REPORT

Site Contamination Assessment

16a & 18-24 Robertsons Road, Taylors Lakes

Submitted to:

Development Victoria
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Submitted by:

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147613062-004-R-Rev1

4 December 2018

Distribution List

1 ecopy - Development Victoria

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1.0 INTRODUCTION & BACKGROUND

Development Victoria (DV) engaged Golder Associates Pty Ltd (Golder) to provide a site contamination assessment (SCA) for the site located at 16a & 18 – 24 Robertsons Road, Taylors Lakes.

This report presents the results of the contamination assessment of the site which has been undertaken in general accordance with the environmental scope of works presented in our proposal P147613062-003-L-Rev0 dated 4 October 2018. Approval to proceed with this work was provided by Development Victoria dated 7 November 2018.

1.1 Objective

The aims of the SCA were to:

- Identify past and current uses of the site and surrounding area that may have impacted upon its contamination status; and
- Undertake a preliminary intrusive soil assessment of the site to provide some base contamination data to assist in risk allocation for contamination issues as part of upcoming earthworks tender for the development including a preliminary waste classification for offsite disposal of soil excess to the development requirements.

1.2 Scope

The SCA involved two phases:

- **Phase 1**: Prior to acquisition, a desktop review of readily available information and past site reports and a site walkover to identify previous land use, activities or infrastructure that may have resulted in impact to land and/or groundwater. This information was reported in:
  - Golder Associates Pty Ltd, *Contamination Due Diligence Review, 18 – 24 Robertsons Road, Taylors Lakes* dated 25 July 2014 (Golder Ref. 147613062-002-L-Rev0)
- **Phase 2**: Following acquisition, a further site inspection and limited soil sampling program of 10 sample locations to supplement the desktop review and provide some quantitative data upon to assist Development Victoria in procurement for the development phase of the project.

This report provides the results from Stages 1 and 2 and as such, updates and supersedes the Golder (2014) due diligence review.

2.0 SITE DETAILS

The site is divided into four titles described as 18 – 24 Robertsons Road and 16a Robertsons Road (formerly 16-28 McCubbin Drive), Taylors Lakes and is situated within the municipality of the City of Brimbank, approximately 35 kilometres northwest of Melbourne's central business district. The site is currently vacant and is bounded to the northwest by Robertsons Road, to the southwest by McCubbin Drive, and to the northeast and southeast by residential dwellings (Figure A).

Figure A: Aerial photograph of the site (12 October 2018).

The Site is currently described on two Certificates of Title as listed in Table 1. Supplementary Certificate of Title information obtained for this review is presented in Attachment A.

Table 1: Summary of Certificate of Title Details

Certificate of Title	Address	Parcel Description	Registered Proprietor
Volume 11877 Folio 924	18-24 Robertsons Road, Taylors Lakes	Lot 1 on PS 811764V	Development Victoria
Volume 11877 Folio 926	16a Robertsons Road, Taylors Lakes	Lot 1 on PS 811765T	Development Victoria

3.0 REVIEW OF PREVIOUS REPORTS

3.1 Meinhardt Phase 1 Report (2010)

Meinhardt Infrastructure and Environment Pty Ltd (Meinhardt) undertook a Phase 1 Environmental Site Assessment of the site at 18-24 Robertsons Road in mid-2010. The details of this assessment were report in the report "Meinhardt Infrastructure and Environment Pty Ltd, 18 -24 Robertson's Road, Taylors Lakes – Phase 1 Environmental Site Assessment", dated September 2010

The key findings of the Meinhardt report included:

- The site comprises vacant grassland and has never been developed as a school.
- The site was used for grazing until the 1950s.

- The site was used as a harness racing training track from circa 1960 until at least 1991 (no longer used). Buildings associated with the track were evident to the north west of the track in historical aerial photographs.
- During the site walkover there was evidence of what appeared to be relatively minor dumping of various domestic and construction waste. Dumped material included cement sheeting which may have been asbestos-containing material (ACM), although no testing was taken to verify this.
- The former Sydenham quarry (located approximately 1km south of the site) had been issued a Clean-Up Notice by the EPA. The quarry was backfilled as a landfill and was used for petroleum and other waste from 1948 to 1972. The former quarry was considered unlikely to have any potential impact on the site due to its distance from the site and it being located on the opposite side of Taylors Creek.
- Meinhardt considered that *"[since] there had been no development on the site, there potentially may be Volcanic Plains Grasslands located on the site, which is considered critically endangered under the federal Environment Protection and Biodiversity Conservation (EPBC) Act*". Meinhardt recommended that a flora and fauna assessment be undertaken at the site.
- Meinhardt recommended that should any soil be removed from the site that this material should be sampled and classified in accordance with EPA guidelines

3.2 Senversa Review (2011)

In 2011, Senversa was engaged by Department of Treasury and Finance to review the Meinhardt report and prepared a letter entitled, "Re: Review of Phase 1 Environmental Site Assessment Report 18-24 Robertson's Road, Taylors Lake VIC" (for DTF dated 20 December 2011). The letter provided a review of the Meinhardt report and did not present any additional information regarding the Site. The letter did though provide the following recommendations:

- It is Senversa's opinion that the site has 'low potential' (DSE, 2005) for contamination given that the site has never been developed and no current or historical potential sources of contamination were identified.
- Assuming a proposed 'Sensitive Use' (e.g. residential), the site should be classified 'C' as per 'Table 2 - Assessment Matrix' in DSE 2005.
- That prior to any development, any illegally dumped rubbish as noted in the Meinhardt report, should be handled and disposed of from the site as per industry standard practice.
- Should the zoning change from 'Public Use Zone 2 – Education' will be required for the site to be used for future residential development. Such a zoning change can be the trigger for an Environmental Audit, though they did consider an Environmental Audit is warranted given the suggested assessment matrix ranking of level 'C' (DSE 2005).

The scope and quality of the Meinhardt report and the Senversa review are considered by Golder to provide a suitable basis from which to assess the potential risks associated contamination at the site.

3.3 Golder Contamination and Geotechnical Due Diligence Review (2014)

Golder undertook a site walkover, review of the Meinhardt (2010) and Senversa (2011) reports and site history review for the site, which was summarised in the document titled "*Contamination Due Diligence Review"*, dated 25 July 2014. The information contained within the report is shown below.

The report concluded that there were no identified contamination issues that were likely to impact upon the ability to develop the site for residential use and that in accordance with the *DSE General Practice Note*

Potentially Contaminated Land dated, June 2005, undertaking an Environmental Audit was not considered to be warranted. The report recommended the following:

1) The surface rubbish that had been dumped in some areas of the site be removed from site;

2) There will remain a level of uncertainty in relation to past activities over the remainder of the site and as such it was recommended that the uncertainty in the residual risk of contamination is managed via a general soil management protocol to be adopted during the development of the site.

Concurrently, Golder undertook a geotechnical review for due diligence purposes reported in "*18 – 24 Robertsons Road, Taylors Lakes, Geotechnical Desktop Assessment"* dated 21 July 2014 which involved a review of background geotechnical information.

The Golder (2014) contamination due diligence report is superseded by this report and the information contained therein.

3.4 GHD Geotechnical Assessment (2016)

Following acquisition of the site by Development Victoria, an intrusive geotechnical assessment was subsequently undertaken by GHD Pty Ltd entitled "*Taylors Lakes Development, Geotechnical Investigation Report"* dated April 2016. Review of the supplied GHD geotechnical report indicates that 10 test pits were excavated at the site and that only natural soils were encountered with no observations of waste or signs of contamination which supports the previous conclusions of the site representing a low contamination risk.

4.0 SITE HISTORY REVIEW

Golder undertook a site history review to provide coverage of the site between the 2010 Meinhardt review and the current day. Details of the supplementary review are provided below:

4.1 Sources of Information

A review of the following information sources was undertaken:

- Selected historical aerial photographs;
- Certificate of title information;
- Environment Protection Authority (EPA) Victoria Priority Sites Register; and
- EPA Victoria public library of completed Environmental Audit reports.

Details of the review of each information source are presented in the following sections.

