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	81.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	84.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2836486)							
ES2002719-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	88.9	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2834945)							
ES2002729-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2834944)							
ES2002729-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.9	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	92.9	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	92.8	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	109	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	111	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	107	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2834944)							
ES2002729-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	96.7	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	77.7	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	76.9	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	93.0	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	104	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2834942)							
ES2002729-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	105	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834520)							
ES2002547-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2834943)							
ES2002729-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	91.0	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	85.1	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	74.4	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834520)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834520) - continued							
ES2002547-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	95.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	111	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2834943)							
ES2002729-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	100	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	79.7	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	54.8	52.0	132
EP080: BTEXN (QCLot: 2834520)							
ES2002547-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	106	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	99.7	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	102	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	100.0	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	102	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.2	70.0	130
EP080: BTEXN (QCLot: 2834894)							
ES2002719-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.0	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	92.2	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	109	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	106	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	111	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	121	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2002807**	Page	: 1 of 6
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 28-Jan-2020
Site	: ----	Issue Date	: 05-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO	No. of samples received	: 21
Order number	: 60623599_1.1	No. of samples analysed	: 8

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

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 / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH106_0.2-0.3, BH106_4.0-4.1, BH108_0.35-0.45, BH108_1.3-1.4, BH108_2.3-2.4, BH108_4.1-4.2, QC100	**28-Jan-2020**	**----**	----	----	**31-Jan-2020**	11-Feb-2020	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
BH106_0.2-0.3, BH108_0.15-0.25, BH108_0.35-0.45, BH108_1.3-1.4, BH108_2.3-2.4	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
BH106_0.2-0.3, BH108_0.15-0.25, BH108_0.35-0.45, BH108_1.3-1.4, BH108_2.3-2.4	**28-Jan-2020**	**----**	----	----	**03-Feb-2020**	26-Jul-2020	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH106_0.2-0.3, BH106_4.0-4.1, BH108_0.35-0.45, BH108_1.3-1.4, BH108_2.3-2.4, QC100	**28-Jan-2020**	**01-Feb-2020**	26-Jul-2020	✓	**03-Feb-2020**	26-Jul-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH106_0.2-0.3, BH106_4.0-4.1, BH108_0.35-0.45, BH108_1.3-1.4, BH108_2.3-2.4, QC100	**28-Jan-2020**	**01-Feb-2020**	25-Feb-2020	✓	**03-Feb-2020**	25-Feb-2020	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
BH106_0.2-0.3, QC100	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH106_0.2-0.3, QC100	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
BH106_0.2-0.3,	QC100	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**03-Feb-2020**	11-Mar-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
BH108_0.35-0.45,	BH108_1.3-1.4,							
BH108_2.3-2.4,	QC100							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2,	QC100							
Soil Glass Jar - Unpreserved (EP080)								
QC100		**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**31-Jan-2020**	11-Feb-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2								
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**01-Feb-2020**	11-Mar-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2,	QC100							
Soil Glass Jar - Unpreserved (EP080)								
QC100		**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**31-Jan-2020**	11-Feb-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2								
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
QC100		**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**04-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)								
BH106_0.2-0.3,	BH106_4.0-4.1,	**28-Jan-2020**	**31-Jan-2020**	11-Feb-2020	✓	**31-Jan-2020**	11-Feb-2020	✓
BH108_1.3-1.4,	BH108_2.3-2.4,							
BH108_4.1-4.2								

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	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
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 (SnCl2) (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 SnCl2 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)
Polychlorinated Biphenyls (PCB)	EP066	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 method is compliant with NEPM (2013) Schedule B(3) (Method 504)
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

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, 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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2002807**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1	Page	: 1 of 3
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		

Dates

Date Samples Received	: 28-Jan-2020 17:00	Issue Date	: 31-Jan-2020
Client Requested Due Date	: 05-Feb-2020	Scheduled Reporting Date	: **05-Feb-2020**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 2.6
Receipt Detail	:	No. of samples received / analysed	: 21 / 8

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is an updated SRN which indicates the addition of samples QC100 and QC101 to this work order, as per Alex Latham.
- **Volatile organic compound analysis may be compromised as sample containers contained headspace. Please contact ALS for further information.**
- **Please note that samples BH106_0.2-0.3 and BH108_2.3-2.4 contained water upon receipt. The laboratory suspects lids were not fully secure during transit.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

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 - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2002807-001	28-Jan-2020 00:00	BH106_0.2-0.3		☐	☐			☐	☐
ES2002807-002	28-Jan-2020 00:00	BH106_0.4-0.5	☐						
ES2002807-003	28-Jan-2020 00:00	BH106_0.8-0.9	☐						
ES2002807-004	28-Jan-2020 00:00	BH106_1.7-1.8	☐						
ES2002807-005	28-Jan-2020 00:00	BH106_2.7-2.8	☐						
ES2002807-006	28-Jan-2020 00:00	BH106_4.0-4.1		☐					☐
ES2002807-007	28-Jan-2020 00:00	BH106_6.0-6.1	☐						
ES2002807-008	28-Jan-2020 00:00	BH108_0.15-0.25			☐				
ES2002807-009	28-Jan-2020 00:00	BH108_0.35-0.45		☐	☐	☐	☐		
ES2002807-010	28-Jan-2020 00:00	BH108_0.5-0.6	☐						
ES2002807-011	28-Jan-2020 00:00	BH108_0.7-0.8	☐						
ES2002807-012	28-Jan-2020 00:00	BH108_0.85-0.9	☐						
ES2002807-013	28-Jan-2020 00:00	BH108_1.3-1.4		☐	☐				☐
ES2002807-014	28-Jan-2020 00:00	BH108_2.3-2.4		☐	☐				☐
ES2002807-015	28-Jan-2020 00:00	BH108_2.5-2.6	☐						
ES2002807-016	28-Jan-2020 00:00	BH108_2.8-2.9	☐						
ES2002807-017	28-Jan-2020 00:00	BH108_4.1-4.2		☐					
ES2002807-018	28-Jan-2020 00:00	BH108_4.3-4.4	☐						
ES2002807-019	28-Jan-2020 00:00	BH108_4.9-5.0	☐						
ES2002807-020	28-Jan-2020 00:00	QC100		☐				☐	☐
ES2002807-021	28-Jan-2020 00:00	QC101	☐						

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-04 TRH/BTEXN
ES2002807-017	28-Jan-2020 00:00	BH108_4.1-4.2	☐

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

60623599_1.1 Burrows IE 1 of 2

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com
Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: 60623599_1.1

Laboratory Details
Lab Name: ALS
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/16
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	HOLD	send requested soil QC samples to Envirolab with crushed ice please
1	BH106_0.2-0.3	28/11/15	Y					Y		Jar/Bag 2	✓	✓	✓	✓	✓			
-	QC100									Jar 1	✓	✓	✓	✓				
2	BH106_0.4-0.5									Jar/Bag 2							✓	
3	BH106_0.8_0.9									Jar/Bag 2							✓	
4	BH106_1.7-1.8									Jar/Bag 2							✓	
5	BH106_2.7-2.8									Jar 1							✓	
6	BH106_4.0-4.1									Jar/Bag	✓	✓	✓					
7	BH106-6.0-6.1									Jar/Bag							✓	
8	BH108_0.15-0.25														✓			
9	BH108_0.35-0.45											✓	✓		✓			
10	BH108_0.5-0.6																✓	
11	BH108_0.7_0.8																✓	
12	BH108_0.85-0.9																✓	
13	BH108_1.3-1.4										✓	✓	✓		✓			

Comments: Suncon / Forward Lab / Split WO

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Relinquished by: Signed: Date:
Received by: Signed: Date:

Relinquished by: Signed: 29/11/15
Received by: Signed:

Lab / Address: Envirolab

Field_Worksheet_FORM025_Dec14

Organised By / Date:
Relinquished By / Date: Mercedes
Connote / Courier:
WO No: Envirolab / QC100 - QC101
Attach By PO / Internal Sheet:

Environmental Division
Sydney
Work Order Reference
ES2002807

Telephone : + 61-2-8784 8555

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821

AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com
Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: 60623599_1.1

Laboratory Details
Lab Name: ALS
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Project Name: Burrows IE

Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: EN/004/16
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

1 Urgent TAT required? (please circle: 24hr 48hr 5 days)
2 Fast TAT Guarantee Required?
3 Is any sediment layer present in waters to be excluded from extractions?
4 % extraneous material removed from samples to be reported as per NEPM 5.1.1?
5 Special storage requirements? (details _____)

Yes

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtrad	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	HOLD
—	~~BH108~~ QC101	28/1/20	X					X		1 Jar							✓
14	BH108 - 2.3-2.4									1 Jar	✓	✓	✓		✓		✓
15	BH108 2.5-2.6																✓
16	BH108 2.8-2.9										✓						✓
17	BH108 4.1-4.2									1 Ja							✓
18	BH108 4.3-4.4									1 Jar							
19	DH108 4.9-5.0																

send requested soil QC samples to Envirolab with crushed ice please

* Metals: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Relinquished by: Signed: Date:
Recieved by: Signed: Date:

Relinquished by: Signed: Date:
Recieved by: Signed: Date:

29/1/20 9am

Field Worksheet FORM02b Dec04

Fadi Soro

From: Brenda Hong
Sent: Wednesday, 29 January 2020 8:25 AM
To: Samples Sydney
Cc: Loren Schiavon; Helen Simpson
Subject: COC AECOM - Project 60623599_1.1
Attachments: 60623599_1.1_CoC1.pdf

COC for samples from AECOM delivered by John yesterday afternoon.

Best regards,

Brenda Hong

Client Services Manager, Environmental NSW

T +61 2 8784 8555 D +61 2 8784 8515
F +61 2 8784 8500 M +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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EnviroMail™ 128 – Revised PFAS Bottle Requirements

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From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Wednesday, 29 January 2020 8:13 AM
To: Brenda Hong <Brenda.Hong@alsglobal.com>; Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Cc: Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

Hi Brenda
CoC for samples picked up yesterday. Any Qs, pls call.
Regards,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001
www.aecom.com

Please consider the environment before printing this email.

From: Brenda Hong <Brenda.Hong@alsglobal.com>
Sent: Tuesday, 28 January 2020 12:00 PM
To: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Cc: Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>; Latham, Alex <Alex.Latham@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

Great, thanks Kurtis!

Best regards,

Brenda Hong
Client Services Manager, Environmental NSW

T +61 2 8784 8555 D +61 2 8784 8515
F +61 2 8784 8500 M +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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From: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Sent: Tuesday, 28 January 2020 11:06 AM
To: Brenda Hong <Brenda.Hong@alsglobal.com>
Cc: Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>; Latham, Alex <Alex.Latham@aecom.com>
Subject: Re: [EXTERNAL] - Project 60623599_1.1

Hi Brenda,

3 pm works, thanks for that.

Kurtis Wathen
Environmental Engineer
+61 447 224 684

From: Brenda Hong <Brenda.Hong@alsglobal.com>
Sent: Tuesday, January 28, 2020 10:25:29 AM

To: Latham, Alex <Alex.Latham@aecom.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

No worries, just spoke to the driver and he said he can do 3pm each day, hopefully that works?

Best regards,

Brenda Hong

Client Services Manager, Environmental NSW

T +61 2 8784 8555 **D** +61 2 8784 8515
F +61 2 8784 8500 **M** +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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EnviroMail™ 128 – Revised PFAS Bottle Requirements

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SAMPLING *Intelligence*

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www.alsglobal.com

From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Tuesday, 28 January 2020 10:24 AM
To: Brenda Hong <Brenda.Hong@alsglobal.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

Hey Bren
Hopefully the team will get back to you to advise. Cheers.

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001
www.aecom.com

Please consider the environment before printing this email.

From: Brenda Hong <Brenda.Hong@alsglobal.com>
Sent: Tuesday, 28 January 2020 10:21 AM
To: Latham, Alex <Alex.Latham@aecom.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: RE: [EXTERNAL] - Project 60623599_1.1

Hey AL, happy 2020! Sorry I was away for a few days... I will arrange for a dedicated driver to pick up samples from the Alexandria site address for each day. What time is suitable for your team?

Best regards,

Brenda Hong
Client Services Manager, Environmental NSW

T +61 2 8784 8555 D +61 2 8784 8515
F +61 2 8784 8500 M +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Friday, 24 January 2020 1:22 PM
To: Brenda Hong <Brenda.Hong@alsglobal.com>
Cc: Wathen, Kurtis <Kurtis.Wathen@aecom.com>; Panozzo, Rebekah <Rebekah.Panozzo@aecom.com>
Subject: [EXTERNAL] - Project 60623599_1.1

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Brenda,
Just wanted to let you know we are commencing a drilling program on Tuesday (for about 5 days) and will prob' need ALS to come pick up samples at the end of each day.
1-3 Burrows Rd Alexandria.
Speak soon.
Cheers,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001
www.aecom.com

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CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details

Lab Name: **ALS**
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required — Yes

1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)
2. Fast TAT Guarantee Required?
3. Is any sediment layer present in waters to be excluded from extractions?
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?
5. Special storage requirements? (details: _____)

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: fil'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)
	BH106_0.2-0.3	28/11/20	Y					Y		Jar/Bag 2						
	QC100									Jar 1						
	BH106_0.4-0.5									Jar/Bag 2						
	BH106_0.8-0.9									Jar/Bag 2						
	BH106_1.7-1.8									Jar/Bag 2						
	BH106_2.7-2.8									Jar 1						
	BH106_4.0-4.1									Jar/Bag						
	BH106-6.0-6.1									Jar/Bag						
	BH108_0.15-0.25															
	BH108_0.35-0.45															
	BH108_0.5-0.6															
	BH108_0.7-0.8															
	BH108_0.85-0.9															
	BH108_1.3-1.4															

send requested soil QC samples to Envirolab with crushed ice please

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by:		Signed:	Date:	Relinquished by:	Signed: Date:
Recieved by:	JUSTIN	Signed:	Date: 28/11/20 5pm	Recieved by:	Signed: Date:

CHAIN QF CUSTODY

AECOM Australia Pty Ltd		Laboratory Details	
Sydney (420 George St)	T: 02 8934 0451	Lab Name: **ALS**	Tel: 8784 8515
	M: 0400 973 821	Lab Address: 277 Woodpark Rd, Smithfield	Fax:
AECOM Project Manager: Alex Latham		Contact Name: Brenda Hong	Preliminary Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Final Report by:
			Lab Quote No: **EN/004/16**
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: **60623599_1.1**	Project Name: Burrows IE	PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required — Yes

1. Urgent TAT required? (please circle: 24hr 48hr 5 days)
2. Fast TAT Guarantee Required?
3. Is any sediment layer present in waters to be excluded from extractions?
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?
5. Special storage requirements? (details: _____)

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	send requested soil QC samples to Envirolab with crushed ice please
	~~BH108~~ QC101	28/11/20	X					X		1 Jar							
	BH108_2.3-2.4									1 Jar 1 Bag							
	BH108_2.5-2.6																
	BH108_2.8-2.9																
	BH108_4.1-4.2																
	BH108_4.3-4.4									1 Jar							
	BH108_4.9-5.0									1 Jar							

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No.

Esky ID

Relinquished by:	Signed:	Date:	Relinquished by:	Signed:	Date:
Recieved by: JUSTIN	Signed:	Date: 28/11/20 5pm	Recieved by:	Signed:	Date:

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2003147**	Page	: 1 of 17
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 30-Jan-2020 15:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 01-Feb-2020
C-O-C number	: ----	Issue Date	: 07-Feb-2020 16:25
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 38		
No. of samples analysed	: 13		

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
- Descriptive 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.

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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
ø = 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: Positive results have been confirmed by re-extraction and re-analysis.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.6	12.8	9.2	31.0	24.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No*	----
Asbestos Type	1332-21-4	-	--	-	-	-	Ch	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	----
Sample weight (dry)	----	0.01	g	442	484	518	483	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	No	No	No	----
Organic Fibre	----	0.1	g/kg	No	No	No	No	----
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	<0.0004	<0.0004	0.0024	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	<0.001	<0.001	<0.001	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	<0.1	<0.1	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	<0.01	<0.01	<0.01	----
ø Weight Used for % Calculation	----	0.0001	kg	0.442	0.484	0.518	0.483	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	<0.0004	<0.0004	<0.0004	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	23	32	<5	27	52
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	2	7
Chromium	7440-47-3	2	mg/kg	11	26	6	51	90
Copper	7440-50-8	5	mg/kg	83	384	6	964	1250
Lead	7439-92-1	5	mg/kg	192	1280	30	2260	2240
Nickel	7440-02-0	2	mg/kg	20	28	8	55	64
Zinc	7440-66-6	5	mg/kg	217	915	21	1430	3720
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.6	<0.1	2.0	1.0
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
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	72-54-8/72-55-9/50-29-3	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	6923-22-4	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	5598-13-0	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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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)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**	**0.7**
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	**4.0**	**4.9**
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	**1.3**	**2.1**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**0.7**	<0.5	**9.5**	**19.0**
Pyrene	129-00-0	0.5	mg/kg	<0.5	**0.7**	<0.5	**9.5**	**20.6**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	**4.6**	**7.2**
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	**4.9**	**6.7**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	**0.7**	<0.5	**8.2**	**11.2**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	**2.5**	**3.4**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**0.6**	<0.5	**6.6**	**8.7**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	**4.2**	**4.5**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	**0.9**	**1.1**
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	**0.5**	<0.5	**5.6**	**5.4**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**3.2**	<0.5	**62.3**	**95.5**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	**0.7**	<0.5	**9.6**	**12.6**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**1.0**	**0.6**	**9.6**	**12.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.3**	**1.2**	**9.6**	**12.6**
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	----	----	**900**
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	**550**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	**1450**
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
>C16 - C34 Fraction	----	100	mg/kg	<100	**180**	----	----	**1310**
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	**260**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	**180**	----	----	**1570**
^ >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
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**94.9**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**104**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**98.3**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**83.4**	**92.9**	**93.8**	**93.0**	**95.6**
2-Chlorophenol-D4	93951-73-6	0.5	%	**88.1**	**94.0**	**94.3**	**94.1**	**99.1**
2.4.6-Tribromophenol	118-79-6	0.5	%	**64.0**	**75.8**	**70.1**	**88.5**	**95.1**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**100.0**	**106**	**107**	**103**	**108**
Anthracene-d10	1719-06-8	0.5	%	**92.1**	**110**	**114**	**102**	**105**
4-Terphenyl-d14	1718-51-0	0.5	%	**96.6**	**103**	**107**	**98.0**	**108**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH116_0.3-0.4	BH116_0.6-0.65	BH117_0.3-0.4	BH117_1.3-1.4	BH117_2.2-2.3
				30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00
				ES2003147-001	ES2003147-002	ES2003147-005	ES2003147-007	ES2003147-008
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**104**	**107**	**----**	**----**	**99.3**
Toluene-D8	2037-26-5	0.2	%	**100**	**99.4**	**----**	**----**	**95.3**
4-Bromofluorobenzene	460-00-4	0.2	%	**95.2**	**94.6**	**----**	**----**	**91.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	25.1	20.6	19.4	15.0	27.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	No	No	Yes
Asbestos Type	1332-21-4	-	--	Ch + Am	----	-	-	Ch + Am + Cr
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	No	No
Sample weight (dry)	----	0.01	g	464	----	344	384	244
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	No	No
Organic Fibre	----	0.1	g/kg	No	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	0.0495	----	<0.0004	<0.0004	0.0488
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	0.011	----	<0.001	<0.001	0.020
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	<0.1	8.2
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	<0.01	0.50
ø Weight Used for % Calculation	----	0.0001	kg	0.464	----	0.344	0.384	0.244
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	45	117	41	102	18
Cadmium	7440-43-9	1	mg/kg	1	13	7	12	5
Chromium	7440-47-3	2	mg/kg	90	38	210	120	30
Copper	7440-50-8	5	mg/kg	407	872	3350	4920	395
Lead	7439-92-1	5	mg/kg	522	6390	4530	8960	2520
Nickel	7440-02-0	2	mg/kg	160	145	337	179	71
Zinc	7440-66-6	5	mg/kg	776	2930	3400	14000	4030
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.5	<0.1	<0.1	<0.1	0.4
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	**0.08**
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	**1.24**
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	**1.32**
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	<0.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	<0.05
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	**0.9**
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	**3.6**
Pyrene	129-00-0	0.5	mg/kg	**0.5**	<0.5	<0.5	<0.5	**4.1**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.2**
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.0**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.3**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.8**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**1.8**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.8**
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	**0.7**
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	**1.0**	<0.5	<0.5	<0.5	**19.2**
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**2.4**
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**2.7**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**2.9**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	**430**
C29 - C36 Fraction	----	100	mg/kg	**110**	<100	<100	----	**480**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	**110**	<50	<50	----	**910**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	**170**	<100	<100	----	**740**
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	**340**
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	**170**	<50	<50	----	**1080**
^ **>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
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**112**	----	----	----	**88.7**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**137**	----	----	----	**90.1**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**68.9**	----	----	----	**101**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**81.2**	**94.4**	**92.8**	**91.3**	**83.0**
2-Chlorophenol-D4	93951-73-6	0.5	%	**86.2**	**97.7**	**92.0**	**87.8**	**81.9**
2.4.6-Tribromophenol	118-79-6	0.5	%	**81.5**	**79.5**	**46.9**	**43.8**	**92.0**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**98.2**	**107**	**109**	**109**	**98.0**
Anthracene-d10	1719-06-8	0.5	%	**88.9**	**114**	**117**	**117**	**84.6**
4-Terphenyl-d14	1718-51-0	0.5	%	**94.2**	**105**	**109**	**109**	**89.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH115_0.6-0.7	BH115_2.5-2.6	BH111_0.3-0.4	BH111_0.65-0.75	BH110_0.35-0.36
				29-Jan-2020 00:00	29-Jan-2020 00:00	30-Jan-2020 00:00	30-Jan-2020 00:00	28-Jan-2020 00:00
				ES2003147-014	ES2003147-016	ES2003147-023	ES2003147-024	ES2003147-028
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**95.8**	**100**	**103**	**----**	**93.2**
Toluene-D8	2037-26-5	0.2	%	**86.4**	**91.1**	**95.0**	**----**	**82.2**
4-Bromofluorobenzene	460-00-4	0.2	%	**83.7**	**85.8**	**92.2**	**----**	**73.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH110_0.4-0.6	BH110_1.2-1.3	----	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	----	----	----
				ES2003147-029	ES2003147-031	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**15.8**	**17.3**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch + Am + Cr**	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**Yes**	----	----	----	----
Sample weight (dry)	----	0.01	g	**440**	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	----	----	----	----
Organic Fibre	----	0.1	g/kg	**No**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**A. SMYLIE**	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø **Asbestos (Fines and Fibrous <7mm)**	1332-21-4	0.0004	g	**0.166**	----	----	----	----
ø **Asbestos (Fines and Fibrous FA+AF)**	----	0.001	% (w/w)	**0.038**	----	----	----	----
ø **Asbestos Containing Material**	1332-21-4	0.1	g	**0.8**	----	----	----	----
ø **Asbestos Containing Material (as 15% Asbestos in ACM >7mm)**	1332-21-4	0.01	% (w/w)	**0.03**	----	----	----	----
ø **Weight Used for % Calculation**	----	0.0001	kg	**0.440**	----	----	----	----
ø **Fibrous Asbestos >7mm**	----	0.0004	g	<0.0004	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**48**	**32**	----	----	----
Cadmium	7440-43-9	1	mg/kg	**6**	**2**	----	----	----
Chromium	7440-47-3	2	mg/kg	**60**	**20**	----	----	----
Copper	7440-50-8	5	mg/kg	**1260**	**336**	----	----	----
Lead	7439-92-1	5	mg/kg	**3960**	**1350**	----	----	----
Nickel	7440-02-0	2	mg/kg	**91**	**16**	----	----	----
Zinc	7440-66-6	5	mg/kg	**2120**	**828**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**1.4**	**0.2**	----	----	----
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	**1.5**	**1.1**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH110_0.4-0.6	BH110_1.2-1.3	----	----	----
				28-Jan-2020 00:00	28-Jan-2020 00:00	----	----	----
				ES2003147-029	ES2003147-031	--------	--------	--------
				Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	**1.7**	**3.8**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	**1.4**	**5.7**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	**0.5**	**2.5**	----	----	----
Chrysene	218-01-9	0.5	mg/kg	**0.5**	**2.9**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**0.7**	**3.1**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	**0.9**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**2.8**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	**1.2**	----	----	----
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	**1.7**	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	**6.3**	**25.7**	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	**3.6**	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.7**	**3.9**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**4.1**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**96.9**	**91.0**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**97.1**	**96.0**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**72.2**	**93.4**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**114**	**107**	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**105**	**109**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**104**	**102**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC302	----	----	----	----
				30-Jan-2020 00:00	----	----	----	----
				ES2003147-012	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**104**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**109**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**106**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

[illegible]	[illegible] R [illegible]	[illegible]
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH116_0.3-0.4 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH116_0.6-0.65 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH117_0.3-0.4 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH117_1.3-1.4 - 30-Jan-2020 00:00	Mid brown soil containing one asbestos fibre bundle approximately 5x1x0.5mm.
EA200: Description	BH115_0.6-0.7 - 29-Jan-2020 00:00	Mid brown soil containing one piece of asbestos rope-like material approximately 15x2x2mm and one piece of asbestos cement sheeting approximately 5x5x2mm with loose asbestos fibre bundles.
EA200: Description	BH111_0.3-0.4 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH111_0.65-0.75 - 30-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH110_0.35-0.36 - 28-Jan-2020 00:00	Mid brown soil containing two pieces of asbestos cement sheeting approximately 40x30x5mm, one smaller fragment of asbestos cement debris approximately 10x5x2mm and plenty of loose asbestos fibre bundles.
EA200: Description	BH110_0.4-0.6 - 28-Jan-2020 00:00	Mid brown soil containing two pieces of asbestos cement sheeting approximately 20x15x2mm and plenty of loose asbestos fibre bundles throughout. Trace asbestos detected.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
ompound	AS Numbe	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
ompound	AS Numbe	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2003147**	Page	: 1 of 14
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 30-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 01-Feb-2020
C-O-C number	: ----	Issue Date	: 07-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 38		
No. of samples analysed	: 13		

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 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

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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: 2839957)									
EM2001381-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	11	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	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	79	82	3.98	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	29	27	9.48	No Limit
ES2003147-016	BH115_2.5-2.6	EG005T: Cadmium	7440-43-9	1	mg/kg	13	11	15.4	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	38	38	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	145	155	6.48	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	117	99	16.8	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	872	1040	17.9	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	6390	5870	8.46	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	2930	3080	4.99	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2839968)									
ES2002923-001	Anonymous	EA055: Moisture Content	----	0.1	%	9.9	9.0	8.93	No Limit
ES2003147-024	BH111_0.65-0.75	EA055: Moisture Content	----	0.1	%	15.0	14.9	0.754	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2839956)									
EM2001381-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003147-016	BH115_2.5-2.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2836713)									
ES2002677-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003046-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2836716)									

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: 2836716) - continued									
ES2002677-001	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: 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	33213-65-9	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: 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
ES2003046-001	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: 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	33213-65-9	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

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: 2836716) - continued									
ES2003046-001	Anonymous	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: 2836716)									
ES2002677-001	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-methyl	298-00-0	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
ES2003046-001	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-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2836716) - continued									
ES2003046-001	Anonymous	EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2836715)									
ES2002677-001	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
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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): Sum of polycyclic aromatic hydrocarbons	----	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
ES2003046-001	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
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2836715) - continued									
ES2003046-001	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	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: 2836719)									
ES2003147-002	BH116_0.6-0.65	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	0.7	1.0	30.6	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	1.0	25.9	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	205-99-2 205-82-3	0.5	mg/kg	0.7	0.6	17.1	No Limit
		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	0.6	<0.5	22.2	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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	3.2	2.6	20.7	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.7	<0.5	29.8	No Limit
ES2003046-008	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
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

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: 2836719) - continued									
ES2003046-008	Anonymous	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	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: 2836694)									
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EW2000476-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2836714)									
ES2002677-001	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
ES2003046-001	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: 2836718)									
ES2003147-002	BH116_0.6-0.65	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
ES2003046-008	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 Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2836694)									
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EW2000476-004	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: 2836714)									
ES2002677-001	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
ES2003046-001	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: 2836718)									
ES2003147-002	BH116_0.6-0.65	EP071: >C16 - C34 Fraction	----	100	mg/kg	180	130	28.5	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
ES2003046-008	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: BTEXN (QC Lot: 2836694)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 2836694) - continued									
ES2003147-001	BH116_0.3-0.4	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
EW2000476-004	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2843462)									
ES2003147-012	QC302	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2843462)									
ES2003147-012	QC302	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2843462)									
ES2003147-012	QC302	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2839957)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	94.0	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.4	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	90.6	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	81.4	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2839956)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.9	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2836713)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	105	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2836716)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	81.0	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	100	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2836716)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2836716) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	76.7	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	90.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	89.9	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	100	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836715)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	91.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	94.9	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	97.1	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	97.5	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	93.1	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	95.3	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	98.0	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.1	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.9	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	89.1	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.8	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	95.2	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	94.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	92.2	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836719)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	114	77.0	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836719) - continued								
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	114	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	112	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	114	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	119	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	121	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	120	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	125	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	109	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	113	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	111	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	110	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	113	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	107	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	103	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	103	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836694)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.5	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836714)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	105	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	107	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	106	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836718)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	108	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	117	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	115	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836694)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.8	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836714)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	103	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	103	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	111	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836718)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	112	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	113	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	118	63.0	131
EP080: BTEXN (QCLot: 2836694)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	102	62.0	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 2836694) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.5	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	94.2	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	96.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.2	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	97.6	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843462)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843462)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.5	75.0	127
EP080: BTEXN (QCLot: 2843462)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	97.3	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.4	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	105	70.0	120

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2839957)							
EM2001381-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	89.0	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	88.5	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	78.3	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	85.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	77.5	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	72.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2839956)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2839956) - continued							
EM2001381-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	80.7	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2836713)							
ES2002677-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	92.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2836716)							
ES2002677-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	97.3	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	102	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	103	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	80.4	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	93.1	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	87.6	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2836716)							
ES2002677-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	93.2	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	80.4	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	72.7	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	74.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	72.4	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836715)							
ES2002677-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.2	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.2	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2836719)							
ES2003046-008	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	114	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	122	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836694)							
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C9 Fraction	----	32.5 mg/kg	109	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836714)							
ES2002677-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	96.1	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	106	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	126	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2836718)							
ES2003046-008	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	94.8	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	111	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	114	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836694)							
ES2003147-001	BH116_0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	108	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836714)							
ES2002677-001	Anonymous						

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836714) - continued							
ES2002677-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	104	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	118	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	118	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2836718)							
ES2003046-008	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	102	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	114	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	106	52.0	132
EP080: BTEXN (QCLot: 2836694)							
ES2003147-001	BH116_0.3-0.4	EP080: Benzene	71-43-2	2.5 mg/kg	117	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	104	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	104	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	106	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.1	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843462)							
ES2003147-012	QC302	EP080: C6 - C9 Fraction	----	325 µg/L	92.5	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843462)							
ES2003147-012	QC302	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.5	70.0	130
EP080: BTEXN (QCLot: 2843462)							
ES2003147-012	QC302	EP080: Benzene	71-43-2	25 µg/L	88.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	93.0	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	103	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	101	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	107	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2003147**	Page	: 1 of 9
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1	Date Samples Received	: 30-Jan-2020
Site	: ----	Issue Date	: 07-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO	No. of samples received	: 38
Order number	: 60623599_1.1	No. of samples analysed	: 13

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

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 / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH110_0.35-0.36,	BH110_0.4-0.6,	**28-Jan-2020**	**----**	----	----	**04-Feb-2020**	11-Feb-2020	✓
BH110_1.2-1.3								
Soil Glass Jar - Unpreserved (EA055)								
BH115_0.6-0.7,	BH115_2.5-2.6	**29-Jan-2020**	**----**	----	----	**04-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EA055)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**----**	----	----	**04-Feb-2020**	13-Feb-2020	✓
BH117_0.3-0.4,	BH117_1.3-1.4,							
BH117_2.2-2.3,	BH111_0.3-0.4,							
BH111_0.65-0.75								
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH110_0.35-0.36,	BH110_0.4-0.6	**28-Jan-2020**	**----**	----	----	**04-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH115_0.6-0.7		**29-Jan-2020**	**----**	----	----	**04-Feb-2020**	27-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**----**	----	----	**04-Feb-2020**	28-Jul-2020	✓
BH117_0.3-0.4,	BH117_1.3-1.4,							
BH111_0.3-0.4,	BH111_0.65-0.75							
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH110_0.35-0.36,	BH110_0.4-0.6	**28-Jan-2020**	**----**	----	----	**04-Feb-2020**	26-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH115_0.6-0.7		**29-Jan-2020**	**----**	----	----	**04-Feb-2020**	27-Jul-2020	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
BH116_0.3-0.4,	BH116_0.6-0.65,	**30-Jan-2020**	**----**	----	----	**04-Feb-2020**	28-Jul-2020	✓
BH117_0.3-0.4,	BH117_1.3-1.4,							
BH111_0.3-0.4,	BH111_0.65-0.75							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		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) BH110_0.35-0.36, BH110_0.4-0.6, BH110_1.2-1.3	**28-Jan-2020**	**04-Feb-2020**	26-Jul-2020	✓	**04-Feb-2020**	26-Jul-2020	✓
Soil Glass Jar - Unpreserved (EG005T) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**04-Feb-2020**	27-Jul-2020	✓	**04-Feb-2020**	27-Jul-2020	✓
Soil Glass Jar - Unpreserved (EG005T) BH116_0.3-0.4, BH116_0.6-0.65, BH117_0.3-0.4, BH117_1.3-1.4, BH117_2.2-2.3, BH111_0.3-0.4, BH111_0.65-0.75	**30-Jan-2020**	**04-Feb-2020**	28-Jul-2020	✓	**04-Feb-2020**	28-Jul-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BH110_0.35-0.36, BH110_0.4-0.6, BH110_1.2-1.3	**28-Jan-2020**	**04-Feb-2020**	25-Feb-2020	✓	**06-Feb-2020**	25-Feb-2020	✓
Soil Glass Jar - Unpreserved (EG035T) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**04-Feb-2020**	26-Feb-2020	✓	**06-Feb-2020**	26-Feb-2020	✓
Soil Glass Jar - Unpreserved (EG035T) BH116_0.3-0.4, BH116_0.6-0.65, BH117_0.3-0.4, BH117_1.3-1.4, BH117_2.2-2.3, BH111_0.3-0.4, BH111_0.65-0.75	**30-Jan-2020**	**04-Feb-2020**	27-Feb-2020	✓	**06-Feb-2020**	27-Feb-2020	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP066) BH115_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP066) BH116_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH115_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH116_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH115_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP068) BH116_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BH110_0.4-0.6, BH110_1.2-1.3	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**03-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**03-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH115_0.6-0.7	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH116_0.6-0.65, BH117_0.3-0.4, BH117_1.3-1.4, BH117_2.2-2.3, BH111_0.3-0.4, BH111_0.65-0.75	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**03-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH116_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**06-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**06-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071) BH116_0.3-0.4, BH116_0.6-0.65, BH117_2.2-2.3, BH111_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH116_0.3-0.4, BH116_0.6-0.65, BH117_2.2-2.3, BH111_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**06-Feb-2020**	13-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**06-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**06-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071) BH116_0.3-0.4, BH116_0.6-0.65, BH117_2.2-2.3, BH111_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**04-Feb-2020**	12-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH116_0.3-0.4, BH116_0.6-0.65, BH117_2.2-2.3, BH111_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**06-Feb-2020**	13-Feb-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH110_0.35-0.36	**28-Jan-2020**	**01-Feb-2020**	11-Feb-2020	✓	**06-Feb-2020**	11-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH115_0.6-0.7, BH115_2.5-2.6	**29-Jan-2020**	**01-Feb-2020**	12-Feb-2020	✓	**06-Feb-2020**	12-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH116_0.3-0.4, BH116_0.6-0.65, BH117_2.2-2.3, BH111_0.3-0.4	**30-Jan-2020**	**01-Feb-2020**	13-Feb-2020	✓	**06-Feb-2020**	13-Feb-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC302	**30-Jan-2020**	**05-Feb-2020**	13-Feb-2020	✓	**05-Feb-2020**	13-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC302	**30-Jan-2020**	**05-Feb-2020**	13-Feb-2020	✓	**05-Feb-2020**	13-Feb-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC302	**30-Jan-2020**	**05-Feb-2020**	13-Feb-2020	✓	**05-Feb-2020**	13-Feb-2020	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
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 (SnCl2) (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 SnCl2 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)
Polychlorinated Biphenyls (PCB)	EP066	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 method is compliant with NEPM (2013) Schedule B(3) (Method 504)
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.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (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, 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.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2003147**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: PO BOX Q410 QVB POST OFFICE SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1	Page	: 1 of 3
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		