4.2 Aerial Photograph Review

The aerial photograph review was undertaken to include coverage of the site and to provide coverage between the last reviewed aerial image by Meinhardt (1986), 2014 and 2018. Copies of the aerial photographs reviewed are included in the Meinhardt Report as Appendix G. A summary of the observations made during the aerial photograph review are presented in Table 2.

Table 2: Summary of Aerial Photography Review

Date	16a – 28 Robertsons Road Observations
1945	A number of regular shaped items, possible hay stacks, appear to be present on site
1968	A building and possible outbuilding assumed to be a residential property is located on the western portion of the site to the west of a stand of large trees.

Date	16a – 28 Robertsons Road Observations
1974	Whilst buildings are still present in the vicinity of the trees the number and size of the buildings appear to have reduced.
1986	All buildings now appear to have been removed.
2014	The site appears unchanged from the 1986 image.
2018	The trees located in the south west portion of the site have been removed.

4.3 Certificates of Title

Historical certificates of title covering 16a – 24 Robertsons Road are included in Attachment A. A summary of the information obtained during the certificate of title review is presented in Table 3.

A review of the historical certificate of title information indicates that the Site has been owned by a number of parties and used for grazing from at least 1912 until the early 1970s. From the early 1970s the site appears to have been owned by a number of companies (assumed for potential development) before being acquired in 1995 by the Victorian State Government.

Table 3: Summary of Certificate of Title Information

Date	Certificate of Title	Comments
2017	Vol. 11877 Fol. 924	Development Victoria
	Vol. 11877 Fol. 926	
1995	Vol. 10271 Fol. 163	The Minister of the Crown for the time being administering the Education Act 1958
1994	Vol. 10178 Fol. 827	Pathstone Pty Ltd
1992	Vol. 10073 Fol. 247	
1992	Vol. 10073 Fol. 246	
1990	Vol. 9951 Fol. 146	
1990	Vol. 9500 Fol. 655	
1982		Waltons Stores (Interstate) Limited
1982	Vol. 8870 Fol. 292	
1972		Development Estates (Keilor) Pty Ltd
1971		Lewis Leslie Welsh - Farmer and Grazier
1959	Vol. 6612 Fol. 395	Lewis Leslie Welsh - Farmer and Grazier
1953		William Arthur Gunter - Jeweller

Date	Certificate of Title	Comments
1943		Arthur Gunter, Harold Elliott Gunter and William Arthur Gunter - Jewellers
1943	Vol. 3586 Fol. 106	
1941		Katrina Marion McArthur - Widower
1912		John Bakewell McArthur – Licensed Victualler

4.4 EPA Victoria Priority Sites Register

Given the intervening time between the Meinhardt report and the current day a new search EPA Priority Sites Register was undertaken. Priority Sites are sites where EPA Victoria has issued a Clean-up Notice pursuant to Section 62A or a Pollution Abatement Notice pursuant to Section 31A or 31B (relevant to land and/or groundwater) of the Victorian *Environment Protection Act* 1970[1]. Typically, these are sites where pollution of land and/or groundwater presents an unacceptable risk to human health or to the environment. EPA Victoria maintains the Priority Sites Register as a listing of all priority sites and the register is available to the public. It is important to note that the Priority Sites Register is not a listing of all contaminated sites in Victoria, nor is it a list of all contaminated sites of which EPA has knowledge.

A search of the EPA Victoria Priority Sites Register conducted on 8 November 2018 indicated that the Site is not listed on the Priority Sites Register. The nearest site on the register is the Former Sydenham Quarry located at 362 Sydenham Road, Sydenham which is approximately 800 metres south west of the site. Given the location of the Sydenham Road site it is considered unlikely that this site will have impacted on the site.

4.5 EPA Victoria Environmental Audit Reports

The Environmental Audit System was established in Victoria by the Environment Protection Authority of Victoria (EPA Victoria) as a means by which planning authorities, site owners, purchasers and others are provided with assurance regarding the condition of the property and its suitability for use, frequently in the context of site redevelopment. Each audit undertaken under section 53X of the Victorian *Environment Protection Act* 1970[2] will have a certificate or statement attached, and a list of these audits is publicly available. It is important to note that the list of audits is not a register of contaminated or clean sites but rather is a list of properties that have been found to be suitable (in some cases subject to certain conditions) for the proposed land use.

A search of the EPA Victoria public library for completed Environmental Audit reports at sites within 5 km of the Site was undertaken, as summarised in Table 4.

Table 4: Summary of Completed Environmental Audits within 5 km of the Site

Address	Approximate Distance and Direction From Site	Date	Audit Outcome
362 Sydenham Road, Sydenham	800 m south west of the site	February 2014	Statement

[1] State Government of Victoria, 1970. *Victorian Environment Protection Act 1970.*

[2] Environment Protection Authority Victoria website. *List of Issued Certificates and Statements of Environmental Audit.* (www.epa.vic.gov.au/envaudit/environmental_audits.asp).

Address	Approximate Distance and Direction From Site	Date	Audit Outcome
197 Taylors Road, St. Albans	4.5 km south east of the site	April 2011	Certificate
2 Regan Street, St. Albans	4.4 km south east of the site	March 2004	Certificate
Margrave Street, St. Albans	4.7 km south east of the site	February 1997	Certificate

Whilst the 362 Sydenham Road site is considered to be impacted and to have caused impact to groundwater beneath properties to the south of the Sydenham Road site it is considered unlikely that the Sydenham Road site will have impacted on the Site, given groundwater flow direction and distance between the Sydenham Road site and the Site.

4.6 Site History Summary and Key Potential Contamination Issues

The site appears to have been used for farming until the 1960s. The site was then used as a harness racing training track from circa 1960 most likely until purchase by the State Government since 1995. There is evidence of some residential occupation and other potential sheds and maintenance associated with these uses especially in the north west of the site. Since 1995, it appears that the site has remained vacant with some fly tipping evident.

The aim of the environmental review was to identify and summarise the key areas of contamination concern that have the potential to cause soil and groundwater impact. Based on the findings of the review, Table 5 below presents a summary of the areas of potential contamination concern, details on potential contaminants that may be associated with these areas and provides a relative risk rating for investigation of each item with respect to soil and groundwater contamination at the site. It should be noted that the priority ranking is not intended to infer severity or extent of impact. For example, it may be that the potential soil impact (if any) is relatively localised and minor in nature.

Table 5: Summary of Potential Uses and Potential Contaminants

Issue	Description	Potential Contaminants	Contamination Risk
Former Farmhouse and associated buildings	Localised impacts to soil from the use of the site, including potential for filling and possible farm machinery maintenance.	Broad range of potential contaminants, including, metals, OCPs and OPPs, TRH, PAHs, MAHs and asbestos	**Low**
Filling of former site dams	Filling of former dams and depressions with site waste	Broad range of potential contaminants, including, metals, OCPs and OPPs, TRH, PAHs, MAHs, general waste and asbestos	**Low**
Uncontrolled dumping of waste including building rubble	Areas of uncontrolled dumping of waste including building rubble and fill	Broad range of potential contaminants, including, metals, OCPs and OPPs, TRH, PAHs, MAHs and asbestos.	**Low**

Notes.
OCP organochlorine pesticide
OPP Organophosphate pesticide
TRH Total Recoverable Hydrocarbons
PAH Polycyclic Aromatic Hydrocarbon
MAH Monocyclic Aromatic Hydrocarbon

All of the identified issues relate to the potential for soil contamination. None of the issues are considered to present an elevated risk of groundwater contamination. The risk of contamination on the site outside of these identified areas in Table 5 is considered to be low.

5.0 2018 CONTAMINATION SOIL ASSESSMENT

5.1 Methodology

To provide a preliminary assessment of the potential contamination status of soil at the site for off-site disposal of excess soil generated from the works, soil samples were collected from each of the 10 hand auger locations (HA01 to HA10), with 10 primary samples selected for laboratory analysis, one from each location. Approximate sample locations are presented in Figure 1, Appendix A.

Samples were taken from the surface (0 – 0.1 m depth). Only surface samples were undertaken as the previous GHD geotechnical report (2016) provided does not indicate the presence of fill over the site with investigations undertaken up to 3 m depth. Hence the surface soils were considered to pose the highest potential contamination risk.