Dates

Date Samples Received	: 30-Jan-2020 15:00	Issue Date	: 05-Feb-2020
Client Requested Due Date	: 06-Feb-2020	Scheduled Reporting Date	: **06-Feb-2020**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 13.1 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 38 / 13

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is an updated SRN to include TPH (C6-C9)/BTEXN analysis on sample QC302.
- **Samples 27-35 have been transferred from ES2002766, as per Alex Latham.**
- **Please note that sample QC107 contained two soil jars. Samples BH117_3.9-4.0 and BH111_4.3-4.4 did not contain an Asbestos bag. Two VOC vials were received for sample QC302 (30/1/20), however no VOC vial was received for sample QC302(29/01/2020) - both VOC vials had the sampling date of 30/01/20. Sample BH115_4.4-4.6 had the depth of 4.4-4.5 on the soil jar. Samples BH111_1.5-1.6 and BH110_6.1-6.2 did not received soil jars. Samples BH111_1.4-1.5, BH115_0.7-0.8 and QC301 were received extra.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

Sample Container(s)/Preservation Non-Compliances

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

No sample container / preservation non-compliance exists.

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2003147-018 : [29-Jan-2020] : BH115_4.4-4.5 - BH115_4.4-4.5

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 - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003147-001	30-Jan-2020 00:00	BH116_0.3-0.4		☐	☐			☐	☐
ES2003147-002	30-Jan-2020 00:00	BH116_0.6-0.65		☐	☐				☐
ES2003147-003	30-Jan-2020 00:00	BH116_0.75-0.78	☐						
ES2003147-004	30-Jan-2020 00:00	QC107	☐						
ES2003147-005	30-Jan-2020 00:00	BH117_0.3-0.4		☐	☐	☐	☐		
ES2003147-006	30-Jan-2020 00:00	BH117_0.8-0.9	☐						
ES2003147-007	30-Jan-2020 00:00	BH117_1.3-1.4		☐	☐	☐	☐		
ES2003147-008	30-Jan-2020 00:00	BH117_2.2-2.3		☐					☐
ES2003147-009	30-Jan-2020 00:00	BH117_3.1-3.2	☐						
ES2003147-010	30-Jan-2020 00:00	BH117_3.9-4.0	☐						
ES2003147-011	30-Jan-2020 00:00	BH117_4.4-4.5	☐						
ES2003147-013	29-Jan-2020 00:00	BH115_0.1-0.2	☐						
ES2003147-014	29-Jan-2020 00:00	BH115_0.6-0.7		☐	☐			☐	☐
ES2003147-015	29-Jan-2020 00:00	BH115_1.0-1.1	☐						
ES2003147-016	29-Jan-2020 00:00	BH115_2.5-2.6		☐					☐
ES2003147-017	29-Jan-2020 00:00	BH115_3.8-3.9	☐						
ES2003147-018	29-Jan-2020 00:00	BH115_4.4-4.5 BH115...	☐						
ES2003147-019	30-Jan-2020 00:00	BH111_2.3-2.4	☐						
ES2003147-020	30-Jan-2020 00:00	BH111_3.2-3.3	☐						
ES2003147-021	30-Jan-2020 00:00	BH111_4.3-4.5	☐						
ES2003147-022	30-Jan-2020 00:00	BH111_0.15-0.20	☐						
ES2003147-023	30-Jan-2020 00:00	BH111_0.3-0.4		☐	☐				☐
ES2003147-024	30-Jan-2020 00:00	BH111_0.65-0.75		☐	☐	☐	☐		
ES2003147-025	30-Jan-2020 00:00	BH111_1.5-1.6	☐						
ES2003147-026	29-Jan-2020 00:00	BH113_1.0-1.1	☐						
ES2003147-027	28-Jan-2020 00:00	QC104	☐						
ES2003147-028	28-Jan-2020 00:00	BH110_0.35-0.36		☐	☐			☐	☐
ES2003147-029	28-Jan-2020 00:00	BH110_0.4-0.6		☐	☐	☐	☐		
ES2003147-030	28-Jan-2020 00:00	BH110_0.9-1.0	☐						
ES2003147-031	28-Jan-2020 00:00	BH110_1.2-1.3		☐		☐	☐		
ES2003147-032	28-Jan-2020 00:00	BH110_5-5.1	☐						
ES2003147-033	28-Jan-2020 00:00	BH110_6.1-6.2	☐						
ES2003147-034	28-Jan-2020 00:00	BH108_4.1-4.2	☐						

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003147-035	30-Jan-2020 00:00	QC108	☐						
ES2003147-036	30-Jan-2020 00:00	BH111_1.4-1.5	☐						
ES2003147-037	29-Jan-2020 00:00	BH115_0.7-0.8	☐						

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) WATER No analysis requested	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2003147-012	30-Jan-2020 00:00	QC302		☐
ES2003147-038	29-Jan-2020 00:00	QC301	☐	

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

updated COC rec. 31/1/20 @ 3pm.

60623599 Burrows IE 1 of 3

Environmental Division Sydney
Work Order Reference
ES2003147

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451

AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: 60623599_1.1

Laboratory Details Tel: ~~9910 6200~~
Lab Name: ~~Envirolab~~ ALS Fax:
Lab Address: ~~12 Ashley St, Chatswood~~ CM 4thfield Preliminary Rep
Contact Name: ~~D Springer~~ B Hong Final Report by:
Lab. Ref: Lab Quote No:

Project Name: Burrows IE PO No.

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200)		HOLD		TRH >C10-C40								Other
1	BH116_0.3-0.4	30/1/20	✓					✓		3 B	✓	✓	✓	✓	✓												
2	BH116_0.6-0.65									3 B	✓	✓	✓		✓												
3	BH116_0.75-0.79									3 B							✓										
4	QC107								2x jars	0 -							✓										
-	~~BH117_2.2-2.3~~									~~3 B~~																	
-	~~BH117_3.1-3.3~~									~~3 B~~																	
5	BH117_0.3-0.4									3 B		✓	✓		✓												
6	BH117_0.8-0.9									3 B							✓										
7	BH117_1.3-1.4									3 B		✓	✓		✓												
8	BH117_2.2-2.3									3 B	✓	✓	✓														
9	BH117_3.1-3.2									3 B							✓										
10	BH117_3.9-4.0								No bag	3 B							✓										
11	BH117_4.4-4.5									3 -							✓										
12	QC302			X				2x VOC vials		3 -									✓								

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 30/1/20

Relinquished by: R. Panozzo Signed: Date: ~~19/07/2019~~
Recieved by: Signed: Date:

Relinquished by: Signed: Date:
Recieved by: Stanley Signed: Date: 30/01/20

Lab Report No. Esky ID

Subcon / Forward Dep / Split WO
Lab / Analysis: Newcastle / Adelaide
Organised By / Date:
Relinquished By / Date:
Console / Courier:
WO No:

Attached By PO / Internal Sheet:

Field_Worksheet_FORM025_Dec04

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com

Laboratory Details
Tel: ~~9910 6200~~
Lab Name: ~~Envirolab~~ ALS
Fax:
Lab Address: ~~12 Ashley St, Chatswood~~ Smithfield
Preliminary Report by:
Contact Name: ~~D Springer~~ B Hong
Final Report by:
Lab. Ref:
Lab Quote No:

Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: 60623599_1.1
Project Name: Burrows IE
PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details:)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EH200N)	HOLD	TEH >C10 - C40	Held	Other
13	BH115 - 0.1-0.2	29/11	Y					Y		JB						✓			
14	BH115 - 0.6-0.7									JB	✓	✓	✓	✓	✓				
15	BH115 - 1.0-1.1									JB						✓			
16	BH115 - 2.5-2.6									J	✓	✓	✓						
17	BH115 - 3.8-3.9									J						✓			
SWR -	QC302			Y						V							✓	→	different date to previous QC302
18	BH115 - 4.4-4.6 (4.4-4.5)		X							J						✓			
19	BH111 - 2.3-2.4	30/11	X							JB						✓			
20	BH111 - 3.2-3.3									JB						✓			
21	BH111 - 4.3-4.5								No bag	JB						✓			
22	BH111 - 0.15-0.20									JB						✓			
23	BH111 - 0.3-0.4									JB	✓	✓	✓	✓					
24	BH111 - 0.65-0.75									JB		✓	✓	✓					
SWR -	QC106									J						✓			

same date on both QC302 vials

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn
Comments: 3G (1

Lab Report No.
Esky ID

Relinquished by:	Signed:	Date: 19/07/2019	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: Shakila	Signed:	Date: 20/01/20

25 BH111 - 1.5-1.6 No jar JB ✓ (HOLD).

CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St) T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details Tel: 8784 8515
Lab Name: **ALS** Fax:
Lab Address: 277 Woodpark Rd, Smithfield Preliminary Report by:
Contact Name: Brenda Hong Final Report by:
Lab. Ref: Lab Quote No: **EN/004/16**

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1** Project Name: Burrows IE PO No. refer Project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr ___5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	add	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH > C10-C40 (EP071)	HOLD
26	BH113_0.8-1.0 *	29/1/20	✓					✓		J+B							✓
27	QC104	28/1/20	↓					↓		Jar							✓
28	BH110_0.35-0.36	28/1/20								J+B	✓	✓	✓	✓	✓		
29	BH110_0.4-0.6	↓								J+B		✓	✓		✓		
30	BH110_0.9-1.0									J+B							✓
31	BH110_1.2-1.3									J+B		✓	✓				
32	BH110_5-5.1									J							✓
33	BH110_6.1-6.2 ■	↓	↓					✓Bag not jar		J							✓
34	BH108_4.1-4.2	28/1/20	✓					✓		B							✓
	NOTE: These 9																
	samples were received																
	under ES2002766.																
35	QC108	30/1/20	✓					✓ correct ID									✓

NOTE: send requested soil QC samples to Envirolab with crushed ice please

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: * 1.0-1.1 (received cracked). ■ BH110. Not initially indicated. Lab Report No. Esky ID

Relinquished by:	Signed:	Date:	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by:	Signed:	Date:

36	BH111_1.4-1.5	30/1/20	Jar	Received extra
37	BH115_0.7-0.8	29/1/20	Jar + Bag	
38	QC301	29/1/20	2x VOC vials	

CHAIN OF CUSTODY

AECOM Australia Pty Ltd		Laboratory Details	Tel: 9910 6200
Sydney (420 George St)	T: 02 8934 0451	Lab Name: Envirolab	Fax:
		Lab Address: 12 Ashley St, Chatswood	Preliminary Report by:
AECOM Project Manager: Alex Latham		Contact Name: D Springer	Final Report by:
AECOM Project Manager Email: **Alex.Latham@aecom.com**		Lab. Ref:	Lab Quote No:
Sampled By: Kurtis Wathen / Rebekah Panozzo	AECOM Project No: **60623599_1.1**	Project Name: Burrows IE	PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM.5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
	BH116_0.3-0.4	30/11/20	Y					Y		3 B					X	
	BH116_0.6-0.65									3 B						
	BH116_0.75-0.79									3 B						
	QC107									3 -						
	BH117_2.2-2.3									3 B						
	BH117_3.1-3.3									3 B						
	BH117_0.3-0.4									3 B						
	BH117_0.8-0.9									3 B						
	BH117_1.3-1.4									3 B						
	BH117_2.2-2.3									3 B						
	BH117_3.1-3.2									3 B						
	BH117_3.9-4.0									3 B						
	BH117_4.4-4.5									3 -						
	QC302			X						3 -						

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 30/11/20

Lab Report No.

Esky ID

Relinquished by: R. Panozzo	Signed:	Date: ~~19/07/2019~~	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by: Shanlei Qi	Signed:	Date: 30/11/20

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451

AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details Tel: 9910 6200
Lab Name: Envirolab Fax:
Lab Address: 12 Ashley St, Chatswood Preliminary Report by:
Contact Name: D Springer Final Report by:
Lab. Ref: Lab Quote No:

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1** Project Name: Burrows IE PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
	BH115 - 0.1-0.2	29/11	Y					Y		JB					Y	
	BH115 - 0.6-0.7									JB						
	BH115 - 1.0-1.1									JB						
	BH115 - 2.5-2.6									J						
	BH115 - 3.8-3.9									J						
	QC302			Y						V						
	BH115 - 4.4-4.6		X							J						
	BH111 - 2.3-2.4	30/11	X							JB						
	BH111 - 3.2-3.3									JB						
	BH111 - 4.3-4.5									JB						
	BH111 - 0.15-0.20									JB						
	BH111 - 0.3-0.4									JB						
	BH111 - 0.65-0.75									JB						
	QC106									J						

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 3611

Lab Report No. Esky ID

Relinquished by: Signed: Date: ~~19/07/2019~~
Recieved by: Signed: Date:

Relinquished by: Signed: Date:
Recieved by: Shahid 19 Signed: Date: 30/11/20

BH111 - 1.5-1.6 JB

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2003366**	Page	: 1 of 13
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020 16:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 05-Feb-2020
C-O-C number	: ----	Issue Date	: 11-Feb-2020 13:50
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 29		
No. of samples analysed	: 13		

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
- Descriptive 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.

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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
ø = 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.
- EP071: Results of samples QC111 and QC114 have been confirmed by re-extraction and re-analysis.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH103_0.15-0.25	BH103_0.85-0.95	BH103_2.0-2.1	BH104_0.8-0.9	BH104_1.6-1.7
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-001	ES2003366-002	ES2003366-004	ES2003366-008	ES2003366-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	4.6	11.6	26.0	11.3	26.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	No	No
Asbestos Type	1332-21-4	-	--	-	----	-	-	-
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	No	No
Sample weight (dry)	----	0.01	g	499	----	446	531	431
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	No	No
Organic Fibre	----	0.1	g/kg	No	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	<0.001	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	<0.1	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.499	----	0.446	0.531	0.431
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	<0.0004	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	40	66	10	31
Cadmium	7440-43-9	1	mg/kg	<1	<1	13	<1	5
Chromium	7440-47-3	2	mg/kg	6	9	34	8	42
Copper	7440-50-8	5	mg/kg	10	93	2540	53	540
Lead	7439-92-1	5	mg/kg	19	319	1090	171	1610
Nickel	7440-02-0	2	mg/kg	3	12	39	19	66
Zinc	7440-66-6	5	mg/kg	31	304	17500	170	3720
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.7	1.4	0.7	1.1
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	1.3	<0.5	0.6	0.7
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	4.7	1.7	2.4	3.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH103_0.15-0.25	BH103_0.85-0.95	BH103_2.0-2.1	BH104_0.8-0.9	BH104_1.6-1.7
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-001	ES2003366-002	ES2003366-004	ES2003366-008	ES2003366-010
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Anthracene	120-12-7	0.5	mg/kg	<0.5	**1.5**	<0.5	**0.8**	**1.0**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**9.5**	**5.3**	**4.8**	**6.2**
Pyrene	129-00-0	0.5	mg/kg	<0.5	**8.9**	**4.6**	**4.6**	**6.2**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	**4.3**	**3.6**	**2.2**	**3.0**
Chrysene	218-01-9	0.5	mg/kg	<0.5	**3.9**	**3.3**	**1.9**	**2.7**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	**5.2**	**4.9**	**2.7**	**4.4**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	**2.1**	**1.7**	**0.9**	**1.4**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**4.6**	**3.4**	**2.3**	**3.6**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	**2.1**	**1.5**	**1.0**	**1.8**
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	**2.7**	**1.8**	**1.4**	**2.5**
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	**50.8**	**31.8**	**25.6**	**36.5**
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	**6.0**	**4.6**	**3.0**	**4.7**
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.6**	**6.3**	**4.9**	**3.3**	**5.0**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**6.5**	**5.1**	**3.5**	**5.2**
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	----	----	**470**	**760**
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	**170**	**370**
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	----	----	**640**	**1130**
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
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	**580**	**1000**
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	<100	**210**
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	<50	----	----	**580**	**1210**
^ **>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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH103_0.15-0.25	BH103_0.85-0.95	BH103_2.0-2.1	BH104_0.8-0.9	BH104_1.6-1.7
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-001	ES2003366-002	ES2003366-004	ES2003366-008	ES2003366-010
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**85.6**	**85.2**	**86.2**	**85.5**	**90.4**
2-Chlorophenol-D4	93951-73-6	0.5	%	**90.1**	**88.9**	**89.6**	**89.6**	**94.0**
2.4.6-Tribromophenol	118-79-6	0.5	%	**61.2**	**72.2**	**72.3**	**72.6**	**79.7**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**97.5**	**96.9**	**96.0**	**95.7**	**98.8**
Anthracene-d10	1719-06-8	0.5	%	**92.4**	**87.6**	**89.5**	**89.8**	**92.8**
4-Terphenyl-d14	1718-51-0	0.5	%	**103**	**102**	**101**	**100**	**105**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**94.3**	----	----	**94.0**	**84.8**
Toluene-D8	2037-26-5	0.2	%	**93.7**	----	----	**105**	**93.5**
4-Bromofluorobenzene	460-00-4	0.2	%	**83.1**	----	----	**89.7**	**74.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH104_2.0-2.2	QC111	BH100_0.7-0.8	BH100_0.8-0.9	BH114_0.45-0.55
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-011	ES2003366-014	ES2003366-016	ES2003366-017	ES2003366-021
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	20.2	----	----	----	----
Moisture Content	----	1.0	%	----	28.2	33.6	28.5	16.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	No	Yes
Asbestos Type	1332-21-4	-	--	----	----	-	-	Ch + Am
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	No	No	No
Sample weight (dry)	----	0.01	g	----	----	342	441	493
Synthetic Mineral Fibre	----	0.1	g/kg	----	----	No	No	No
Organic Fibre	----	0.1	g/kg	----	----	No	No	No
APPROVED IDENTIFIER:	----	-	--	----	----	A. SMYLIE	A. SMYLIE	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	<0.0004	<0.0004	0.282
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	<0.001	<0.001	0.110
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	<0.1	6.5
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	----	----	<0.01	<0.01	0.20
ø Weight Used for % Calculation	----	0.0001	kg	----	----	0.342	0.441	0.493
ø Fibrous Asbestos >7mm	----	0.0004	g	----	----	<0.0004	<0.0004	0.260
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	35	32	12	30
Cadmium	7440-43-9	1	mg/kg	----	4	<1	3	16
Chromium	7440-47-3	2	mg/kg	----	32	116	8	186
Copper	7440-50-8	5	mg/kg	----	685	180	265	1190
Lead	7439-92-1	5	mg/kg	----	1900	1230	278	4520
Nickel	7440-02-0	2	mg/kg	----	65	23	11	592
Zinc	7440-66-6	5	mg/kg	----	3350	593	428	2890
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	1.2	1.7	2.5	1.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	0.5	1.0	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH104_2.0-2.2	QC111	BH100_0.7-0.8	BH100_0.8-0.9	BH114_0.45-0.55
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-011	ES2003366-014	ES2003366-016	ES2003366-017	ES2003366-021
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	0.5	mg/kg	----	2.2	4.3	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	0.7	1.4	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	4.9	7.6	<0.5	0.8
Pyrene	129-00-0	0.5	mg/kg	----	4.9	7.1	<0.5	0.8
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	2.4	3.5	<0.5	0.6
Chrysene	218-01-9	0.5	mg/kg	----	2.3	2.9	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	3.8	4.0	<0.5	0.8
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	1.3	1.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	3.1	3.6	<0.5	0.6
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	1.6	1.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	2.2	1.8	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	29.9	40.2	<0.5	3.6
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	4.0	4.7	<0.5	0.7
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	4.3	4.9	0.6	1.0
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	4.6	5.2	1.2	1.4
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	650	430	150	<100	230
C29 - C36 Fraction	----	100	mg/kg	390	300	120	<100	210
^ C10 - C36 Fraction (sum)	----	50	mg/kg	1040	730	270	<50	440
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
>C16 - C34 Fraction	----	100	mg/kg	930	620	230	<100	390
>C34 - C40 Fraction	----	100	mg/kg	200	180	<100	<100	110
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	1130	800	230	<50	500
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH104_2.0-2.2	QC111	BH100_0.7-0.8	BH100_0.8-0.9	BH114_0.45-0.55
				03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00	03-Feb-2020 00:00
				ES2003366-011	ES2003366-014	ES2003366-016	ES2003366-017	ES2003366-021
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<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	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**83.6**	**83.5**	**86.7**	**88.4**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**88.1**	**88.4**	**91.5**	**92.8**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**74.6**	**73.2**	**69.6**	**69.8**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**92.9**	**93.8**	**97.8**	**99.8**
Anthracene-d10	1719-06-8	0.5	%	----	**86.6**	**87.3**	**93.9**	**92.9**
4-Terphenyl-d14	1718-51-0	0.5	%	----	**98.5**	**98.5**	**103**	**105**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**93.5**	**86.9**	**84.3**	**84.6**	**105**
Toluene-D8	2037-26-5	0.2	%	**99.8**	**89.2**	**86.7**	**86.2**	**114**
4-Bromofluorobenzene	460-00-4	0.2	%	**85.4**	**86.4**	**85.7**	**76.5**	**89.9**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH114_1.3-1.4	QC114	----	----	----
				03-Feb-2020 00:00	03-Feb-2020 00:00	----	----	----
				ES2003366-023	ES2003366-024	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**37.2**	**20.6**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**55**	**33**	----	----	----
Cadmium	7440-43-9	1	mg/kg	**23**	**55**	----	----	----
Chromium	7440-47-3	2	mg/kg	**1240**	**234**	----	----	----
Copper	7440-50-8	5	mg/kg	**2870**	**1570**	----	----	----
Lead	7439-92-1	5	mg/kg	**4600**	**6150**	----	----	----
Nickel	7440-02-0	2	mg/kg	**885**	**456**	----	----	----
Zinc	7440-66-6	5	mg/kg	**9880**	**3310**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**2.8**	**1.3**	----	----	----
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	**0.8**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	**0.7**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	**0.6**	----	----	----
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	**2.1**	----	----	----
^ 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	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH114_1.3-1.4	QC114	----	----	----
				03-Feb-2020 00:00	03-Feb-2020 00:00	----	----	----
				ES2003366-023	ES2003366-024	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	**140**	**160**	----	----	----
C29 - C36 Fraction	----	100	mg/kg	**140**	**160**	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	**280**	**320**	----	----	----
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	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	**240**	**290**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	**240**	**290**	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**88.6**	**85.9**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**92.4**	**90.1**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**73.2**	**69.6**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**98.3**	**96.4**	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**93.6**	**94.1**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**104**	**104**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**87.6**	**97.6**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**92.9**	**107**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH114_1.3-1.4	QC114	----	----	----
				03-Feb-2020 00:00	03-Feb-2020 00:00	----	----	----
				ES2003366-023	ES2003366-024	--------	--------	--------
				Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	**83.7**	**90.0**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC304	----	----	----	----
				03-Feb-2020 00:00	----	----	----	----
				ES2003366-029	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**85.2**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**103**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**106**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH103_0.15-0.25 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH103_2.0-2.1 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH104_0.8-0.9 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH104_1.6-1.7 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH100_0.7-0.8 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH100_0.8-0.9 - 03-Feb-2020 00:00	Mid brown soil.
EA200: Description	BH114_0.45-0.55 - 03-Feb-2020 00:00	Mid brown soil containing one piece of fibrous asbestos fibre board approximately 20x10x5mm and several pieces of asbestos cement sheeting approximately 30x30x5mm with plenty of smaller fragments of fibrous asbestos fibre board.

Surrogate Control Limits

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

Sub-Matrix: WATER		Recovery Limits (%)	
ompound	AS Numbe	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2003366**	Page	: 1 of 9
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 05-Feb-2020
C-O-C number	: ----	Issue Date	: 11-Feb-2020
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 29		
No. of samples analysed	: 13		

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

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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

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.

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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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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: 2847589)									
ES2003366-023	BH114_1.3-1.4	EG005T: Copper	7440-50-8	5	mg/kg	2870	3000	4.44	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	4600	3790	19.4	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	9880	9230	6.86	0% - 20%
ES2002853-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	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	166	149	10.6	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	24	23	4.92	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	98	83	15.9	0% - 50%
ES2003366-023	BH114_1.3-1.4	EG005T: Cadmium	7440-43-9	1	mg/kg	23	27	18.2	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	1240	1200	2.79	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	885	801	9.98	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	55	37	38.9	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2847593)									
ES2003366-002	BH103_0.85-0.95	EA055: Moisture Content	----	0.1	%	11.6	11.7	0.00	0% - 50%
ES2003476-002	Anonymous	EA055: Moisture Content	----	0.1	%	11.1	11.5	3.40	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2849180)									
ES2003337-012	Anonymous	EA055: Moisture Content	----	0.1	%	3.4	3.2	6.92	0% - 20%
ES2003518-011	Anonymous	EA055: Moisture Content	----	0.1	%	4.2	4.0	3.96	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2847590)									
ES2002853-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003366-023	BH114_1.3-1.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	2.8	2.5	11.9	0% - 20%
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2841968)									

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: 2841968) - continued									
ES2003366-001	BH103_0.15-0.25	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	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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): Sum of polycyclic aromatic hydrocarbons	----	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
ES2003366-024	QC114	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	0.8	0.5	43.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	<0.5	36.3	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	205-99-2 205-82-3	0.5	mg/kg	0.6	0.5	0.00	No Limit
		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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2.1	1.0	71.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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 Petroleum Hydrocarbons (QC Lot: 2841969)									
ES2003366-001	BH103_0.15-0.25	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
ES2003366-024	QC114	EP071: C15 - C28 Fraction	----	100	mg/kg	160	190	15.6	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	160	170	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2843136)									
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2003463-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2841969)									
ES2003366-001	BH103_0.15-0.25	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
ES2003366-024	QC114	EP071: >C16 - C34 Fraction	----	100	mg/kg	290	310	8.44	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: 2843136)									
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2003463-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2843136)									
ES2003366-001	BH103_0.15-0.25	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
ES2003463-001	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

Sub-Matrix: **WATER**

				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 Petroleum Hydrocarbons (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES2003311-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit

Sub-Matrix: **WATER**

				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: 2845751)									
ES2003311-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2003311-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES2003311-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847589)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.6	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	100	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.7	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	93.4	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2847590)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.2	70.0	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2841968)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.0	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	102	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	104	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.0	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.1	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	88.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	92.6	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.1	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	75.8	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	71.1	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	78.2	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2841969)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	110	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	109	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	97.3	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843136)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.3	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841969)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841969) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	107	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	106	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	85.0	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843136)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	76.6	68.4	128
EP080: BTEXN (QCLot: 2843136)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.2	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	83.9	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.6	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.6	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.4	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	84.0	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2845751)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2845751)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	90.5	75.0	127
EP080: BTEXN (QCLot: 2845751)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.7	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.2	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.6	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	85.2	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.9	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.0	70.0	120

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847589)							
ES2002853-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.6	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847589) - continued							
ES2002853-001	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	91.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.3	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	84.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.7	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	73.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2847590)							
ES2002853-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2841968)							
ES2003366-001	BH103_0.15-0.25	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.4	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.4	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2841969)							
ES2003366-001	BH103_0.15-0.25	EP071: C10 - C14 Fraction	----	523 mg/kg	105	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	117	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	132	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2843136)							
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841969)							
ES2003366-001	BH103_0.15-0.25	EP071: >C10 - C16 Fraction	----	860 mg/kg	109	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	121	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	126	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2843136)							
ES2003366-001	BH103_0.15-0.25	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	70.0	130
EP080: BTEXN (QCLot: 2843136)							
ES2003366-001	BH103_0.15-0.25	EP080: Benzene	71-43-2	2.5 mg/kg	88.1	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	87.1	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.3	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.0	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.2	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.4	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	118	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70.0	130
EP080: BTEXN (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	90.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	90.6	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.1	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.8	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.7	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2003366**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020
Site	: ----	Issue Date	: 11-Feb-2020
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO	No. of samples received	: 29
Order number	: 60623599_1.1	No. of samples analysed	: 13

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

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 / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Snap Lock Bag: Separate bag received (EA055)							
BH114_0.45-0.55	**03-Feb-2020**	**----**	----	----	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EA055)							
BH103_0.15-0.25, BH103_0.85-0.95, BH103_2.0-2.1, BH104_0.8-0.9, BH104_1.6-1.7, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**----**	----	----	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EA055)							
BH104_2.0-2.2	**03-Feb-2020**	**----**	----	----	**09-Feb-2020**	17-Feb-2020	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
BH103_0.15-0.25, BH103_2.0-2.1, BH104_0.8-0.9, BH104_1.6-1.7, BH100_0.7-0.8, BH100_0.8-0.9	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓
Soil Glass Jar - Unpreserved (EA200)							
BH114_0.45-0.55	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
BH103_0.15-0.25, BH103_2.0-2.1, BH104_0.8-0.9, BH104_1.6-1.7, BH100_0.7-0.8, BH100_0.8-0.9	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓
Soil Glass Jar - Unpreserved (EA200N)							
BH114_0.45-0.55	**03-Feb-2020**	**----**	----	----	**06-Feb-2020**	01-Aug-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES								
Snap Lock Bag: Separate bag received (EG005T)								
BH114_0.45-0.55		**03-Feb-2020**	**07-Feb-2020**	01-Aug-2020	✓	**08-Feb-2020**	01-Aug-2020	✓
Soil Glass Jar - Unpreserved (EG005T)								
BH103_0.15-0.25,	BH103_0.85-0.95,	**03-Feb-2020**	**07-Feb-2020**	01-Aug-2020	✓	**08-Feb-2020**	01-Aug-2020	✓
BH103_2.0-2.1,	BH104_0.8-0.9,							
BH104_1.6-1.7,	QC111,							
BH100_0.7-0.8,	BH100_0.8-0.9,							
BH114_1.3-1.4,	QC114							
EG035T: Total Recoverable Mercury by FIMS								
Snap Lock Bag: Separate bag received (EG035T)								
BH114_0.45-0.55		**03-Feb-2020**	**07-Feb-2020**	02-Mar-2020	✓	**08-Feb-2020**	02-Mar-2020	✓
Soil Glass Jar - Unpreserved (EG035T)								
BH103_0.15-0.25,	BH103_0.85-0.95,	**03-Feb-2020**	**07-Feb-2020**	02-Mar-2020	✓	**08-Feb-2020**	02-Mar-2020	✓
BH103_2.0-2.1,	BH104_0.8-0.9,							
BH104_1.6-1.7,	QC111,							
BH100_0.7-0.8,	BH100_0.8-0.9,							
BH114_1.3-1.4,	QC114							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Snap Lock Bag: Separate bag received (EP075(SIM))								
BH114_0.45-0.55		**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**06-Feb-2020**	17-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH103_0.15-0.25,	BH103_0.85-0.95,	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**06-Feb-2020**	17-Mar-2020	✓
BH103_2.0-2.1,	BH104_0.8-0.9,							
BH104_1.6-1.7,	QC111,							
BH100_0.7-0.8,	BH100_0.8-0.9,							
BH114_1.3-1.4,	QC114							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Snap Lock Bag: Separate bag received (EP080)							
BH114_0.45-0.55	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Snap Lock Bag: Separate bag received (EP071)							
BH114_0.45-0.55	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Snap Lock Bag: Separate bag received (EP080)							
BH114_0.45-0.55	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Snap Lock Bag: Separate bag received (EP071)							
BH114_0.45-0.55	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**06-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Mar-2020	✓
EP080: BTEXN							
Snap Lock Bag: Separate bag received (EP080)							
BH114_0.45-0.55	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH103_0.15-0.25, BH104_0.8-0.9, BH104_1.6-1.7, BH104_2.0-2.2, QC111, BH100_0.7-0.8, BH100_0.8-0.9, BH114_1.3-1.4, QC114	**03-Feb-2020**	**05-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC304	**03-Feb-2020**	**07-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC304	**03-Feb-2020**	**07-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC304	**03-Feb-2020**	**07-Feb-2020**	17-Feb-2020	✓	**07-Feb-2020**	17-Feb-2020	✓

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	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	15.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
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 (SnCl2) (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 SnCl2 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)
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.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

Preparation Methods	Method	Matrix	Method Descriptions
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.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2003366**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1-Burrows IE	Page	: 1 of 4
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: KURTIS WATHEN/REBEKAH PANOZZO		

Dates

Date Samples Received	: 03-Feb-2020 16:00	Issue Date	: 05-Feb-2020
Client Requested Due Date	: 10-Feb-2020	Scheduled Reporting Date	: **10-Feb-2020**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 5.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 29 / 13

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

Sample Container(s)/Preservation Non-Compliances

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

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Asbestos Classification and Quantitation per NEPM 2013 : EA200N		
BH114_0.45-0.55	- Soil Glass Jar - Unpreserved	- Snap Lock Bag: Separate bag received
Moisture Content : EA055		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
PAH/Phenols (SIM) : EP075(SIM)		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
Total Mercury by FIMS : EG035T		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
Total Metals by ICP-AES : EG005T		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
TRH - Semivolatile Fraction : EP071		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved
TRH Volatiles/BTEX : EP080		
BH114_0.45-0.55	- Snap Lock Bag: Separate bag received	- Soil Glass Jar - Unpreserved