Soil sampling was undertaken in accordance with Golder's standard sampling protocols. Primary samples were assessed in the field for the potential of visual or olfactory evidence of contamination.

The following quality assurance (QA) procedures were also conducted during the field investigation:

- Tracking of sample movements using Chain of Custody (CoC) documentation;
- Collection and analysis of quality control samples including one inter-laboratory duplicate;

- Use of a NATA registered laboratory for chemical analysis; and
- Performance of internal laboratory control tests.

Soil samples were collected in jars which were capped with Teflon lined lids supplied by the laboratory. The jars were labelled immediately and stored in a chilled cool-box. The samples were then dispatched to the laboratory accompanied by the CoC documentation. Sampling equipment was washed using Decon 90 and deionised water between sampling locations to minimise the possibility of cross-contamination.

Five samples were submitted for analysis for the broad suite of potential contaminants listed in Table 2 of EPA Publication IWRG21. Five samples were submitted for the following reduced analysis:

- Heavy metals (Arsenic, boron, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, vanadium, zinc);
- Polycyclic aromatic hydrocarbons (PAH).

Ten primary samples and one intra-laboratory duplicate sample were submitted to the nominated primary laboratory ALS Environmental. ALS is registered by the National Association of Testing Authorities (NATA) for the analysis performed. The single inter-laboratory sample was sent to a secondary lab, Eurofins which is also a NATA registered laboratory.

5.2 Adopted soil investigation levels

The EPA Victoria Industrial Waste Resource Guidelines (IWRG) 2009 provides guidance in relation to the sampling and categorisation of waste soils to be moved off-site for re-use or disposal. Waste classification involving an assessment of the soil, including site history, to identify which contaminants require analysis to determine the hazard category. The assessment must be for all chemical substances known and reasonably expected to be present in the waste.

Industrial waste can be categorised as one of four waste types as outlined in EPA Publication IWRG600.2 (EPA, 2010) *Waste Categorisation*, dated December 2010. In this document, waste material is categorised as either:

- Fill Material;
- Solid Inert Waste from an industrial source;
- Putrescible Waste from an industrial source; or
- Prescribed Industrial Waste.

There are generally no restrictions on the handling of Fill Material and soil meeting Fill Material does not required disposal at a licensed landfill. However, the EPA requirements state that the disposal of Fill Material must not give rise to detrimental environmental impacts. If soil disposed as Fill Material is subsequently found to have generated detrimental environmental impacts, then the entities involved in that disposal are at risk of EPA imposed notices and penalties. Soil containing significant quantities of building rubble can be classified as Solid Inert Waste from an industrial source and require disposal to an EPA licensed landfill.

In accordance with EPA Publication IWRG621 (EPA, 2009a), *Soil Hazard Categorisation and Management,* dated June 2009, potential contaminated soils must be categorised into one of four hazard categories, prior to off-site re-use or disposal. The hazard categories for are as follows:

- Category A (contaminated soil);
- Category B (contaminated soil);

- Category C (contaminated soil);
- Fill Material.

The options for the management of waste contaminated soil in these categories are as follows:

- Category A (contaminated soil) – on-site remediation, off-site remediation or storage pending availability of treatment (i.e. immobilisation). Category A (contaminated soil) cannot be disposed to landfill, as there are currently no Victorian facilities to accept Category A (contaminated soil).
- Category B (contaminated soil) or Category C (contaminated soil) – on-site remediation, off-site remediation or disposal to a licensed facility.

Soils with contaminant concentrations which exceeded the Fill Material are criteria are categorised as Category A, B or C (contaminated soil) and are described as Prescribed Waste under the Environment Protection (Prescribed Waste) (Amendment) Regulations 2007. The criteria used are shown at the top of Table B1 in Appendix B.

EPA Publication IWRG702 (EPA, 2009), *Soil Sampling*, dated June 2009, provides guidance on the minimum soil sampling frequencies as follows:

- One sampled per 25 m^3 for soil volumes of less than 200 m^3 with a minimum of three samples; and
- One sampled per 250 m^3 for soil volumes of greater than 200 m^3 within a minimum of ten samples, where there is sufficient data to calculate the 95% upper confidence limit of the mean.

Transport and disposal of Prescribed Waste is required to be carried out in vehicles licensed to carry such materials utilising EPA Waste Transport Certificates. Landfill facilities accepting Prescribed Waste will have in place their own processes and procedures to assess the material being received.

5.3 Site Walkover

A site walkover was undertaken by a Golder representative on 9 November 2018 at the time of soil sampling. This was undertaken to confirm whether the site had undergone any significant changes from the observations made in the site walkover conducted on 18 July 2014 (Golder, 2014). The majority of the observations made during the first site walkover remain accurate, however the following changes were noted:

- The site generally slopes to the Robertsons Road and McCubbin Drive corner of the site.
- The site is covered by grass with occasional low shrubs. A stand of mature trees, assumed to have been associated with a former farmhouse was located in the western corner of the site.
- Evidence of the former trotting track was still present with the camber of the trotting track bends appearing to have been achieved by cutting into the ground surface (see photo below).

- Some basalt was observed at the ground surface. It is considered that this basalt may be boulders within the residual soil rather than outcrop of intact basalt rock.
- The stand of mature trees in the southern portion of the site have been removed.
- Waste that had been noted in the previous site walkover has since been removed from site. However, a small amount of waste such as empty paint tins and ceramic tiles were noted across the site (See photographs below below).

5.4 Sub-Surface Ground Conditions

The soil conditions encountered at the surface of the site at the ten sampling locations generally consisted of silty clay and clayey silt. The fill generally had a brown colouration with the clay being of a high plasticity and with plasticity increasing with depth.

5.5 Field Observations of Visual and Olfactory Contamination

An assessment of each soil sample was made in the field and involved ranking based on both olfactory and visible evidence of contamination. Each soil sample was given a ranking in accordance with Table 6.

Table 6: Environmental Ranking System for Soil Samples

Visible Contamination		Odorous Soil	
Rank	Description	Rank	Description
0	No visible evidence of contamination	A	No odour
1	Slight evidence of visual contamination	B	Slightly offensive odour
2	Visual contamination	C	Moderately offensive odour
3	Obviously contaminated	D	Strongly offensive odour

Field rankings were 0A in all hand auger locations across the site, which indicates a low risk of aesthetic impacts to sensitive receptors in the samples screened. No anthropogenic wastes such as plastic, glass, brick or concrete fragments were observed during the soil investigation.

5.6 Soil Laboratory Analytical Results

The summarised laboratory analytical results and comparison with relevant guidelines are tabulated in Table B1 in Appendix B. Laboratory analytical certificates are presented in Appendix C.

5.6.1 Soil Data Quality Assurance Assessment

A data quality assurance (QA) program was implemented as part of the soil investigation. The main aspects of the data quality assurance relate to the collection of quality control samples and generation of internal laboratory quality control data to support the reported results and the assessment of laboratory results. The quality of the laboratory data generated was supported with appropriate laboratory quality control samples and assessed using standard methods. Quality control (QC) samples consisting of internal spikes, duplicates and method blanks were analysed as part of the laboratory quality assurance/quality control (QA/QC) program.

The results of the primary and secondary duplicates have been tabulated in Table B1, Appendix B with the primary samples.

The results of soil quality assurance and quality control program are summarised in Table 7 as follows.

Table 7: Soil QA/QC Summary

QC Sample Type	Number of Results NOT Meeting Data Quality Objectives	Total Number of Results (Individual Analytes)	Percentage Meeting Data Quality Objectives
Primary Duplicates	0	124	100%
Secondary Duplicates	0	115	100%
Internal Duplicates	1	294	99%
Matrix Spikes	1	61	98%
Method Blanks	0	159	100%
Overall Completeness	**2**	**753**	**99%**

The overall QA/QC completeness of 99% for soil results is above the overall objective of 95%. Based on this, it is considered that the overall data quality generated during the assessment of soils is of sufficient quality upon which to based decisions for this assessment.