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 - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003366-001	03-Feb-2020 00:00	BH103_0.15-0.25		✓	✓				✓
ES2003366-002	03-Feb-2020 00:00	BH103_0.85-0.95		✓		✓	✓		
ES2003366-003	03-Feb-2020 00:00	BH103_1.3-1.4	✓						
ES2003366-004	03-Feb-2020 00:00	BH103_2.0-2.1		✓	✓	✓	✓		
ES2003366-005	03-Feb-2020 00:00	BH103_4.4-4.5	✓						
ES2003366-006	03-Feb-2020 00:00	QC112	✓						
ES2003366-007	03-Feb-2020 00:00	BH104_0.15-0.25	✓						
ES2003366-008	03-Feb-2020 00:00	BH104_0.8-0.9		✓	✓				✓
ES2003366-009	03-Feb-2020 00:00	BH104_1.4-1.5	✓						
ES2003366-010	03-Feb-2020 00:00	BH104_1.6-1.7		✓	✓				✓
ES2003366-011	03-Feb-2020 00:00	BH104_2.0-2.2		✓				✓	
ES2003366-012	03-Feb-2020 00:00	BH104_3.3-3.4	✓						
ES2003366-013	03-Feb-2020 00:00	BH104_4.4-4.5	✓						
ES2003366-014	03-Feb-2020 00:00	QC111		✓					✓
ES2003366-015	03-Feb-2020 00:00	BH100_0.15-0.25	✓						
ES2003366-016	03-Feb-2020 00:00	BH100_0.7-0.8		✓	✓				✓
ES2003366-017	03-Feb-2020 00:00	BH100_0.8-0.9		✓	✓				✓
ES2003366-018	03-Feb-2020 00:00	BH100_3.4-.35	✓						
ES2003366-019	03-Feb-2020 00:00	QC113	✓						

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003366-020	03-Feb-2020 00:00	BH114_0.15-0.25	✓						
ES2003366-021	03-Feb-2020 00:00	BH114_0.45-0.55		✓	✓				✓
ES2003366-022	03-Feb-2020 00:00	BH114_0.8-0.9	✓						
ES2003366-023	03-Feb-2020 00:00	BH114_1.3-1.4		✓					✓
ES2003366-024	03-Feb-2020 00:00	QC114		✓					✓
ES2003366-025	03-Feb-2020 00:00	BH114_2.3-2.4	✓						
ES2003366-026	03-Feb-2020 00:00	BH114_2.75-2.85	✓						
ES2003366-027	03-Feb-2020 00:00	BH114_3.3-3.4	✓						
ES2003366-028	03-Feb-2020 00:00	BH114_5.0-5.1	✓						

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2003366-029	03-Feb-2020 00:00	QC304	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

updated COC - 10:59 am 4/2/2020

1/2

CHAIN OF CUSTODY

as marked on Jar ~~Label~~

AECOM Australia Pty Ltd
Sydney (420 George St)
T: 02 8934 0451
M: 0400 973 821
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

* rename QC111 to QC112
QC110 to QC111

Laboratory Details
Lab Name: ALS
Lab Address: 277 Woodpark Rd, Smithfield
Contact Name: Brenda Hong
Lab. Ref:
Tel: 8784 8515
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No: **EN/004/16**

Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. refer Project #

Lab / Split WO

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis & XLS format also required

Received By / Date:
Relinquished By / Date:
Courier:
WO No:
Attach By PO / Internal Sheet

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.17	
5. Special storage requirements? (details:)	

Analysis Request

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	HOLD	TRH > C10-C40 (EP071)
1	BH103_0.15-0.25	3/2/20	Y					X		J B	✓	✓	✓		✓		
2	BH103_0.85-0.95									J B		✓	✓				
3	BH103_1.3-1.4									J B						✓	
4	BH103_2.0-2.1									J B		✓	✓		✓		
5	BH103_4.4-4.5									J B						✓	
6	QC111 * QC112									J -						✓	
7	BH104_0.15-0.25									J B						✓	
8	BH104_0.8-0.9									J B	✓	✓	✓		✓		
9	BH104_1.4-1.5									P B							
10	BH104_1.6-1.7									J B	✓	✓	✓		✓		
11	BH104_2.0-2.2						→			J B	✓						
12	BH104_3.3-3.4									J B						✓	
13	BH104_4.4-4.5									J P						✓	
14	QC110 * QC111									J -	✓	✓	✓				

send requested soil QC samples to Envirolab with crushed ice please

Environmental Division Sydney
Work Order Reference
ES2003366

Telephone : +61-2-8784 8555

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments:

Lab Report No. | Esky ID

Relinquished by: R Panozzo	Signed:	Date: 3/2/20	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by:	Signed:	Date: 3/4/20

Field_Worksheet_FORM025_Dec04

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details
Lab Name: ~~Envirolab~~ ALS
Lab Address: ~~12 Ashley St, Chats~~wood
Contact Name: ~~D Springer~~ Brenda
Lab. Ref:
Tel: 9910 6200
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:

Sampled By: Kurtis Wathen / Rebekah Panozzo
AECOM Project No: **60623599_1.1**
Project Name: Burrows IE
PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filtred	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	ASS (EA200N)	HOLD	TRH C6-10 / BTEX	Hold	Other
15	4100_0.15-0.25	3/2	Y					Y		J B						✓			
16	BH10C_0.7-0.8									J B	✓	✓	✓		✓				
17	BH100_0.8-0.9									J B	✓	✓	✓		✓				
18	BH100_3.4-3.5									J B						✓			
19	QC113									J -						✓			
20	BH114_0.15-0.25									J B						✓			
21	BH114_0.45-0.55									J B	✓	✓	✓		✓				
22	BH114_0.3-0.4									J B						✓			
23	BH114_1.3-1.4									J B	✓	✓	✓						
24	QC114									J -	✓	✓	✓						
25	BH114_2.3-2.4									J B						✓			
26	BH114_2.75-2.85									J B						✓			
27	BH114_3.3-3.4									J B						✓			
29	BH114_5.0-5.1									J B						✓			

Other: QC 304 for TRH C6-10 / BTEXN

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 3/2/20

Lab Report No.

Esky ID

Relinquished by: R. Panozzo	Signed: R. Pan	Date: ~~10/07/2019~~	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date:	Recieved by:	Signed:	Date: 3/2/20

29 QC 304

Field_Worksheet_FORM025_Dec04

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2003481**	Page	: 1 of 12
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 31-Jan-2020 18:00
Order number	: 60623599_1.1	Date Analysis Commenced	: 05-Feb-2020
C-O-C number	: ----	Issue Date	: 10-Feb-2020 19:31
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 23		
No. of samples analysed	: 10		

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
- Descriptive 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.

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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
ø = 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.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH105_0.4-0.5	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.3-0.4	BH102_0.5-0.6
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00
				ES2003481-002	ES2003481-004	ES2003481-005	ES2003481-010	ES2003481-011
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.5	29.6	21.9	7.6	12.4
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	No
Sample weight (dry)	----	0.01	g	336	----	----	----	503
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	No
Organic Fibre	----	0.1	g/kg	No	----	----	----	No
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	A. SMYLIE
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.336	----	----	----	0.503
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	25	66	<5	9
Cadmium	7440-43-9	1	mg/kg	<1	3	7	<1	<1
Chromium	7440-47-3	2	mg/kg	16	20	76	5	19
Copper	7440-50-8	5	mg/kg	336	2130	431	23	367
Lead	7439-92-1	5	mg/kg	606	2260	11800	71	2010
Nickel	7440-02-0	2	mg/kg	20	135	283	3	12
Zinc	7440-66-6	5	mg/kg	676	4890	1320	49	712
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.4	0.3	0.1	56.4
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	1.2	<0.5	<0.5	3.3

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH105_0.4-0.5	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.3-0.4	BH102_0.5-0.6
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00
				ES2003481-002	ES2003481-004	ES2003481-005	ES2003481-010	ES2003481-011
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.9**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**3.1**	<0.5	<0.5	**6.2**
Pyrene	129-00-0	0.5	mg/kg	<0.5	**3.1**	<0.5	<0.5	**6.0**
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	**2.4**	<0.5	<0.5	**2.8**
Chrysene	218-01-9	0.5	mg/kg	<0.5	**3.0**	<0.5	<0.5	**2.6**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	**5.3**	<0.5	<0.5	**3.5**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	**2.1**	<0.5	<0.5	**1.2**
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	**3.4**	<0.5	<0.5	**3.3**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	**2.7**	<0.5	<0.5	**1.1**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	**0.6**	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	**4.3**	<0.5	<0.5	**1.4**
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	**31.2**	<0.5	<0.5	**32.3**
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	**5.3**	<0.5	<0.5	**4.2**
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.6**	**5.3**	**0.6**	**0.6**	**4.4**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**5.3**	**1.2**	**1.2**	**4.7**
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	**140**	----	----	**140**
C29 - C36 Fraction	----	100	mg/kg	**180**	**260**	----	----	**110**
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	**180**	**400**	----	----	**250**
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
>C16 - C34 Fraction	----	100	mg/kg	**210**	**330**	----	----	**200**
>C34 - C40 Fraction	----	100	mg/kg	**140**	**150**	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	**350**	**480**	----	----	**200**
^ **>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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH105_0.4-0.5	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.3-0.4	BH102_0.5-0.6
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00
				ES2003481-002	ES2003481-004	ES2003481-005	ES2003481-010	ES2003481-011
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**81.0**	**80.6**	**84.7**	**83.0**	**85.2**
2-Chlorophenol-D4	93951-73-6	0.5	%	**83.8**	**83.1**	**87.0**	**87.6**	**87.5**
2.4.6-Tribromophenol	118-79-6	0.5	%	**54.8**	**69.5**	**60.7**	**61.9**	**71.8**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**81.3**	**79.7**	**79.8**	**82.2**	**83.6**
Anthracene-d10	1719-06-8	0.5	%	**82.7**	**85.2**	**87.8**	**88.5**	**87.4**
4-Terphenyl-d14	1718-51-0	0.5	%	**91.5**	**89.5**	**92.2**	**91.7**	**90.8**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**89.5**	**98.6**	----	----	**84.9**
Toluene-D8	2037-26-5	0.2	%	**91.0**	**101**	----	----	**89.6**
4-Bromofluorobenzene	460-00-4	0.2	%	**82.4**	**92.7**	----	----	**84.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.4**	**31.4**	----	**26.2**	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	**Yes**	----	----
Asbestos Type	1332-21-4	-	--	----	----	**Ch**	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	**No**	----	----
Sample weight (dry)	----	0.01	g	----	----	**402**	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	----	----	**No**	----	----
Organic Fibre	----	0.1	g/kg	----	----	**No**	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	**A. SMYLIE**	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø **Asbestos (Fines and Fibrous <7mm)**	1332-21-4	0.0004	g	----	----	**0.125**	----	----
ø **Asbestos (Fines and Fibrous FA+AF)**	----	0.001	% (w/w)	----	----	**0.031**	----	----
ø **Asbestos Containing Material**	1332-21-4	0.1	g	----	----	<0.1	----	----
ø **Asbestos Containing Material (as 15% Asbestos in ACM >7mm)**	1332-21-4	0.01	% (w/w)	----	----	<0.01	----	----
ø **Weight Used for % Calculation**	----	0.0001	kg	----	----	**0.402**	----	----
ø **Fibrous Asbestos >7mm**	----	0.0004	g	----	----	<0.0004	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	**59**	----	**56**	----
Cadmium	7440-43-9	1	mg/kg	----	**4**	----	**6**	----
Chromium	7440-47-3	2	mg/kg	----	**50**	----	**153**	----
Copper	7440-50-8	5	mg/kg	----	**1310**	----	**1440**	----
Lead	7439-92-1	5	mg/kg	----	**2490**	----	**2430**	----
Nickel	7440-02-0	2	mg/kg	----	**81**	----	**138**	----
Zinc	7440-66-6	5	mg/kg	----	**2410**	----	**3410**	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	**1.2**	----	**9.5**	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
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**	72-54-8/72-55-9/50-29-3	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	6923-22-4	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	5598-13-0	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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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)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	----	**0.7**	----	**1.7**	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	**0.5**	----
Fluoranthene	206-44-0	0.5	mg/kg	----	**1.3**	----	**3.4**	----
Pyrene	129-00-0	0.5	mg/kg	----	**1.4**	----	**3.4**	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**0.6**	----	**1.7**	----
Chrysene	218-01-9	0.5	mg/kg	----	**0.6**	----	**1.5**	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**0.9**	----	**2.1**	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	**0.9**	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**0.7**	----	**2.0**	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	**0.7**	----
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	----	**0.8**	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	**6.2**	----	**18.7**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	**0.8**	----	**2.6**	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**1.2**	----	**2.8**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**1.5**	----	**3.1**	----
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	----	**120**	----	**170**	----
C29 - C36 Fraction	----	100	mg/kg	----	**140**	----	**170**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	**260**	----	**340**	----
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	----
>C16 - C34 Fraction	----	100	mg/kg	----	**230**	----	**280**	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	**110**	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	**230**	----	**390**	----
^ >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	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**98.3**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**98.4**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**87.1**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**86.8**	----	**83.8**	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**89.4**	----	**85.4**	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**72.9**	----	**71.6**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**83.3**	----	**80.1**	----
Anthracene-d10	1719-06-8	0.5	%	----	**89.2**	----	**84.6**	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	**91.9**	----	**87.2**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				BH101_0.16-0.26	BH101_0.7-0.8	BH101_1.3-1.4	BH101_2.2-2.3	----
				31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
				ES2003481-015	ES2003481-017	ES2003481-019	ES2003481-020	--------
				Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	**83.2**	----	**90.2**	----
Toluene-D8	2037-26-5	0.2	%	----	**93.6**	----	**86.0**	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	**83.0**	----	**77.9**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC303	----	----	----	----
				31-Jan-2020 00:00	----	----	----	----
				ES2003481-022	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**79.1**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**99.8**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**99.5**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH105_0.4-0.5 - 31-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH102_0.5-0.6 - 31-Jan-2020 00:00	Mid brown soil.
EA200: Description	BH101_1.3-1.4 - 31-Jan-2020 00:00	Mid brown soil containing many large asbestos fibre bundles approximately 10x4x2mm.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
ompound	AS Numbe	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
ompound	AS Numbe	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2003481**	Page	: 1 of 12
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 31-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 05-Feb-2020
C-O-C number	: ----	Issue Date	: 10-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 23		
No. of samples analysed	: 10		

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 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

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.

Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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: 2847945)									
ES2003074-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	8	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	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	<5	<5	0.00	No Limit
ES2003481-010	BH102_0.3-0.4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	4	36.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	24	6.27	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	71	66	7.68	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	49	55	11.5	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2847951)									
ES2003074-003	Anonymous	EA055: Moisture Content	----	0.1	%	19.7	20.0	1.61	0% - 20%
ES2003518-001	Anonymous	EA055: Moisture Content	----	0.1	%	7.3	7.1	3.16	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2849180)									
ES2003337-012	Anonymous	EA055: Moisture Content	----	0.1	%	3.4	3.2	6.92	0% - 20%
ES2003518-011	Anonymous	EA055: Moisture Content	----	0.1	%	4.2	4.0	3.96	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2847946)									
ES2003074-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003481-010	BH102_0.3-0.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2841944)									

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 (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2841944) - continued									
ES2003359-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2003360-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2841947)									
ES2003359-001	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: 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	33213-65-9	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: 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
ES2003360-001	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: 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	33213-65-9	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

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: 2841947) - continued									
ES2003360-001	Anonymous	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: 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: 2841947)									
ES2003359-001	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-methyl	298-00-0	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
ES2003360-001	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

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: 2841947) - continued									
ES2003360-001	Anonymous	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-methyl	298-00-0	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)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2840428)									
ES2003455-042	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
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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): Sum of polycyclic aromatic hydrocarbons	----	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
ES2003455-059	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
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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

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: 2840428) - continued									
ES2003455-059	Anonymous	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): Sum of polycyclic aromatic hydrocarbons	----	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: 2840427)									
ES2003455-042	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
ES2003455-059	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: 2841489)									
ES2003425-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2003480-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2840427)									
ES2003455-042	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
ES2003455-059	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: 2841489)									
ES2003425-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2003480-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2841489)									
ES2003425-003	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
ES2003480-013	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

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: BTEXN (QC Lot: 2841489) - continued									
ES2003480-013	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				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 Petroleum Hydrocarbons (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES2003311-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2003311-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2845751)									
ES2003311-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES2003311-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847945)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	84.1	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.2	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	90.2	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	95.7	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	90.5	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2847946)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.3	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2841944)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	83.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2841947)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	104	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	97.6	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2841947)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2841947) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	102	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	74.8	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	84.5	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	87.0	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.7	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	92.9	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	78.2	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	101	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	62.6	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2840428)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.7	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	94.7	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	99.7	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	96.8	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.4	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	99.8	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.7	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.8	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.0	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	93.7	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	93.3	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	100	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	83.1	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	84.9	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	82.0	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2840427)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	95.5	75.0	129

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2840427) - continued								
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	97.5	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	91.1	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2841489)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.1	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2840427)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	98.3	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	92.1	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	76.9	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841489)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.2	68.4	128
EP080: BTEXN (QCLot: 2841489)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	85.8	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.5	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.6	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.5	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.7	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.4	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2845751)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2845751)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	90.5	75.0	127
EP080: BTEXN (QCLot: 2845751)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.7	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.2	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.6	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	85.2	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.9	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.0	70.0	120

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2847945)							
ES2003074-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.2	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.5	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	103	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	98.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	96.4	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	97.0	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2847946)							
ES2003074-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	87.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2841944)							
ES2003359-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	85.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2841947)							
ES2003359-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	111	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	114	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	114	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	84.7	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	99.2	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	106	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2841947)							
ES2003359-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	98.6	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	104	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	92.3	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	79.9	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	74.6	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2840428)							
ES2003455-042	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	95.8	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2840427)							
ES2003455-042	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	98.3	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	113	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	125	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2841489)							
ES2003425-003	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.1	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2840427)							
ES2003455-042	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	106	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	116	53.0	131

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2840427) - continued							
ES2003455-042	Anonymous	EP071: >C34 - C40 Fraction	----	1058 mg/kg	118	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2841489)							
ES2003425-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.2	70.0	130
EP080: BTEXN (QCLot: 2841489)							
ES2003425-003	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	82.4	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	86.7	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.6	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.8	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	89.0	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	118	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70.0	130
EP080: BTEXN (QCLot: 2845751)							
ES2003311-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	90.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	90.6	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.1	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.8	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.7	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2003481**	Page	: 1 of 8
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 31-Jan-2020
Site	: ----	Issue Date	: 10-Feb-2020
Sampler	: Kurtis Wathen, REBEKAH PANOZZO	No. of samples received	: 23
Order number	: 60623599_1.1	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