5.6.2 Preliminary Waste Soil Classification

Laboratory analytical results for all 10 surface soil samples were used to a provide a preliminary waste soil classification for site soils. Whilst the volume of fill and natural soil requiring off-site disposal is not known, it is unlikely that the sampling frequency undertaken during the SCA meets the minimum requirements outlined in EPA Publication IWRG702; however, it does provide an indication of the likely off-site disposal classification of excess soils generated from the proposed development

All results for all samples analysed were below the upper threshold concentrations for Fill Material (Table B1) meaning that the soil at the site has a preliminary classification as Fill Material for off-site disposal. Additional testing may be required to supplement these results depending on the final volume of soils to be disposed and the requirements of the receiving facility.

6.0 IMPLICATIONS FOR RESIDENTIAL DEVELOPMENT

6.1 Key Development Issues

There are no identified contamination issues that are likely to impact upon the ability to develop the site for residential use. However, there will remain a level of uncertainty in relation to past activities on the site which will require management as part of the development. These actions are further outlined below.

6.2 Further Actions As Part of Development

We recommend the following further actions as part of development:

1) Any surface rubbish that has been dumped at the site should be removed from site;

2) There will remain a level of uncertainty in relation to past activities over the remainder of the site. As such it is recommended that the uncertainty in the residual risk of contamination is managed via a general soil management protocol to be adopted during the development of the site. The protocol would require:

   - Should any stained or odorous soils or soils containing waste be identified that these are assessed by an Environmental Consultant;
   - All material suspected of being asbestos containing material should be assessed by a suitably qualified practitioner. Any asbestos containing material should be handled and disposed of by a suitably qualified and licenced asbestos contractor.
   - Any soil brought to site as fill are confirmed as meeting the EPA requirements for Fill Material.
   - Any soil taken offsite meet the EPA requirements for the offsite disposal of soils.

6.3 Assessment and "Sign Off" Strategy

When considering the Environmental process to be used to progress site development, it is important to consider the requirements of *Ministerial Direction No.1 – Potentially Contaminated Land* that requires planning authorities to satisfy themselves that the environmental condition of the land to be used for a purpose is, or will be, suitable for that use. Should the land (or part thereof) be considered to be potentially contaminated, a Statutory Environmental Audit may be deemed necessary by the planning authority.

Table 2 of the General Practice Note Potentially Contaminated Land (DSE, 2005) allows planners to consider the level of contamination at a site and the proposed land use to determine the level of environmental assessment required. For this site, due to the potential past agricultural use, the potential for contamination is "medium". For a proposed residential use, the Practice Note indicates the appropriate environmental site assessment level for a planning scheme amendment or planning permit application is "*a site assessment from a suitably qualified environmental professional if insufficient information is available to determine if an audit is appropriate*." Hence an Environmental Audit is unlikely to be triggered by planning requirements unless this site assessment indicates that there are contamination risks associated with the site that need to be resolved through the Environmental Audit process.

The site assessment by Golder as documented by this report has indicated that the site represents a low contamination risk to residential use subject to the completion of a small number of management actions as documented in Section 6.2). As such, undertaking an Environmental Audit is not considered to be warranted.

7.0 CONCLUSIONS

Golder has undertaken a site contamination assessment for the proposed residential development of 16a & 18 – 24 Robertsons Road, Taylors Lakes. The works consisted of a desktop historical review, site walkover and a preliminary soil sampling and analysis program to assess the potential for past and current activities on the site to have resulted in contamination that may impact upon the redevelopment.

The review has indicated that the site represents a low contamination risk to residential use subject to the completion of the additional management actions as documented in Section 6.2. The soils on the site have a preliminary classification as Fill Material for offsite disposal. Additional testing may be required to supplement these results depending on the final volume of natural soils to be disposed and the requirements of the receiving facility as detailed in Section 5.2.

Based on the findings of this due diligence review, and in accordance with the DSE General Practice Note *Potentially Contaminated Land* dated, June 2005, Golder concludes that undertaking an Environmental Audit is not considered to be warranted.

8.0 RECOMMENDATIONS

It is recommended that:

- this report is used in support of planning requirements for the use of the site for residential development; and
- the further actions identified in this report (Section 6.2) are undertaken as part of development

9.0 IMPORTANT INFORMATION

Your attention is drawn to the document which is included in Appendix D of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder has under the contract between it and its client.

Signature Page

Golder Associates Pty Ltd

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APPENDIX A

Site Plan and Sample Locations

LEGEND

- Investigation Locations
- Site Extent

0 25 50 75 100

1:1,500 METRES

NOTE(S)

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REFERENCE(S)

1. IMAGERY SOURCED FROM NEARMAP.COM, DATE OF CAPTURE: 12/10/2018.
2. ROAD AND PROPERTY INFORMATION SOURCED FROM VICMAP 14/05/2016.
3. LOCATION MAP SOURCED FROM ESRI ONLINE BASEMAPS.

CLIENT
DEVELOPMENT VICTORIA

PROJECT
ENVIRONMENTAL SOIL ASSESSMENT
16a - 24 ROBERTSONS ROAD, TAYLORS LAKES

TITLE
INVESTIGATION LOCATION PLAN

CONSULTANT

GOLDER

YYYY-MM-DD	2018-11-15
DESIGNED	-
PREPARED	CJS
REVIEWED	IMK
APPROVED	IMK

PROJECT NO.	CONTROL	REV.	FIGURE
147613062	004-R	1	1

PATH: \\golder.gds\gal\Melbourne\Jobs\Env\2014\147613062 - Taylors Lakes\Technical Docs\GIS\Project\147613062-004-R-RevD-F0001.mxd PRINTED ON: 2018-11-15 AT: 9:51:35 AM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ISO A3

0 25mm

APPENDIX B

Summary of Soil Analytical Results

GOLDER

Table B1 - Analytical Results, Preliminary Waste Classificaiton

16a-24 Robertsons Road, Taylors Lake

					Halogenated Benzenes								Heavy Metals																					Herbicides	MAH											
					1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	4-Chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Vanadium	Zinc	Dinoseb	1,2,4-trimethylbenzene	1,3,5-Trimethylbenzene	Benzene	Toluene	Isopropylbenzene	Styrene	Ethylbenzene	Xylenes (m & p)	Xylene (o)	Xylenes (Sum of total) (Lab Reported)	Total MAHs (Lab Reported)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.01	0.02	0.5	0.02	0.5	0.5	0.02	0.03	5	10	1	50	1	2	0.5	2	5	5	5	0.1	2	2	5	2	5	5	5	5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2
VIC EPA IWRG621 Cat B													**2000**				**400**		**2000**		**20000**	**6000**		**300**	**4000**	**12000**	**200**	**720**						**16**										**240**
VIC EPA IWRG621 Cat C													**500**				**100**		**500**		**5000**	**1500**		**75**	**1000**	**3000**	**50**	**180**	**500**						**4**										**70**
VIC EPA IWRG621 Fill Material													**20**				**3**		**1**		**100**	**300**		**1**	**40**	**60**	**10**	**10**	**50**						**1**										**7**
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Matrix_Description**																																								
HA01/2001	HA01	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	<5	40	<1	<50	<1	33	-	15	10	17	486	<0.1	-	15	<5	-	-	50	31	-	-	-	-	-	-	-	-	-	-	-	-	-
HA02/2001	HA02	0-0.1	09-Nov-18	Natural	<0.01	<0.02	-	<0.02	-	-	<0.02	<0.03	<5	-	-	-	<1	-	<0.5	-	13	11	-	<0.1	<2	20	<5	<2	<5	-	16	<5	-	-	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
HA02/2801	HA02	0-0.1	09-Nov-18	Natural	<0.01	<0.02	-	<0.02	-	-	<0.02	<0.03	<5	-	-	-	<1	-	<0.5	-	9	13	-	<0.1	<2	15	<5	<2	<5	-	14	<5	-	-	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
HA02/2901	HA02	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	2.7	-	-	-	<0.4	44	<1	-	12	16	-	<0.1	<5	16	<2	<0.2	<10	-	25	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.5	<0.1	<0.2	<0.1	<0.3	<0.5
HA03/2001	HA03	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	<5	30	<1	<50	<1	26	-	9	8	16	377	<0.1	-	10	<5	-	-	42	33	-	-	-	-	-	-	-	-	-	-	-	-
HA04/2001	HA04	0-0.1	09-Nov-18	Natural	<0.01	<0.02	-	<0.02	-	-	<0.02	<0.03	<5	-	-	-	<1	-	<0.5	-	9	15	-	<0.1	<2	17	<5	<2	<5	-	18	<5	-	-	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
HA05/2001	HA05	0-0.1	09-Nov-18	Natural	<0.01	<0.02	-	<0.02	-	-	<0.02	<0.03	<5	-	-	-	<1	-	<0.5	-	8	13	-	<0.1	<2	12	<5	<2	<5	-	15	<5	-	-	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
HA06/2001	HA06	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	<5	30	<1	<50	<1	27	-	9	6	13	282	<0.1	-	10	<5	-	-	45	15	-	-	-	-	-	-	-	-	-	-	-	-
HA07/2001	HA07	0-0.1	09-Nov-18	Natural	<0.01	<0.02	-	<0.02	-	-	<0.02	<0.03	<5	-	-	-	<1	-	<0.5	-	8	14	-	<0.1	<2	12	<5	<2	<5	-	20	<5	-	-	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
HA08/2001	HA08	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	<5	30	<1	<50	<1	28	-	10	8	15	343	<0.1	-	10	<5	-	-	45	24	-	-	-	-	-	-	-	-	-	-	-	-
HA09/2001	HA09	0-0.1	09-Nov-18	Natural	<0.01	<0.02	-	<0.02	-	-	<0.02	<0.03	<5	-	-	-	<1	-	<0.5	-	5	13	-	<0.1	<2	7	<5	<2	<5	-	15	<5	-	-	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
HA10/2001	HA10	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	<5	120	<1	<50	<1	38	-	15	10	12	468	<0.1	-	22	<5	-	-	55	21	-	-	-	-	-	-	-	-	-	-	-	-