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 / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH105_0.4-0.5, BH105_0.85-0.95, BH105_1.7-1.8, BH102_0.3-0.4, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**----**	----	----	**07-Feb-2020**	14-Feb-2020	✓
Soil Glass Jar - Unpreserved (EA055)							
BH101_0.16-0.26	**31-Jan-2020**	**----**	----	----	**09-Feb-2020**	14-Feb-2020	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag (EA200)							
BH105_0.4-0.5, BH102_0.5-0.6, BH101_1.3-1.4	**31-Jan-2020**	**----**	----	----	**05-Feb-2020**	29-Jul-2020	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag (EA200N)							
BH105_0.4-0.5, BH102_0.5-0.6, BH101_1.3-1.4	**31-Jan-2020**	**----**	----	----	**05-Feb-2020**	29-Jul-2020	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH105_0.4-0.5, BH105_0.85-0.95, BH105_1.7-1.8, BH102_0.3-0.4, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**07-Feb-2020**	29-Jul-2020	✓	**07-Feb-2020**	29-Jul-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH105_0.4-0.5, BH105_0.85-0.95, BH105_1.7-1.8, BH102_0.3-0.4, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**07-Feb-2020**	28-Feb-2020	✓	**08-Feb-2020**	28-Feb-2020	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
BH101_0.16-0.26	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**06-Feb-2020**	16-Mar-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH101_0.16-0.26	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**06-Feb-2020**	16-Mar-2020	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH101_0.16-0.26	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**06-Feb-2020**	16-Mar-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH105_0.4-0.5, BH105_0.85-0.95, BH105_1.7-1.8, BH102_0.3-0.4, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**06-Feb-2020**	16-Mar-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
BH105_0.4-0.5, BH105_0.85-0.95, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**06-Feb-2020**	16-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH105_0.4-0.5, BH105_0.85-0.95, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**07-Feb-2020**	14-Feb-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
BH105_0.4-0.5, BH105_0.85-0.95, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**06-Feb-2020**	16-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH105_0.4-0.5, BH105_0.85-0.95, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**07-Feb-2020**	14-Feb-2020	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH105_0.4-0.5, BH105_0.85-0.95, BH102_0.5-0.6, BH101_0.7-0.8, BH101_2.2-2.3	**31-Jan-2020**	**05-Feb-2020**	14-Feb-2020	✓	**07-Feb-2020**	14-Feb-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC303	**31-Jan-2020**	**07-Feb-2020**	14-Feb-2020	✓	**07-Feb-2020**	14-Feb-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC303	**31-Jan-2020**	**07-Feb-2020**	14-Feb-2020	✓	**07-Feb-2020**	14-Feb-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC303	**31-Jan-2020**	**07-Feb-2020**	14-Feb-2020	✓	**07-Feb-2020**	14-Feb-2020	✓

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	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
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 (SnCl2) (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 SnCl2 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)
Polychlorinated Biphenyls (PCB)	EP066	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 method is compliant with NEPM (2013) Schedule B(3) (Method 504)
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.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (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, 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.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2003481**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1-Burrows IE	Page	: 1 of 3
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen, REBEKAH PANOZZO		

Dates

Date Samples Received	: 31-Jan-2020 18:00	Issue Date	: 04-Feb-2020
Client Requested Due Date	: 10-Feb-2020	Scheduled Reporting Date	: **10-Feb-2020**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 1.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 23 / 10

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample No: 19- BH101_1.5-1.6 received as BH101_1.3-1.4.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

Sample Container(s)/Preservation Non-Compliances

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

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Asbestos Classification and Quantitation per NEPM 2013 : EA200N		
BH105_0.4-0.5	- Snap Lock Bag	- Snap Lock Bag: Separate bag received
BH102_0.5-0.6	- Snap Lock Bag	- Snap Lock Bag: Separate bag received
BH101_1.5-1.6 Received as BH101_1.3-1.4	- Snap Lock Bag	- Snap Lock Bag: Separate bag received

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2003481-019 : [31-Jan-2020] : BH101_1.5-1.6 - Received as BH101_1.3-1.4

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 - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2003481-001	31-Jan-2020 00:00	BH105_0.15-0.2	☐						
ES2003481-002	31-Jan-2020 00:00	BH105_0.4-0.5		☐	☐				☐
ES2003481-003	31-Jan-2020 00:00	BH105_0.65-0.75	☐						
ES2003481-004	31-Jan-2020 00:00	BH105_0.85-0.95		☐					☐
ES2003481-005	31-Jan-2020 00:00	BH105_1.7-1.8		☐		☐	☐		
ES2003481-006	31-Jan-2020 00:00	BH105_3.5-3.6	☐						
ES2003481-007	31-Jan-2020 00:00	BH105_4.4-4.9	☐						
ES2003481-008	31-Jan-2020 00:00	QC108	☐						
ES2003481-009	31-Jan-2020 00:00	BH102_0.135-0.2	☐						
ES2003481-010	31-Jan-2020 00:00	BH102_0.3-0.4		☐		☐	☐		
ES2003481-011	31-Jan-2020 00:00	BH102_0.5-0.6		☐	☐				☐
ES2003481-012	31-Jan-2020 00:00	BH102_0.9-1.0	☐						
ES2003481-013	31-Jan-2020 00:00	BH102_1.3-1.4	☐						
ES2003481-014	31-Jan-2020 00:00	BH102_3.4-3.5	☐						
ES2003481-015	31-Jan-2020 00:00	BH101_0.16-0.26		☐				☐	
ES2003481-016	31-Jan-2020 00:00	BH101_0.3-0.4	☐						
ES2003481-017	31-Jan-2020 00:00	BH101_0.7-0.8		☐					☐
ES2003481-018	31-Jan-2020 00:00	QC109	☐						
ES2003481-019	31-Jan-2020 00:00	BH101_1.5-1.6 Recei...			☐				
ES2003481-020	31-Jan-2020 00:00	BH101_2.2-2.3		☐					☐
ES2003481-021	31-Jan-2020 00:00	BH101_3.4-3.3	☐						
ES2003481-023	31-Jan-2020 00:00	BH102_4.4-4.5	☐						

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2003481-022	31-Jan-2020 00:00	QC303	☐

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

updated CoC

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: Alex.Latham@aecom.com

Laboratory Details
Lab Name: ~~Envirolab~~ ALS
Lab Address: ~~12 Ashley St, Chatswood~~
Contact Name: ~~D Sessinger~~
Lab. Ref:
Tel: 9910 6200
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: 60623599_1.1 Project Name: Burrows IE PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__ days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	Hold	Other
1	BH105_0.15-0.2	31/11/20	X					X	S B							X	
2	BH105_0.4-0.5								J B		X	X	X		X		
3	BH105_0.65-0.75								J B								
4	BH105_0.95-0.95								J B		X	X	X				
5	BH105_1.7-1.8								(J) B			X	X				
6	BH105_3.5-3.6								(J) -								
7	BH105_4.4-4.9								(J) -								
8	QC106								(J) -								
9	BH102_0.135-0.2								S B								
10	BH102_0.3-0.4								J B			X	X				
11	BH102_0.5-0.6								J B		X	X	X		X		
12	BH102_0.9-1.0								J B								
13	BH102_1.3-1.4								J B								
14	BH102_3.4-3.5								(J) -								

Subcon / Forward Lab / Split WO
Lab / Analysis: ALS Newcastle
Organised By / Date: Sample 2/11/19
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By:

Environmental Division
Sydney
Work Order Reference
ES2003481

Telephone : + 61-2-8784 8555

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 31/11/20

Relinquished by: R. Panozzo	Signed:	Date: ~~19/07/2019~~	Relinquished by:	Signed:	
Recieved by:	Signed:	Date:	Recieved by: JUSTIN	Signed:	Date: 3/11/20

QC303
BH102_4.4-4.5

24V

cc: Fax 3/12/20 3:45pm

6pm

Field_Worksheet_FORM025_Dec04

12

CHAIN OF CUSTODY

AECOM Australia Pty Ltd
Sydney (420 George St) T: 02 8934 0451
AECOM Project Manager: Alex Latham
AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details Tel: 9910 6200
Lab Name: Envirolab Fax:
Lab Address: 12 Ashley St, Chatswood Preliminary Report by:
Contact Name: D Springer Final Report by:
Lab. Ref: Lab Quote No:

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1** Project Name: Burrows IE PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Asbestos (EA200N)	TRH >C10 - C40	Hold	Other
15	BH101 - 0.16 - 0.26	31/1	X					Y		5 B				X			XX	
16	BH101 - 0.3 - 0.4									J A								
17	BH101 - 0.7 - 0.8									J B	X	X	X		(X)			
18	QC104									J=J	~~X~~							
19	BH101 - 1.5 - 1.6 Void BW01 1.3-1.4									J A					○			
20	BH101 - 2.2 - 2.3									J B	X	X	X					
21	BH101 - 3.4 - 3.3									5 -								
22	QC303		W							2x Vials						X		
23	BH102 - 4.4 - 4.5		S							J								

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 3/11

Lab Report No. Esky ID

Relinquished by: R. Panozzo Signed: Date: ~~19/07/2019~~

Recieved by: Signed: Date:

Relinquished by: Signed: Date:

Recieved by: JUSTIN Signed: Date: 21/11/20

6pm

Angus Harding

From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Monday, 3 February 2020 3:51 PM
To: Angus Harding; Wathen, Kurtis
Cc: Tyler Cachia
Subject: RE: [EXTERNAL] - Re: Next week - sample pick up

Angus
No asbestos analysis for BH101_0.7-0.8.
Please schedule BH101_1.5-1.6 for EA200N only.
Regards,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001
www.aecom.com

Please consider the environment before printing this email.

From: Angus Harding <angus.harding@ALSGlobal.com>
Sent: Monday, 3 February 2020 3:32 PM
To: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Cc: Tyler Cachia <tyler.cachia@ALSGlobal.com>; Latham, Alex <Alex.Latham@aecom.com>
Subject: RE: [EXTERNAL] - Re: Next week - sample pick up

Hi Kurtis,

The samples that appear to have become contaminated are BH102_0.9-1.0, BH101_0.7-0.8, and BH101_2.2-2.3. So BH101_0.7-0.8 will be impacted, we would be able to sub sample from the jar, however it would be non-NATA and we will need to take volatiles volume before subsampling to ensure these results.

Let me know what you think.

Cheers.

Kind Regards,

Angus Harding

Client Services Officer, Environmental
Sydney

T +61 2 8784 8555
F +61 2 8784 8500
D +61 2 8784 8503
angus.harding@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St) T: 02 8934 0451

AECOM Project Manager: Alex Latham

AECOM Project Manager Email: **Alex.Latham@aecom.com**

Laboratory Details

Lab Name: ~~Envirolab~~ ALS

Lab Address: ~~12 Ashley St, Chatswood~~

Contact Name: ~~D Spriegar~~

Lab. Ref:

Tel: 9910 6200

Fax:

Preliminary Report by:

Final Report by:

Lab Quote No:

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1**

Project Name: Burrows IE PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	Matrix: water	Matrix: other	Preservation: filt'ed	Preservation: acid	Preservation: ice	Preservation: other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
1	BH105_0.15-0.2	31/1/20	X					X	J B						X	
2	BH105_0.4-0.5								J B							
3	BH105_0.65-0.75								J B							
4	BH105_0.85-0.95								J B							
5	BH105_1.7-1.8								J B							
6	BH105_3.5-3.6								J –							
7	BH105_4.4-4.5								J –							
8	QC109								J –							
9	BH102_0.135-0.2								J B							
10	BH102_0.3-0.4								J B							
11	BH102_0.5-0.6								J B							
12	BH102_0.9-1.0								J B							
13	BH102_1.3-1.4								J B							
14	BH102_3.4-3.5								J –							

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 31/1/26

Lab Report No. Esky ID

Relinquished by: R. Panozzo Signed: Date: ~~10/07/2019~~

Recieved by: Signed: Date:

Relinquished by: Signed: Date:

Recieved by: JUSTIN Signed: Date: 31/1/20

QC303
BH102_4.4-4.5

X Y 24V – 6pm

CHAIN OF CUSTODY

AECOM Australia Pty Ltd

Sydney (420 George St) T: 02 8934 0451

AECOM Project Manager: Alex Latham

AECOM Project Manager Email: **Alex.Latham@aecom.com**

Sampled By: Kurtis Wathen / Rebekah Panozzo AECOM Project No: **60623599_1.1**

Laboratory Details

Tel: 9910 6200

Lab Name: Envirolab Fax:

Lab Address: 12 Ashley St, Chatswood Preliminary Report by:

Contact Name: D Springer Final Report by:

Lab. Ref: Lab Quote No:

Project Name: Burrows IE PO No. see project #

Specifications: All reports to be emailed to AECOM Project Manager
ESDAT & Equis format also required

	Yes
1. Urgent TAT required? (please circle: 24hr 48hr __5__days)	3 days
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	

Lab. ID	Sample ID	Sampling Date	Matrix: soil	water	other	Preservation: filt'ed	acid	ice	other	Container (No. & type)	Analysis Request: TRH C6-C40, BTEXN	PAH	8 Metals	OCP, OPP, PCB	Hold	Other
15	BH101_0.16-0.26	31/11	X					Y		J B					XX	
16	BH101_0.3-0.4									J B						
17	BH101_0.7-0.8									J B						
18	QC104									J =						
19	BH101_1.5-1.6									J B						
20	BH101_2.2-2.3									J B						
21	BH101_3.4-3.3									J ~						

* Metals Required: As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

Comments: 31/1

Lab Report No. Esky ID

Relinquished by: M. Panozzo Signed: Date: ~~19/07/2019~~

Recieved by: Signed: Date:

Relinquished by: Signed: Date:

Recieved by: JUSTIN Signed: Date: 31/11/20

6pm

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2004680**	Page	: 1 of 7
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 29-Jan-2020 15:45
Order number	: 60623599_1.1	Date Analysis Commenced	: 13-Feb-2020
C-O-C number	: ----	Issue Date	: 18-Feb-2020 19:54
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 7		
No. of samples analysed	: 7		

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*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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
ø = 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.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC100	BH108_1.3-1.4	BH107_1.5-1.7	BH109_0.9-1.0	BH111_0.65-0.75
				Client sampling date / time	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	30-Jan-2020 00:00
Compound	CAS Number	LOR	Unit		ES2004680-001	ES2004680-002	ES2004680-003	ES2004680-004	ES2004680-005
					Result	Result	Result	Result	Result
EN33: TCLP Leach									
Initial pH	----	0.1	pH Unit		**8.7**	**7.7**	**8.2**	**8.3**	**9.1**
After HCl pH	----	0.1	pH Unit		**1.5**	**4.1**	**4.1**	**1.8**	**5.2**
Extraction Fluid Number	----	1	-		**1**	**1**	**1**	**1**	**2**
Final pH	----	0.1	pH Unit		**5.2**	**5.7**	**5.8**	**5.8**	**4.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH117_2.2-2.3	BH114_1.3-1.4	----	----	----
			Client sampling date / time	30-Jan-2020 00:00	03-Feb-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2004680-006	ES2004680-007	--------	--------	--------
				Result	Result	----	----	----
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	**8.8**	**8.1**	**----**	**----**	**----**
After HCl pH	----	0.1	pH Unit	**1.5**	**2.1**	**----**	**----**	**----**
Extraction Fluid Number	----	1	-	**1**	**1**	**----**	**----**	**----**
Final pH	----	0.1	pH Unit	**5.7**	**5.6**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	QC100	BH108_1.3-1.4	BH107_1.5-1.7	BH109_0.9-1.0	BH111_0.65-0.75
				Client sampling date / time	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	28-Jan-2020 00:00	30-Jan-2020 00:00
Compound	CAS Number	LOR	Unit		ES2004680-001	ES2004680-002	ES2004680-003	ES2004680-004	ES2004680-005
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Cadmium	7440-43-9	0.05	mg/L		----	**1.73**	----	----	----
Chromium	7440-47-3	0.1	mg/L		----	<0.1	<0.1	<0.1	----
Lead	7439-92-1	0.1	mg/L		**0.2**	**33.7**	**8.7**	**2.3**	**32.9**
Nickel	7440-02-0	0.1	mg/L		----	**2.0**	<0.1	**0.6**	----
EG050G: Hexavalent Chromium by Discrete Analyser									
Hexavalent Chromium	18540-29-9	0.01	mg/L		----	<0.01	**0.02**	<0.01	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**22.0**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**50.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**46.5**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**61.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**78.2**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**84.3**	----	----	----	----

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	BH117_2.2-2.3	BH114_1.3-1.4	----	----	----
				Client sampling date / time	30-Jan-2020 00:00	03-Feb-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2004680-006	ES2004680-007	--------	--------	--------
					Result	Result	----	----	----
EG050G: Hexavalent Chromium by Discrete Analyser									
Hexavalent Chromium	18540-29-9	0.01	mg/L		----	<0.01	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**26.7**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**55.7**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**64.7**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**80.9**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**86.0**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**86.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **TCLP LEACHATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

QUALITY CONTROL REPORT

Work Order	: **ES2004680**	Page	: 1 of 4
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 29-Jan-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 13-Feb-2020
C-O-C number	: ----	Issue Date	: 18-Feb-2020
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 7		
No. of samples analysed	: 7		

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 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

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.

Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by 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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				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)C: Leachable Metals by ICPAES (QC Lot: 2862670)									
ES2003946-001	Anonymous	EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.00	No Limit
ES2004680-004	BH109_0.9-1.0	EG005C: Cadmium	7440-43-9	0.05	mg/L	0.05	0.05	0.00	No Limit
		EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	2.3	2.3	0.00	0% - 20%
		EG005C: Nickel	7440-02-0	0.1	mg/L	0.6	0.6	0.00	No Limit
EG050G: Hexavalent Chromium by Discrete Analyser (QC Lot: 2862888)									
ES2004594-001	Anonymous	EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG050G: Hexavalent Chromium by Discrete Analyser (QC Lot: 2864907)									
ES2004680-002	BH108_1.3-1.4	EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.00	No Limit

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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EN33: TCLP Leach (QCLot: 2857446)								
EN33a: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33: TCLP Leach (QCLot: 2861763)								
EN33a: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2862670)								
EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	0.1 mg/L	95.9	80.0	118
EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	0.1 mg/L	95.6	88.0	114
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	113	80.0	118
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	94.2	83.0	115
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 2862888)								
EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	102	83.0	117
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 2864907)								
EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	102	83.0	117
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2862115)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	75.8	63.3	117
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2862604)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	84.8	63.3	117

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: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2862670)							
ES2004488-001	Anonymous	EG005C: Cadmium	7440-43-9	0.25 mg/L	79.0	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2862670) - continued							
ES2004488-001	Anonymous	EG005C: Chromium	7440-47-3	1 mg/L	81.4	70.0	130
		EG005C: Lead	7439-92-1	1 mg/L	93.7	70.0	130
		EG005C: Nickel	7440-02-0	1 mg/L	77.5	70.0	130
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 2862888)							
ES2004594-001	Anonymous	EG050G-C: Hexavalent Chromium	18540-29-9	0.05 mg/L	78.0	70.0	130
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 2864907)							
ES2004680-002	BH108_1.3-1.4	EG050G-C: Hexavalent Chromium	18540-29-9	0.05 mg/L	71.8	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2004680**	Page	: 1 of 5
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 29-Jan-2020
Site	: ----	Issue Date	: 18-Feb-2020
Sampler	: ----	No. of samples received	: 7
Order number	: 60623599_1.1	No. of samples analysed	: 7

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach						
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
QC100	15-Feb-2020	11-Feb-2020	**4**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach							
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)							
QC100	**28-Jan-2020**	**15-Feb-2020**	11-Feb-2020	×	**----**	----	----
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)							
BH117_2.2-2.3	**30-Jan-2020**	**13-Feb-2020**	13-Feb-2020	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a)							
BH111_0.65-0.75	**30-Jan-2020**	**15-Feb-2020**	28-Jul-2020	✓	**----**	----	----
Non-Volatile Leach: 28 day HT(e.g. Hg, CrVI) (EN33a)							
BH114_1.3-1.4	**03-Feb-2020**	**15-Feb-2020**	02-Mar-2020	✓	**----**	----	----
Non-Volatile Leach: 28 day HT(e.g. Hg, CrVI) (EN33a)							
BH108_1.3-1.4, BH107_1.5-1.7, BH109_0.9-1.0	**28-Jan-2020**	**15-Feb-2020**	25-Feb-2020	✓	**----**	----	----

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
QC100, BH107_1.5-1.7, BH111_0.65-0.75, BH108_1.3-1.4, BH109_0.9-1.0,	**15-Feb-2020**	**17-Feb-2020**	13-Aug-2020	✓	**17-Feb-2020**	13-Aug-2020	✓
EG050G: Hexavalent Chromium by Discrete Analyser							
Clear Plastic Bottle - NaOH (EG050G-C)							
BH108_1.3-1.4, BH109_0.9-1.0, BH107_1.5-1.7, BH114_1.3-1.4	**15-Feb-2020**	**----**	----	----	**17-Feb-2020**	14-Mar-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BH117_2.2-2.3	**13-Feb-2020**	**15-Feb-2020**	20-Feb-2020	✓	**17-Feb-2020**	26-Mar-2020	✓
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC100	**15-Feb-2020**	**17-Feb-2020**	22-Feb-2020	✓	**17-Feb-2020**	28-Mar-2020	✓

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	
Method Blanks (MB)							
TCLP for Non & Semivolatile Analytes	EN33a	2	21	**9.52**	**9.09**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	2	6	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	12	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	2	6	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	12	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	2	6	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	SOIL	In house: Referenced to APHA 3500 Cr-A & B. Hexavalent chromium is determined directly on leachate samples by Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2004680**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1-Burrows IE	Page	: 1 of 2
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 29-Jan-2020 15:45	Issue Date	: 12-Feb-2020
Client Requested Due Date	: 18-Feb-2020	Scheduled Reporting Date	: **18-Feb-2020**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Rebatch of ES2002807, ES2002766, ES2003147 and ES2003366.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

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	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EG050G-C Hexavalent Chromium in TCLP Leachate	SOIL - EN33a TCLP Leachate	SOIL - EP075 SIM PAH only SIM - PAH only
ES2004680-001	28-Jan-2020 00:00	QC100	☐		☐	☐
ES2004680-002	28-Jan-2020 00:00	BH108_1.3-1.4	☐	☐	☐	
ES2004680-003	28-Jan-2020 00:00	BH107_1.5-1.7	☐	☐	☐	
ES2004680-004	28-Jan-2020 00:00	BH109_0.9-1.0	☐	☐	☐	
ES2004680-005	30-Jan-2020 00:00	BH111_0.65-0.75	☐		☐	
ES2004680-006	30-Jan-2020 00:00	BH117_2.2-2.3			☐	☐
ES2004680-007	03-Feb-2020 00:00	BH114_1.3-1.4		☐	☐	

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

Vishal
11/02/2020
1635

Vishal Patel

From: Brenda Hong
Sent: Tuesday, 11 February 2020 4:33 PM
To: Vishal Patel
Subject: FW: [EXTERNAL] - 60623599_1.0 Burrows IE - additional analyses request

Hi Vishal, please rebatch as necessary below.

Best regards,

Brenda Hong
Client Services Manager, Environmental NSW

T +61 2 8784 8555 D +61 2 8784 8515
F +61 2 8784 8500 M +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
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Environmental Division
Sydney
Work Order Reference
ES2004680

Telephone : +61-2-8784 8555

From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Tuesday, 11 February 2020 4:31 PM
To: Brenda Hong <Brenda.Hong@alsglobal.com>; Loren Schiavon <loren.schiavon@alsglobal.com>
Cc: Tyler Cachia <tyler.cachia@ALSGlobal.com>
Subject: [EXTERNAL] - 60623599_1.0 Burrows IE - additional analyses request

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Brenda,
Could you please re-analyse the following samples by the TCLP method for waste classification purposes:

ES2002807
1 QC100: B(a)P, Pb 28/11
2 BH108_1.3-1.4: Cd, Cr VI, Pb, Ni 28/11 #20, 13 S-728-729, S-743

ES2002766
3 BH107_1.5-1.7: Cr VI, Pb, Ni 28/11 #13, 3 S-734-736
4 BH109_0.9-1.0: Cr VI, Pb, Ni 28/11

ES2003147
5 BH11_0.65-0.75: Pb 30/11 #24 (16) 8 S-765, 769, 771
~~BH115_2.5-2.6~~: As
6 BH117_2.2-2.3: B(a)P 30/11

ES2003366
7 BH114_1.3-1.4: Cr VI 3/12 #23 S-862-864

Normal turnaround time is fine. Cr VI = hexavalent chromium.
Any Qs, pls contact me.
Regards,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001

www.aecom.com

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2004682**	Page	: 1 of 5
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020 15:40
Order number	: 60623599_1.1	Date Analysis Commenced	: 15-Feb-2020
C-O-C number	: ----	Issue Date	: 18-Feb-2020 13:31
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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
ø = 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.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH115_2.5-2.6	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.5-0.6	----
			Client sampling date / time	29-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
Compound	CAS Number	LOR	Unit	ES2004682-001	ES2004682-002	ES2004682-003	ES2004682-004	--------
				Result	Result	Result	Result	----
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	**8.6**	**8.5**	**8.8**	**8.6**	**----**
After HCl pH	----	0.1	pH Unit	**1.6**	**1.6**	**1.6**	**1.6**	**----**
Extraction Fluid Number	----	1	-	**1**	**1**	**1**	**1**	**----**
Final pH	----	0.1	pH Unit	**5.3**	**5.3**	**5.2**	**5.2**	**----**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	BH115_2.5-2.6	BH105_0.85-0.95	BH105_1.7-1.8	BH102_0.5-0.6	----
				Client sampling date / time	29-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	31-Jan-2020 00:00	----
Compound	CAS Number	LOR	Unit		ES2004682-001	ES2004682-002	ES2004682-003	ES2004682-004	--------
					Result	Result	Result	Result	----
EG005(ED093)C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		<0.1	----	----	----	----
Lead	7439-92-1	0.1	mg/L		**54.1**	**8.6**	**20.6**	**0.9**	----
Nickel	7440-02-0	0.1	mg/L		**0.2**	----	**0.2**	----	----
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0010	mg/L		----	----	----	<0.0010	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	<0.5	----	<0.5	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	**23.8**	----	**25.5**	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	**53.7**	----	**54.9**	----
2.4.6-Tribromophenol	118-79-6	1.0	%		----	**50.7**	----	**61.5**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	**66.4**	----	**72.9**	----
Anthracene-d10	1719-06-8	1.0	%		----	**81.1**	----	**92.4**	----
4-Terphenyl-d14	1718-51-0	1.0	%		----	**91.3**	----	**85.2**	----

Surrogate Control Limits

Sub-Matrix: **TCLP LEACHATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2004682**	Page	: 1 of 3
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020
Order number	: 60623599_1.1	Date Analysis Commenced	: 15-Feb-2020
C-O-C number	: ----	Issue Date	: 18-Feb-2020
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 4		
No. of samples analysed	: 4		

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 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

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.

Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				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)C: Leachable Metals by ICPAES (QC Lot: 2862670)									
ES2003946-001	Anonymous	EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.00	No Limit
ES2004680-004	Anonymous	EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	2.3	2.3	0.00	0% - 20%
		EG005C: Nickel	7440-02-0	0.1	mg/L	0.6	0.6	0.00	No Limit
EG035C: Leachable Mercury by FIMS (QC Lot: 2864781)									
ES2004594-001	Anonymous	EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit

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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EN33: TCLP Leach (QCLot: 2861763)								
EN33a: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2862670)								
EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.1 mg/L	102	80.0	124
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	113	80.0	118
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	94.2	83.0	115
EG035C: Leachable Mercury by FIMS (QCLot: 2864781)								
EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	105	79.0	109
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2862604)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	84.8	63.3	117

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: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2862670)							
ES2004488-001	Anonymous	EG005C: Arsenic	7440-38-2	1 mg/L	87.0	70.0	130
		EG005C: Lead	7439-92-1	1 mg/L	93.7	70.0	130
		EG005C: Nickel	7440-02-0	1 mg/L	77.5	70.0	130
EG035C: Leachable Mercury by FIMS (QCLot: 2864781)							
ES2004594-002	Anonymous	EG035C: Mercury	7439-97-6	0.01 mg/L	70.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2004682**	Page	: 1 of 5
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.1-Burrows IE	Date Samples Received	: 03-Feb-2020
Site	: ----	Issue Date	: 18-Feb-2020
Sampler	: ----	No. of samples received	: 4
Order number	: 60623599_1.1	No. of samples analysed	: 4

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach						
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
BH105_0.85-0.95, BH102_0.5-0.6	15-Feb-2020	14-Feb-2020	1	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach							
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)							
BH105_0.85-0.95, BH102_0.5-0.6	**31-Jan-2020**	**15-Feb-2020**	14-Feb-2020	×	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a)							
BH115_2.5-2.6	**29-Jan-2020**	**15-Feb-2020**	27-Jul-2020	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a)							
BH105_1.7-1.8	**31-Jan-2020**	**15-Feb-2020**	29-Jul-2020	✓	**----**	----	----

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
BH115_2.5-2.6, BH105_0.85-0.95, BH105_1.7-1.8, BH102_0.5-0.6	**15-Feb-2020**	**17-Feb-2020**	13-Aug-2020	✓	**17-Feb-2020**	13-Aug-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035C: Leachable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035C)							
BH102_0.5-0.6	**15-Feb-2020**	**----**	----	----	**18-Feb-2020**	14-Mar-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BH105_0.85-0.95, BH102_0.5-0.6	**15-Feb-2020**	**17-Feb-2020**	22-Feb-2020	✓	**17-Feb-2020**	28-Mar-2020	✓

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	
Method Blanks (MB)							
TCLP for Non & Semivolatile Analytes	EN33a	1	11	9.09	9.09	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Leachable Mercury by FIMS	EG035C	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Mercury by FIMS	EG035C	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Mercury by FIMS	EG035C	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Mercury by FIMS	EG035C	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
Leachable Mercury by FIMS	EG035C	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2004682**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.1-Burrows IE	Page	: 1 of 2
Order number	: 60623599_1.1	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 03-Feb-2020 15:40	Issue Date	: 12-Feb-2020
Client Requested Due Date	: 18-Feb-2020	Scheduled Reporting Date	: **18-Feb-2020**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **This is a rebatch of ES2003481 and ES2003147.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

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	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EG035C Leachable Mercury	SOIL - EN33a TCLP Leachate	SOIL - EP075 SIM PAH only SIM - PAH only
ES2004682-001	29-Jan-2020 00:00	BH115_2.5-2.6	☐		☐	
ES2004682-002	31-Jan-2020 00:00	BH105_0.85-0.95	☐		☐	☐
ES2004682-003	31-Jan-2020 00:00	BH105_1.7-1.8	☐		☐	
ES2004682-004	31-Jan-2020 00:00	BH102_0.5-0.6	☐	☐	☐	☐

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

Vishal
11/02/2020
1010

Vishal Patel

From: Brenda Hong
Sent: Tuesday, 11 February 2020 10:07 AM
To: Vishal Patel
Subject: FW: [EXTERNAL] - Burrows IE (60623599_1.0): additional analysis request

Hey Vishal, please rebatch for Alex as below. Thanks!

Best regards,

Brenda Hong

Client Services Manager, Environmental NSW

T +61 2 8784 8555 D +61 2 8784 8515
F +61 2 8784 8500 M +61 436 915 237
brenda.hong@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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Environmental Division
Sydney
Work Order Reference
ES2004682

Telephone : +61-2-8784 8555

From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Tuesday, 11 February 2020 8:15 AM
To: Brenda Hong <Brenda.Hong@alsglobal.com>; Loren Schiavon <loren.schiavon@alsglobal.com>
Cc: Tyler Cachia <tyler.cachia@ALSGlobal.com>
Subject: [EXTERNAL] - Burrows IE (60623599_1.0): additional analysis request

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Brenda

Could you please undertake TCLP tests (for waste classification purposes) on the following samples:

ES2003147: BH115_2.5-2.6: As, Pb, Ni #16 - S-765, S769-771.
ES2003481: BH105_0.85-0.95: B(a)P, Pb #4
ES2003481: BH105_1.7-1.8: Pb, Ni #5 S-838-840
ES2003481: BH102_0.5-0.6: B(a)P, Pb, Hg #11

Regards,

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001
www.aecom.com

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2005113**	Page	: 1 of 9
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.0 Burrows IE	Date Samples Received	: 13-Feb-2020 15:30
Order number	: 60623599_1.0	Date Analysis Commenced	: 17-Feb-2020
C-O-C number	: ----	Issue Date	: 20-Feb-2020 14:02
Sampler	: Kurtis Wathen		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 10		
No. of samples analysed	: 10		

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*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW105_200212	MW16_200212	MW17_200212	MW11S_200212	MW21_200212
				Client sampling date / time	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00
Compound	CAS Number	LOR	Unit		ES2005113-001	ES2005113-002	ES2005113-003	ES2005113-004	ES2005113-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.003**	<0.001	<0.001	**0.018**	<0.001
Cadmium	7440-43-9	0.0001	mg/L		**0.0007**	**0.0026**	**0.0006**	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	**0.002**	<0.001	<0.001	**0.010**
Copper	7440-50-8	0.001	mg/L		<0.001	**0.231**	**0.032**	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		**0.029**	**0.045**	**0.039**	**0.023**	**0.002**
Lead	7439-92-1	0.001	mg/L		**0.003**	**0.008**	**0.001**	**0.004**	<0.001
Zinc	7440-66-6	0.005	mg/L		**1.76**	**2.56**	**1.28**	**0.455**	**0.059**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L		<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	<5	<5	<5
EP074E(SIM): Halogenated Aliphatic Compounds									
Vinyl chloride	75-01-4	1	µg/L		<1	<1	<1	<1	<1
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L		<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L		<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L		<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L		<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L		<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L		<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L		<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L		<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L		<5	<5	<5	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW105_200212	MW16_200212	MW17_200212	MW11S_200212	MW21_200212
				Client sampling date / time	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00
Compound	CAS Number	LOR	Unit		ES2005113-001	ES2005113-002	ES2005113-003	ES2005113-004	ES2005113-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Dibromomethane	74-95-3	5	µg/L		<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L		<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L		<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L		<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	<5	<5	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L		<5	<5	<5	<5	<5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW105_200212	MW16_200212	MW17_200212	MW11S_200212	MW21_200212
				Client sampling date / time	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00
Compound	CAS Number	LOR	Unit		ES2005113-001	ES2005113-002	ES2005113-003	ES2005113-004	ES2005113-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP074S(SIM) : VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	50	%		**104**	**99.8**	**105**	**114**	**111**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**97.1**	**93.9**	**87.9**	**96.1**	**88.8**
Toluene-D8	2037-26-5	5	%		**113**	**104**	**102**	**115**	**99.1**
4-Bromofluorobenzene	460-00-4	5	%		**102**	**94.8**	**93.9**	**100**	**90.4**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**114**	**111**	**104**	**113**	**104**
Toluene-D8	2037-26-5	2	%		**114**	**104**	**104**	**115**	**100**
4-Bromofluorobenzene	460-00-4	2	%		**110**	**105**	**105**	**110**	**102**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW19_200212	MW01_200212	MW102_200212	QC304_200212	QC305_200212
				Client sampling date / time	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00
Compound	CAS Number	LOR	Unit		ES2005113-006	ES2005113-007	ES2005113-008	ES2005113-009	ES2005113-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.139**	**0.002**	**0.002**	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0042**	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		**0.004**	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		**0.247**	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		**0.294**	**0.002**	**0.002**	----	----
Lead	7439-92-1	0.001	mg/L		**0.005**	<0.001	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		**3.36**	**0.087**	**0.006**	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	<5	----	----
EP074E(SIM): Halogenated Aliphatic Compounds									
Vinyl chloride	75-01-4	1	µg/L		<1	<1	<1	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L		<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L		<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L		<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L		<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L		<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW19_200212	MW01_200212	MW102_200212	QC304_200212	QC305_200212
				Client sampling date / time	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00
Compound	CAS Number	LOR	Unit		ES2005113-006	ES2005113-007	ES2005113-008	ES2005113-009	ES2005113-010
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Dibromomethane	74-95-3	5	µg/L		<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L		<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	<5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L		<5	<5	<5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW19_200212	MW01_200212	MW102_200212	QC304_200212	QC305_200212
				Client sampling date / time	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00	12-Feb-2020 00:00
Compound	CAS Number	LOR	Unit		ES2005113-006	ES2005113-007	ES2005113-008	ES2005113-009	ES2005113-010
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	<100	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP074S(SIM) : VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	50	%		**106**	**114**	**110**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**94.9**	**89.2**	**101**	----	----
Toluene-D8	2037-26-5	5	%		**108**	**103**	**120**	----	----
4-Bromofluorobenzene	460-00-4	5	%		**97.4**	**92.2**	**107**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**112**	**105**	**118**	**107**	**106**
Toluene-D8	2037-26-5	2	%		**109**	**103**	**121**	**110**	**100**
4-Bromofluorobenzene	460-00-4	2	%		**104**	**99.1**	**116**	**106**	**98.1**

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S(SIM) : VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	75	125
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2005113**	Page	: 1 of 10
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60623599_1.0 Burrows IE	Date Samples Received	: 13-Feb-2020
Order number	: 60623599_1.0	Date Analysis Commenced	: 17-Feb-2020
C-O-C number	: ----	Issue Date	: 20-Feb-2020
Sampler	: Kurtis Wathen		
Site	: ----		
Quote number	: EN/004/16		
No. of samples received	: 10		
No. of samples analysed	: 10		

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 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

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.

Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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 QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2864122)									
ES2004876-013	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES2004911-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2864126)									
ES2005113-004	MW11S_200212	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.018	0.018	0.00	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.023	0.024	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.455	0.462	1.40	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 2864123)									
ES2005113-004	MW11S_200212	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035F: Dissolved Mercury by FIMS (QC Lot: 2864123) - continued									
ES2004876-013	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP074D: Fumigants (QC Lot: 2861276)									
ES2004875-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
ES2005113-007	MW01_200212	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E(SIM): Halogenated Aliphatic Compounds (QC Lot: 2861277)									
ES2005113-001	MW105_200212	EP074E(SIM): Vinyl chloride	75-01-4	1	µg/L	<1	<1	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2861276)									
ES2004875-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2861276) - continued									
ES2004875-001	Anonymous	EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
ES2005113-007	MW01_200212	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2861276)									
ES2004875-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 2861276) - continued									
ES2004875-001	Anonymous	EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
ES2005113-007	MW01_200212	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2861276)									
ES2004875-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
ES2005113-007	MW01_200212	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2860528)									
ES2005113-005	MW21_200212	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2861275)									
ES2004875-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES2005113-007	MW01_200212	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2860528)									
ES2005113-005	MW21_200212	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2861275)									
ES2004875-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2005113-007	MW01_200212	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2861275)									
ES2004875-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2861275) - continued									
ES2004875-001	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES2005113-007	MW01_200212	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2864122)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.1	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.7	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.3	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	89.5	81.0	117
EG020F: Dissolved Metals by ICP-MS (QCLot: 2864126)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.9	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.6	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.3	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.1	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.2	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2864123)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	103	83.0	105
EP074D: Fumigants (QCLot: 2861276)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	101	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	98.9	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	97.3	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	94.3	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	103	69.0	117
EP074E(SIM): Halogenated Aliphatic Compounds (QCLot: 2861277)								
EP074E(SIM): Vinyl chloride	75-01-4	1	µg/L	<1	10 µg/L	103	70.0	126
EP074E: Halogenated Aliphatic Compounds (QCLot: 2861276)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	71.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	81.9	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	89.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	93.3	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	93.0	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	91.3	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	94.0	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	70.7	70.2	128

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 2861276) - continued								
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.0	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	93.8	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	96.1	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	96.5	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	96.3	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	95.4	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	95.7	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	99.1	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	97.8	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	94.2	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	96.5	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	90.4	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	97.7	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	85.8	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	99.7	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	97.3	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	100	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	102	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	93.2	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	91.6	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2861276)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	100.0	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.2	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	97.7	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	94.0	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	93.4	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	98.4	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	94.1	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	94.3	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.1	67.0	123
EP074G: Trihalomethanes (QCLot: 2861276)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	94.1	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	88.9	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	92.8	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	87.3	73.5	126
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2860528)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	82.6	55.8	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	86.6	71.6	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2860528) - continued								
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	74.4	56.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2861275)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	97.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2860528)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	70.5	57.9	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	65.9	62.5	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	72.6	61.5	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2861275)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.2	75.0	127
EP080: BTEXN (QCLot: 2861275)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	95.5	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.6	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	97.2	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.4	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	103	70.0	120

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2864122)							
ES2004876-013	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	125	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	126	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	123	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	119	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	120	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	123	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	116	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 2864126)							
ES2005113-005	MW21_200212	EG020A-F: Arsenic	7440-38-2	1 mg/L	118	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	113	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	110	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	109	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2864126) - continued							
ES2005113-005	MW21_200212	EG020A-F: Lead	7439-92-1	1 mg/L	107	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	112	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	105	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2864123)							
ES2004876-012	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	90.0	70.0	130
EP074E(SIM): Halogenated Aliphatic Compounds (QCLot: 2861277)							
ES2005113-001	MW105_200212	EP074E(SIM): Vinyl chloride	75-01-4	25 µg/L	123	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2861276)							
ES2004875-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	79.3	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	90.0	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2861276)							
ES2004875-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	106	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2860528)							
ES2005113-006	MW19_200212	EP071: C10 - C14 Fraction	----	200 µg/L	75.6	70.0	130
		EP071: C15 - C28 Fraction	----	250 µg/L	112	71.0	130
		EP071: C29 - C36 Fraction	----	200 µg/L	92.5	67.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2861275)							
ES2004875-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	84.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2860528)							
ES2005113-006	MW19_200212	EP071: >C10 - C16 Fraction	----	250 µg/L	92.0	70.0	130
		EP071: >C16 - C34 Fraction	----	350 µg/L	92.0	75.0	130
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.8	67.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2861275)							
ES2004875-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	81.6	70.0	130
EP080: BTEXN (QCLot: 2861275)							
ES2004875-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	75.8	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	76.0	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	82.1	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	81.1	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	82.8	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	85.2	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2005113**	Page	: 1 of 6
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Telephone	: +61 2 8784 8555
Project	: 60623599_1.0 Burrows IE	Date Samples Received	: 13-Feb-2020
Site	: ----	Issue Date	: 20-Feb-2020
Sampler	: Kurtis Wathen	No. of samples received	: 10
Order number	: 60623599_1.0	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

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: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Amber Glass Bottle - Unpreserved (EG020A-F)							
MW102_200212	**12-Feb-2020**	**----**	----	----	**17-Feb-2020**	10-Aug-2020	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
MW105_200212, MW16_200212, MW17_200212, MW11S_200212, MW21_200212, MW19_200212, MW01_200212	**12-Feb-2020**	**----**	----	----	**17-Feb-2020**	10-Aug-2020	✓
EG035F: Dissolved Mercury by FIMS							
Amber Glass Bottle - Unpreserved (EG035F)							
MW102_200212	**12-Feb-2020**	**----**	----	----	**18-Feb-2020**	26-Feb-2020	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
MW105_200212, MW16_200212, MW17_200212, MW11S_200212, MW21_200212, MW19_200212, MW01_200212	**12-Feb-2020**	**----**	----	----	**18-Feb-2020**	11-Mar-2020	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
MW105_200212, MW16_200212, MW17_200212, MW11S_200212, MW21_200212, MW19_200212, MW01_200212, MW102_200212	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓
EP074E(SIM): Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074E(SIM))							
MW105_200212, MW16_200212, MW17_200212, MW11S_200212, MW21_200212, MW19_200212, MW01_200212, MW102_200212	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
MW105_200212,	MW16_200212,	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓
MW17_200212,	MW11S_200212,							
MW21_200212,	MW19_200212,							
MW01_200212,	MW102_200212							
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
MW105_200212,	MW16_200212,	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓
MW17_200212,	MW11S_200212,							
MW21_200212,	MW19_200212,							
MW01_200212,	MW102_200212							
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074)								
MW105_200212,	MW16_200212,	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓
MW17_200212,	MW11S_200212,							
MW21_200212,	MW19_200212,							
MW01_200212,	MW102_200212							
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
MW105_200212,	MW16_200212,	**12-Feb-2020**	**17-Feb-2020**	19-Feb-2020	✓	**19-Feb-2020**	28-Mar-2020	✓
MW17_200212,	MW11S_200212,							
MW21_200212,	MW19_200212,							
MW01_200212,	MW102_200212							
Amber VOC Vial - Sulfuric Acid (EP080)								
MW105_200212,	MW16_200212,	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓
MW17_200212,	MW11S_200212,							
MW21_200212,	MW19_200212,							
MW01_200212,	MW102_200212,							
QC304_200212,	QC305_200212							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
MW105_200212,	MW16_200212,	**12-Feb-2020**	**17-Feb-2020**	19-Feb-2020	✓	**19-Feb-2020**	28-Mar-2020	✓
MW17_200212,	MW11S_200212,							
MW21_200212,	MW19_200212,							
MW01_200212,	MW102_200212							
Amber VOC Vial - Sulfuric Acid (EP080)								
MW105_200212,	MW16_200212,	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓
MW17_200212,	MW11S_200212,							
MW21_200212,	MW19_200212,							
MW01_200212,	MW102_200212,							
QC304_200212,	QC305_200212							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW105_200212, MW16_200212, MW17_200212, MW11S_200212, MW21_200212, MW19_200212, MW01_200212, MW102_200212, QC304_200212, QC305_200212	**12-Feb-2020**	**17-Feb-2020**	26-Feb-2020	✓	**17-Feb-2020**	26-Feb-2020	✓

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: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	27	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Vinyl Chloride Low level	EP074E(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Vinyl Chloride Low level	EP074E(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Vinyl Chloride Low level	EP074E(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Vinyl Chloride Low level	EP074E(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Vinyl Chloride Low level	EP074E(SIM)	WATER	In house ALS QWI-ORG/EP074: Referenced to USEPA SW 846 - 8260B Water samples are directly purged (ALSQWI-ORG/16) prior to analysis by Capillary GC/MS. Quantitation is achieved using internal standard and average response factor quantitation techniques against an established five point curve.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2005113**

Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MR ALEX LATHAM	Contact	: Brenda Hong
Address	: LEVEL 21, 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alex.latham@aecom.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60623599_1.0 Burrows IE	Page	: 1 of 2
Order number	: 60623599_1.0	Quote number	: EB2017AECOMAU0014 (EN/004/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kurtis Wathen		

Dates

Date Samples Received	: 13-Feb-2020 15:30	Issue Date	: 18-Feb-2020
Client Requested Due Date	: 20-Feb-2020	Scheduled Reporting Date	: **20-Feb-2020**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 0.2 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- This is an updated SRN which indicates the addition of 8 metals analysis for sample MW102_200212.
- **Dissolved metals analysis for sample MW102_200212 has not been added as both red metals bottles received were marked as 'unfiltered'. as requested, subsample from orange amber for filtered metals.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

Sample Container(s)/Preservation Non-Compliances

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

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Dissolved Mercury by FIMS : EG035F		
MW102_200212	- Amber Glass Bottle - Unpreserved	- Clear Plastic Bottle - Nitric Acid; Filtered
Dissolved Metals by ICP-MS - Suite A : EG020A-F		
MW102_200212	- Amber Glass Bottle - Unpreserved	- Clear Plastic Bottle - Nitric Acid; Filtered

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: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 Vinyl Chloride SIM VOC SIM Vinyl Chloride Only	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - W-05 TRH/BTEXN/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2005113-001	12-Feb-2020 00:00	MW105_200212	☐	☐	☐	
ES2005113-002	12-Feb-2020 00:00	MW16_200212	☐	☐	☐	
ES2005113-003	12-Feb-2020 00:00	MW17_200212	☐	☐	☐	
ES2005113-004	12-Feb-2020 00:00	MW11S_200212	☐	☐	☐	
ES2005113-005	12-Feb-2020 00:00	MW21_200212	☐	☐	☐	
ES2005113-006	12-Feb-2020 00:00	MW19_200212	☐	☐	☐	
ES2005113-007	12-Feb-2020 00:00	MW01_200212	☐	☐	☐	
ES2005113-008	12-Feb-2020 00:00	MW102_200212	☐	☐	☐	
ES2005113-009	12-Feb-2020 00:00	QC304_200212				☐
ES2005113-010	12-Feb-2020 00:00	QC305_200212				☐

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

ALEX LATHAM

- *AU Certificate of Analysis - NATA (COA)	Email	alex.latham@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alex.latham@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	alex.latham@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alex.latham@aecom.com
- A4 - AU Tax Invoice (INV)	Email	alex.latham@aecom.com
- Chain of Custody (CoC) (COC)	Email	alex.latham@aecom.com
- Chromatogram (CHROM)	Email	alex.latham@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	alex.latham@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	alex.latham@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	alex.latham@aecom.com
- EDI Format - XTab (XTAB)	Email	alex.latham@aecom.com
- Electronic SRN for EQuIS (ESRN_EQUIS)	Email	alex.latham@aecom.com

Jessie Grealy

From: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Sent: Monday, 17 February 2020 2:49 PM
To: Grace White
Cc: Latham, Alex; Helen Simpson
Subject: [EXTERNAL] - RE: ALS Workorder ES2005113, Client AECOMAU, Project 60623599_1.0 Burrows IE

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Grace,

As discussed over the phone, could we please use the unpreserved sample provided for MW102 and lab filter it for dissolved metals.

Thanks for your help,

Kurtis Wathen
Environmental Engineer
D +61 2 8934 0840 M +61 447 224 684
Kurtis.Wathen@aecom.com

AECOM
Level 21, 420 George Street, Sydney, NSW 2000
PO Box Q410, QVB PO, Sydney, NSW, 1230
T +61 2 8934 0000 F +61 2 8934 0001
www.aecom.com

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Environmental Division
Sydney
Work Order Reference
ES2005113
Telephone : +61-2-8784 8555

From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Monday, 17 February 2020 2:34 PM
To: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Subject: FW: ALS Workorder ES2005113, Client AECOMAU, Project 60623599_1.0 Burrows IE

Mate,
Could you please advise.
Dissolved metals were one of the main Contams of concern..
cheers

Alex Latham
Associate Director
D +61 2 8934 0451 M +61 400 973 821
Alex.Latham@aecom.com

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www.aecom.com

Please consider the environment before printing this email.

Latham, Alex

From: Grace White <grace.white@ALSGlobal.com>
Sent: Monday, 17 February 2020 3:17 PM
To: Wathen, Kurtis
Cc: Latham, Alex; Helen Simpson
Subject: RE: [EXTERNAL] - RE: ALS Workorder ES2005113, Client AECOMAU, Project 60623599_1.0 Burrows IE

Hi Kurtis,

No problem, thanks for sending this! I believe this has now been updated.

Kind regards,

Grace White
Client Services Officer, Environmental
Sydney

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grace.white@alsglobal.com
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From: Wathen, Kurtis [mailto:Kurtis.Wathen@aecom.com]
Sent: Monday, 17 February 2020 2:49 PM
To: Grace White <grace.white@ALSGlobal.com>
Cc: Latham, Alex <Alex.Latham@aecom.com>; Helen Simpson <helen.simpson@alsglobal.com>
Subject: [EXTERNAL] - RE: ALS Workorder ES2005113, Client AECOMAU, Project 60623599_1.0 Burrows IE

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Hi Grace,

As discussed over the phone, could we please use the unpreserved sample provided for MW102 and lab filter it for dissolved metals.

Thanks for your help,

Kurtis Wathen
Environmental Engineer
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Kurtis.Wathen@aecom.com

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From: Latham, Alex <Alex.Latham@aecom.com>
Sent: Monday, 17 February 2020 2:34 PM
To: Wathen, Kurtis <Kurtis.Wathen@aecom.com>
Subject: FW: ALS Workorder ES2005113, Client AECOMAU, Project 60623599_1.0 Burrows IE

Mate,
Could you please advise.
Dissolved metals were one of the main Contams of concern..
cheers

Alex Latham
Associate Director
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From: Helen Simpson <helen.simpson@alsglobal.com>
Sent: Monday, 17 February 2020 2:24 PM
To: Latham, Alex <Alex.Latham@aecom.com>
Subject: ALS Workorder ES2005113, Client AECOMAU, Project 60623599_1.0 Burrows IE

Hi Alex,

For the attached COC, we have received 2 red bottles labelled MW102_200212. Unfortunately, both are marked as unfiltered. Since both filtered and total analysis is required, we think that one of the bottles has been miss-ticked and therefore have not added any metals analysis to this sample.

Please let me know if you need me to do anything.

Kind Regards,

Helen Simpson
Sample Admin, Environmental
Sydney

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