						Organochlorine Pesticides																										
						a-BHC	Aldrin	Aldrin & Dieldrin (Sum of total) (Lab Reported)	b-BHC	Chlordane (Sum of total)	cis-Chlordane	trans-Chlordane	d-BHC	DDD	DDE	DDT	DDT+DDE+DDD (Sum of total) (Lab Reported)	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC	Heptachlor	Heptachlor epoxide	Methoxychlor	Organochlorine Pesticides (Lab Reported)	Other OCPs (IWRG Lab Reported)	Toxaphene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	1
VIC EPA IWRG621 Cat B								**4.8**		**16**							**50**									**4.8**				**50**	
VIC EPA IWRG621 Cat C								**1.2**		**4**							**50**									**1.2**				**10**	
VIC EPA IWRG621 Fill Material																													**1**			
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Matrix_Description**																												
HA01/2001	HA01	0-0.1	09-Nov-18	Natural		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA02/2001	HA02	0-0.1	09-Nov-18	Natural		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-
HA02/2801	HA02	0-0.1	09-Nov-18	Natural		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-
HA02/2901	HA02	0-0.1	09-Nov-18	Natural		<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<1
HA03/2001	HA03	0-0.1	09-Nov-18	Natural		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA04/2001	HA04	0-0.1	09-Nov-18	Natural		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-
HA05/2001	HA05	0-0.1	09-Nov-18	Natural		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-
HA06/2001	HA06	0-0.1	09-Nov-18	Natural		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA07/2001	HA07	0-0.1	09-Nov-18	Natural		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-
HA08/2001	HA08	0-0.1	09-Nov-18	Natural		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA09/2001	HA09	0-0.1	09-Nov-18	Natural		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-
HA10/2001	HA10	0-0.1	09-Nov-18	Natural		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	PAH																							Phenolics											Phenolics-Halogenated										
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound)*	Benzo(a)pyrene TEQ (medium bound)*	Benzo(a)pyrene TEQ (upper bound)*	Benzo(b&j)fluoranthene	Benzo(b+j) & Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAH (Sum of Common 16 PAHs - Lab Reported)	2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methylphenol	2-Nitrophenol	3- & 4- Methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexylphenol	4-Nitrophenol	Phenol	Non-Halogenated Phenols (Sum of total)	2,3,5,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2,3,4,5 & 2,3,4,6-Tetrachlorophenol	2-Chlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Tetrachlorophenols (Sum of total)	Halogenated Phenols (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	1	5	5	5	0.5	1	0.03	0.05	0.05	0.03	0.03	0.05	0.03	0.03	0.2	1	0.03
VIC EPA IWRG621 Cat B					**20**																**400**										**2200**											**320**
VIC EPA IWRG621 Cat C					**5**																**100**										**560**											**10**
VIC EPA IWRG621 Fill Material					**1**																**20**										**60**											**1**
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Matrix_Description**																																								
HA01/2001	HA01	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<2	-	-
HA02/2001	HA02	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<5	<1	<1	<1	<5	<5	<5	<1	<1	<0.03	<0.05	<0.05	<0.03	<0.03	<0.05	<0.03	<0.03	<0.2	-	<0.03
HA02/2801	HA02	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<5	<1	<1	<1	<5	<5	<5	<1	<1	<0.03	<0.05	<0.05	<0.03	<0.03	<0.05	<0.03	<0.03	<0.2	-	<0.03
HA02/2901	HA02	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.2	<1	<0.4	<5	<20	<5	<0.5	<20	-	<1	<1	<0.5	<0.5	-	<0.5	<1	<1	<1	<1
HA03/2001	HA03	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<2	-	-
HA04/2001	HA04	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<5	<1	<1	<1	<5	<5	<5	<1	<1	<0.03	<0.05	<0.05	<0.03	<0.03	<0.05	<0.03	<0.03	<0.2	-	<0.03
HA05/2001	HA05	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<5	<1	<1	<1	<5	<5	<5	<1	<1	<0.03	<0.05	<0.05	<0.03	<0.03	<0.05	<0.03	<0.03	<0.2	-	<0.03
HA06/2001	HA06	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<2	-	-
HA07/2001	HA07	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<5	<1	<1	<1	<5	<5	<5	<1	<1	<0.03	<0.05	<0.05	<0.03	<0.03	<0.05	<0.03	<0.03	<0.2	-	<0.03
HA08/2001	HA08	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<2	-	-
HA09/2001	HA09	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<5	<1	<1	<1	<5	<5	<5	<1	<1	<0.03	<0.05	<0.05	<0.03	<0.03	<0.05	<0.03	<0.03	<0.2	-	<0.03
HA10/2001	HA10	0-0.1	09-Nov-18	Natural	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<2	-	-

	Polychlorinated Biphenyls								Sample Quality Parameters						Solvents			Total Petroleum Hydrocarbons											
	Aroclor 1016	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	PCB (Sum of Total-Lab Reported)	pH_CaCL2	Cyanide (total)	Fluoride	Moisture	Moisture Content (dried @ 40°C)	pH (aqueous extract)	Methyl Ethyl Ketone	Methyl Iso-butyl ketone	Acetone	TRH C6 - C9 Fraction	TRH C10 - C14 Fraction	TRH C15 - C28 Fraction	TRH C29 - C36 fraction	TRH+C10 - C36 (Sum of total) (Lab Reported)	TRH+C10 - C40 (Sum of total) (Lab Reported)	TRH C6 - C10 Fraction F1	TRH C6 - C10 Fraction Less BTEX F1	TRH >C10 - C16 Fraction F2	TRH >C10 - C16 Fraction Less Naphthalene F2	TRH >C16 - C34 Fraction F3	TRH >C34 - C40 Fraction F4
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Unit	mg/kg	mg/kg	%	%	pH_Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	40	1	1	0.1	0.5	0.5	0.5	10	50	100	100	50	50	10	10	50	50	100	100
VIC EPA IWRG621 Cat B								**0**		**10000**	**40000**							**2600**				**40000**							
VIC EPA IWRG621 Cat C								**0**		**2500**	**10000**							**650**				**10000**							
VIC EPA IWRG621 Fill Material								**2**	**4-9**	**50**	**450**			**4-9**				**100**				**1000**							

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Matrix_Description																										
HA01/2001	HA01	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	14.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA02/2001	HA02	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	<0.1	6.4	<1	230	-	21.7	-	-	-	-	<10	<50	<100	<100	<50	<50	<10	<10	<50	<50	<100	<100
HA02/2801	HA02	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	<0.1	6.5	<1	140	-	17.4	-	-	-	-	<10	<50	<100	<100	<50	<50	<10	<10	<50	<50	<100	<100
HA02/2901	HA02	0-0.1	09-Nov-18	Natural	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<5	110	15	-	7.6	<0.5	<0.5	<0.5	<20	<20	<50	95	95	<100	<20	<20	<50	<50	<100	<100
HA03/2001	HA03	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	18.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA04/2001	HA04	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	<0.1	5.2	<1	60	-	17.6	-	-	-	-	<10	<50	<100	<100	<50	<50	<10	<10	<50	<50	<100	<100
HA05/2001	HA05	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	<0.1	5	<1	100	-	11.6	-	-	-	-	<10	<50	<100	<100	<50	<50	<10	<10	<50	<50	<100	<100
HA06/2001	HA06	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA07/2001	HA07	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	<0.1	4.9	<1	190	-	17.2	-	-	-	-	<10	<50	<100	<100	<50	<50	<10	<10	<50	<50	<100	<100
HA08/2001	HA08	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	20.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA09/2001	HA09	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	<0.1	4.8	<1	90	-	8	-	-	-	-	<10	<50	<100	<100	<50	<50	<10	<10	<50	<50	<100	<100
HA10/2001	HA10	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Matrix_Description	Volatile Organic Compounds: Total Volatile Chlorinated Hydrocarbons	Total Chlorinated Hydrocarbons VIC EPA	Total Other Chlorinated Hydrocarbons VIC EPA	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,2,3-Trichloropropane	1,2-Dibromoethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-dichloropropene	Allyl chloride	Bromochloromethane
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.01	0.5	0.5	0.01	0.02	0.01	0.04	0.5	0.5	0.5	0.02	0.01	0.01	0.02	0.5	0.5	0.5	0.5	0.5	0.5
VIC EPA IWRG621 Cat B																								
VIC EPA IWRG621 Cat C																								
VIC EPA IWRG621 Fill Material																								
HA01/2001	HA01	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA02/2001	HA02	0-0.1	09-Nov-18	Natural	<0.01	-	-	<0.01	<0.02	<0.01	<0.04	-	-	-	<0.02	<0.01	<0.01	<0.02	-	-	-	-	-	-
HA02/2801	HA02	0-0.1	09-Nov-18	Natural	<0.01	-	-	<0.01	<0.02	<0.01	<0.04	-	-	-	<0.02	<0.01	<0.01	<0.02	-	-	-	-	-	-
HA02/2901	HA02	0-0.1	09-Nov-18	Natural	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA03/2001	HA03	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA04/2001	HA04	0-0.1	09-Nov-18	Natural	<0.01	-	-	<0.01	<0.02	<0.01	<0.04	-	-	-	<0.02	<0.01	<0.01	<0.02	-	-	-	-	-	-
HA05/2001	HA05	0-0.1	09-Nov-18	Natural	<0.01	-	-	<0.01	<0.02	<0.01	<0.04	-	-	-	<0.02	<0.01	<0.01	<0.02	-	-	-	-	-	-
HA06/2001	HA06	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA07/2001	HA07	0-0.1	09-Nov-18	Natural	<0.01	-	-	<0.01	<0.02	<0.01	<0.04	-	-	-	<0.02	<0.01	<0.01	<0.02	-	-	-	-	-	-
HA08/2001	HA08	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA09/2001	HA09	0-0.1	09-Nov-18	Natural	<0.01	-	-	<0.01	<0.02	<0.01	<0.04	-	-	-	<0.02	<0.01	<0.01	<0.02	-	-	-	-	-	-
HA10/2001	HA10	0-0.1	09-Nov-18	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Field_ID	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Hexachlorobutadiene	Iodomethane	Other Chlorinated Hydrocarbons (IWRG Lab Reported)	Trichloroethene	Tetrachloroethene	Trichlorofluoromethane	Vinyl chloride
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.01	0.5	0.5	0.02	0.5	0.5	0.5	0.4	0.02	0.5	0.01	0.02	0.02	0.5	0.02
VIC EPA IWRG621 Cat B													**11**		**50**				**4.8**
VIC EPA IWRG621 Cat C													**2.8**		**10**				**1.2**
VIC EPA IWRG621 Fill Material																			
HA01/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA02/2001	-	-	-	-	<0.01	-	-	<0.02	-	-	-	<0.4	<0.02	-	<0.01	<0.02	<0.02	-	<0.02
HA02/2801	-	-	-	-	<0.01	-	-	<0.02	-	-	-	<0.4	<0.02	-	<0.01	<0.02	<0.02	-	<0.02
HA02/2901	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
HA03/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA04/2001	-	-	-	-	<0.01	-	-	<0.02	-	-	-	<0.4	<0.02	-	<0.01	<0.02	<0.02	-	<0.02
HA05/2001	-	-	-	-	<0.01	-	-	<0.02	-	-	-	<0.4	<0.02	-	<0.01	<0.02	<0.02	-	<0.02
HA06/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA07/2001	-	-	-	-	<0.01	-	-	<0.02	-	-	-	<0.4	<0.02	-	<0.01	<0.02	<0.02	-	<0.02
HA08/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA09/2001	-	-	-	-	<0.01	-	-	<0.02	-	-	-	<0.4	<0.02	-	<0.01	<0.02	<0.02	-	<0.02
HA10/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX C

Laboratory Analytical Certificates

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1818081**	Page	: 1 of 22
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Melbourne
Contact	: GOLDER CONTACT	Contact	: Larissa Burns
Address	: P O BOX 6079 Building 7, 570-588 Swan St RICHMOND VIC, AUSTRALIA 3122	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 8862 3500	Telephone	: +6138549 9644
Project	: 147613062	Date Samples Received	: 09-Nov-2018 13:45
Order number	: 147613062	Date Analysis Commenced	: 12-Nov-2018
C-O-C number	: ----	Issue Date	: 15-Nov-2018 13:04
Sampler	: OP		
Site	: 18-24 Robertsons Road, Taylors Lake		
Quote number	: EN/002/18 National BQ		
No. of samples received	: 11		
No. of samples analysed	: 11		

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*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

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) 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.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	HA01/2001	HA02/2001	HA03/2001	HA04/2001	HA05/2001
			Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1818081-001	EM1818081-002	EM1818081-003	EM1818081-004	EM1818081-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	6.4	----	5.2	5.0
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.9	21.7	18.9	17.6	11.6
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	----	30	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	----	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	33	----	26	----	----
Cobalt	7440-48-4	2	mg/kg	15	----	9	----	----
Copper	7440-50-8	5	mg/kg	10	13	8	9	8
Lead	7439-92-1	5	mg/kg	17	11	16	15	13
Manganese	7439-96-5	5	mg/kg	486	----	377	----	----
Molybdenum	7439-98-7	2	mg/kg	----	<2	----	<2	<2
Nickel	7440-02-0	2	mg/kg	15	20	10	17	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	----	<2	----	<2	<2
Tin	7440-31-5	5	mg/kg	----	<5	----	<5	<5
Vanadium	7440-62-2	5	mg/kg	50	----	42	----	----
Zinc	7440-66-6	5	mg/kg	31	16	33	18	15
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	----	<1	----	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	----	230	----	60	100
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA01/2001	HA02/2001	HA03/2001	HA04/2001	HA05/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-001	EM1818081-002	EM1818081-003	EM1818081-004	EM1818081-005
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
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
Styrene	100-42-5	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 monocyclic aromatic hydrocarbons	----	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		----	<0.4	----	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	<0.04	----	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	<0.02	----	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		----	<0.01	----	<0.01	<0.01
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA01/2001	HA02/2001	HA03/2001	HA04/2001	HA05/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-001	EM1818081-002	EM1818081-003	EM1818081-004	EM1818081-005
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	**1.2**	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	<0.03	----	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA01/2001	HA02/2001	HA03/2001	HA04/2001	HA05/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-001	EM1818081-002	EM1818081-003	EM1818081-004	EM1818081-005
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	<1	----	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		----	<1	----	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		----	<1	----	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	<1	----	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	<5	----	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		----	<5	----	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	<5	----	<5	<5
Dinoseb	88-85-7	5	mg/kg		----	<5	----	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	<5	----	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	<1	----	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA01/2001	HA02/2001	HA03/2001	HA04/2001	HA05/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-001	EM1818081-002	EM1818081-003	EM1818081-004	EM1818081-005
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA01/2001	HA02/2001	HA03/2001	HA04/2001	HA05/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-001	EM1818081-002	EM1818081-003	EM1818081-004	EM1818081-005
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	<10
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**108**	----	**101**	**113**
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**74.7**	----	**81.3**	**81.4**
Toluene-D8	2037-26-5	0.1	%		----	**69.2**	----	**75.1**	**75.9**
4-Bromofluorobenzene	460-00-4	0.1	%		----	**79.5**	----	**83.8**	**84.5**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**76.4**	----	**79.0**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**88.5**	----	**92.1**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**69.3**	----	**75.5**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**108**	----	**114**	----	----
Anthracene-d10	1719-06-8	0.5	%		**100**	----	**104**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**112**	----	**116**	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	**103**	----	**92.3**	**104**
2-Chlorophenol-D4	93951-73-6	0.025	%		----	**74.3**	----	**67.0**	**74.8**
2.4.6-Tribromophenol	118-79-6	0.025	%		----	**90.7**	----	**83.0**	**92.8**
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA01/2001	HA02/2001	HA03/2001	HA04/2001	HA05/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-001	EM1818081-002	EM1818081-003	EM1818081-004	EM1818081-005
					Result	Result	Result	Result	Result
EP075T: Base/Neutral Extractable Surrogates (Waste Classification) - Continued									
Nitrobenzene-D5	4165-60-0	0.025	%		----	**102**	----	**94.3**	**102**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	**83.9**	----	**76.4**	**82.9**
2-Fluorobiphenyl	321-60-8	0.025	%		----	**100.0**	----	**91.1**	**100**
Anthracene-d10	1719-06-8	0.025	%		----	**96.0**	----	**88.2**	**97.3**
4-Terphenyl-d14	1718-51-0	0.025	%		----	**101**	----	**93.9**	**103**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	HA06/2001	HA07/2001	HA08/2001	HA09/2001	HA10/2001
			Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1818081-006	EM1818081-007	EM1818081-008	EM1818081-009	EM1818081-010
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	4.9	----	4.8	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.1	17.2	20.3	8.0	22.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	30	----	30	----	120
Beryllium	7440-41-7	1	mg/kg	<1	----	<1	----	<1
Boron	7440-42-8	50	mg/kg	<50	----	<50	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	27	----	28	----	38
Cobalt	7440-48-4	2	mg/kg	9	----	10	----	15
Copper	7440-50-8	5	mg/kg	6	8	8	5	10
Lead	7439-92-1	5	mg/kg	13	14	15	13	12
Manganese	7439-96-5	5	mg/kg	282	----	343	----	468
Molybdenum	7439-98-7	2	mg/kg	----	<2	----	<2	----
Nickel	7440-02-0	2	mg/kg	10	12	10	7	22
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	----	<2	----	<2	----
Tin	7440-31-5	5	mg/kg	----	<5	----	<5	----
Vanadium	7440-62-2	5	mg/kg	45	----	45	----	55
Zinc	7440-66-6	5	mg/kg	15	20	24	15	21
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	<0.5	----	<0.5	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	----	<1	----	<1	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	----	190	----	90	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA06/2001	HA07/2001	HA08/2001	HA09/2001	HA10/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-006	EM1818081-007	EM1818081-008	EM1818081-009	EM1818081-010
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
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	----
Styrene	100-42-5	0.5	mg/kg		----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		----	<0.2	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		----	<0.01	----	<0.01	----
Methylene chloride	75-09-2	0.4	mg/kg		----	<0.4	----	<0.4	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		----	<0.02	----	<0.02	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		----	<0.01	----	<0.01	----
Chloroform	67-66-3	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	<0.01	----	<0.01	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	<0.01	----	<0.01	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	<0.02	----	<0.02	----
Trichloroethene	79-01-6	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	<0.04	----	<0.04	----
Tetrachloroethene	127-18-4	0.02	mg/kg		----	<0.02	----	<0.02	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	<0.01	----	<0.01	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	<0.02	----	<0.02	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	<0.02	----	<0.02	----
Chlorobenzene	108-90-7	0.02	mg/kg		----	<0.02	----	<0.02	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	<0.02	----	<0.02	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	<0.02	----	<0.02	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	<0.01	----	<0.01	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		----	<0.01	----	<0.01	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		----	<0.01	----	<0.01	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA06/2001	HA07/2001	HA08/2001	HA09/2001	HA10/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-006	EM1818081-007	EM1818081-008	EM1818081-009	EM1818081-010
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	<2	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	**0.6**	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	**1.2**	----	**1.2**
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	<0.03	----	<0.03	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	<0.03	----	<0.03	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA06/2001	HA07/2001	HA08/2001	HA09/2001	HA10/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-006	EM1818081-007	EM1818081-008	EM1818081-009	EM1818081-010
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		----	<0.03	----	<0.03	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		----	<0.03	----	<0.03	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	<0.05	----	<0.05	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	<0.05	----	<0.05	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		----	<0.03	----	<0.03	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		----	<0.05	----	<0.05	----
Pentachlorophenol	87-86-5	0.2	mg/kg		----	<0.2	----	<0.2	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		----	<0.03	----	<0.03	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	<1	----	<1	----
2-Methylphenol	95-48-7	1	mg/kg		----	<1	----	<1	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	----
2-Nitrophenol	88-75-5	1	mg/kg		----	<1	----	<1	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	<1	----	<1	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	<5	----	<5	----
4-Nitrophenol	100-02-7	5	mg/kg		----	<5	----	<5	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	<5	----	<5	----
Dinoseb	88-85-7	5	mg/kg		----	<5	----	<5	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	<5	----	<5	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	<1	----	<1	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	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) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA06/2001	HA07/2001	HA08/2001	HA09/2001	HA10/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-006	EM1818081-007	EM1818081-008	EM1818081-009	EM1818081-010
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	**1.2**	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	<0.03	----	<0.03	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	<0.03	----	<0.03	----
beta-BHC	319-85-7	0.03	mg/kg		----	<0.03	----	<0.03	----
gamma-BHC	58-89-9	0.03	mg/kg		----	<0.03	----	<0.03	----
delta-BHC	319-86-8	0.03	mg/kg		----	<0.03	----	<0.03	----
Heptachlor	76-44-8	0.03	mg/kg		----	<0.03	----	<0.03	----
Aldrin	309-00-2	0.03	mg/kg		----	<0.03	----	<0.03	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	<0.03	----	<0.03	----
cis-Chlordane	5103-71-9	0.03	mg/kg		----	<0.03	----	<0.03	----
trans-Chlordane	5103-74-2	0.03	mg/kg		----	<0.03	----	<0.03	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	<0.03	----	<0.03	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	<0.05	----
Dieldrin	60-57-1	0.03	mg/kg		----	<0.03	----	<0.03	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	<0.03	----	<0.03	----
Endrin	72-20-8	0.03	mg/kg		----	<0.03	----	<0.03	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	<0.03	----	<0.03	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	<0.03	----	<0.03	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	<0.05	----	<0.05	----
Methoxychlor	72-43-5	0.03	mg/kg		----	<0.03	----	<0.03	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	<0.03	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	<0.03	----	<0.03	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	<0.05	----
^ Chlordane	57-74-9	0.03	mg/kg		----	<0.03	----	<0.03	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	<0.03	----
EP080/071: Total Petroleum Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA06/2001	HA07/2001	HA08/2001	HA09/2001	HA10/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-006	EM1818081-007	EM1818081-008	EM1818081-009	EM1818081-010
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	----
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	----
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									
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	<50	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	<10	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**107**	----	**108**	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**76.6**	----	**75.2**	----
Toluene-D8	2037-26-5	0.1	%		----	**72.3**	----	**68.2**	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	**81.7**	----	**77.2**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**82.8**	----	**77.8**	----	**83.1**
2-Chlorophenol-D4	93951-73-6	0.5	%		**92.9**	----	**89.2**	----	**96.1**
2.4.6-Tribromophenol	118-79-6	0.5	%		**75.6**	----	**76.9**	----	**74.9**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**113**	----	**108**	----	**115**
Anthracene-d10	1719-06-8	0.5	%		**104**	----	**101**	----	**107**
4-Terphenyl-d14	1718-51-0	0.5	%		**114**	----	**113**	----	**117**
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	**107**	----	**104**	----
2-Chlorophenol-D4	93951-73-6	0.025	%		----	**78.4**	----	**77.4**	----
2.4.6-Tribromophenol	118-79-6	0.025	%		----	**99.7**	----	**94.3**	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA06/2001	HA07/2001	HA08/2001	HA09/2001	HA10/2001
				Client sampling date / time	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00	09-Nov-2018 00:00
Compound	CAS Number	LOR	Unit		EM1818081-006	EM1818081-007	EM1818081-008	EM1818081-009	EM1818081-010
					Result	Result	Result	Result	Result
EP075T: Base/Neutral Extractable Surrogates (Waste Classification) - Continued									
Nitrobenzene-D5	4165-60-0	0.025	%		----	**108**	----	**103**	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	**88.8**	----	**84.9**	----
2-Fluorobiphenyl	321-60-8	0.025	%		----	**106**	----	**100**	----
Anthracene-d10	1719-06-8	0.025	%		----	**102**	----	**97.4**	----
4-Terphenyl-d14	1718-51-0	0.025	%		----	**108**	----	**103**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	HA02/2801	----	----	----	----
			Client sampling date / time	09-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1818081-011	--------	--------	--------	--------
				Result	----	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**6.5**	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**17.4**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Copper	7440-50-8	5	mg/kg	**9**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**13**	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**15**	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Silver	7440-22-4	2	mg/kg	<2	----	----	----	----
Tin	7440-31-5	5	mg/kg	<5	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**14**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	----	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**140**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
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	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of monocyclic aromatic hydrocarbons**	----	0.2	mg/kg	<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA02/2801	----	----	----	----
				Client sampling date / time	09-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1818081-011	--------	--------	--------	--------
					Result	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	----	----	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	----	----	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	----	----	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	----	----	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA02/2801	----	----	----	----
				Client sampling date / time	09-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1818081-011	--------	--------	--------	--------
					Result	----	----	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----
^ **Sum of Phenols (non-halogenated)**	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA02/2801	----	----	----	----
				Client sampling date / time	09-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1818081-011	--------	--------	--------	--------
					Result	----	----	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	HA02/2801	----	----	----	----
				Client sampling date / time	09-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1818081-011	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**108**	----	----	----	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**75.6**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**69.4**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**80.9**	----	----	----	----
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		**102**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**74.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**92.6**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		**102**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**83.8**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**101**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**96.1**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**102**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Certificate of Analysis

Golder Associates Pty Ltd (Richmond)
570-588 Swan Street
Richmond
VIC 3121

Attention: **Oscar Pitrun**

Report **626977-S**
Project name 18-24 ROBERTSONS ROAD TAYLORS LAKE
Project ID 147613062
Received Date Nov 09, 2018

Client Sample ID			**HA02/2901**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-No11956**
Date Sampled			**Nov 09, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	95
TRH C10-36 (Total)	50	mg/kg	95
Volatile Organics			
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5
Hexachlorobutadiene	0.5	mg/kg	< 0.5
Volatile Organics			
1.1-Dichloroethane	0.5	mg/kg	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5
Benzene	0.1	mg/kg	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5
Bromoform	0.5	mg/kg	< 0.5

Client Sample ID			HA02/2901
Sample Matrix			Soil
Eurofins | mgt Sample No.			M18-No11956
Date Sampled			Nov 09, 2018
Test/Reference	LOR	Unit	
Volatile Organics			
Bromomethane	0.5	mg/kg	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5
Chloroethane	0.5	mg/kg	< 0.5
Chloroform	0.5	mg/kg	< 0.5
Chloromethane	0.5	mg/kg	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1
Iodomethane	0.5	mg/kg	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5
o-Xylene	0.1	mg/kg	< 0.1
Styrene	0.5	mg/kg	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5
Toluene	0.1	mg/kg	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5
Xylenes - Total	0.3	mg/kg	< 0.3
Total MAH*	0.5	mg/kg	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5
4-Bromofluorobenzene (surr.)	1	%	101
Toluene-d8 (surr.)	1	%	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			HA02/2901
Sample Matrix			Soil
Eurofins | mgt Sample No.			M18-No11956
Date Sampled			Nov 09, 2018
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	96
p-Terphenyl-d14 (surr.)	1	%	101
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	103
Tetrachloro-m-xylene (surr.)	1	%	79
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1

Client Sample ID			HA02/2901
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-No11956**
Date Sampled			**Nov 09, 2018**
Test/Reference	LOR	Unit	
Polychlorinated Biphenyls			
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	103
Tetrachloro-m-xylene (surr.)	1	%	79
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1
Pentachlorophenol	1	mg/kg	< 1
Tetrachlorophenols - Total	1	mg/kg	< 1
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Phenol-d6 (surr.)	1	%	89
Chromium (hexavalent)	1	mg/kg	< 1
Cyanide (total)	5	mg/kg	< 5
Fluoride	100	mg/kg	110
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.6
% Moisture	1	%	15
Heavy Metals			
Arsenic	2	mg/kg	2.7
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	44
Copper	5	mg/kg	12
Lead	5	mg/kg	16
Mercury	0.1	mg/kg	< 0.1
Molybdenum	5	mg/kg	< 5
Nickel	5	mg/kg	16
Selenium	2	mg/kg	< 2
Silver	0.2	mg/kg	< 0.2
Tin	10	mg/kg	< 10
Zinc	5	mg/kg	25

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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

Description	Testing Site	Extracted	Holding Time
Vic EPA IWRG 621 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 12, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Melbourne	Nov 12, 2018	7 Day
- Method: USEPA 8260 - MGT 350A Volatile Organics by GCMS			
Volatile Organics	Melbourne	Nov 12, 2018	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 12, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 12, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Nov 12, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Nov 12, 2018	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Melbourne	Nov 12, 2018	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Phenols (Halogenated)	Melbourne	Nov 12, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Nov 12, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Chromium (hexavalent)	Melbourne	Nov 14, 2018	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (total)	Melbourne	Nov 12, 2018	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	Nov 13, 2018	28 Day
- Method: LTM-INO-4150 Determination of Total Fluoride PART A – CIC			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Nov 12, 2018	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Metals IWRG 621 : Metals M12	Melbourne	Nov 12, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Nov 09, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: Golder Associates Pty Ltd (Richmond)
Address: 570-588 Swan Street
Richmond
VIC 3121

Project Name: 18-24 ROBERTSONS ROAD TAYLORS LAKE
Project ID: 147613062

Order No.:
Report #: 626977
Phone: (03) 8862 3500
Fax: (03) 8862 3501

Received: Nov 9, 2018 3:45 PM
Due: Nov 16, 2018
Priority: 5 Day
Contact Name: Oscar Pitrun

Eurofins | mgt Analytical Services Manager : Andrew James

Sample Detail						Moisture Set	Vic EPA IWRG 621 (Solids)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	HA02/2901	Nov 09, 2018		Soil	M18-No11956	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Volatile Organics							
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Fluoride	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Silver	mg/kg	< 0.2			0.2	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	110			70-130	Pass	
TRH C10-C14	%	83			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	74			70-130	Pass	
1.1.1-Trichloroethane	%	99			70-130	Pass	
1.2-Dichlorobenzene	%	112			70-130	Pass	
1.2-Dichloroethane	%	105			70-130	Pass	
Benzene	%	97			70-130	Pass	
Ethylbenzene	%	108			70-130	Pass	
m&p-Xylenes	%	108			70-130	Pass	
Toluene	%	101			70-130	Pass	
Trichloroethene	%	98			70-130	Pass	
Xylenes - Total	%	107			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	101			70-130	Pass	
TRH C6-C10	%	107			70-130	Pass	
TRH >C10-C16	%	89			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	89			70-130	Pass	
Acenaphthylene	%	100			70-130	Pass	
Anthracene	%	92			70-130	Pass	
Benz(a)anthracene	%	97			70-130	Pass	
Benzo(a)pyrene	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	%	96			70-130	Pass	
Benzo(g.h.i)perylene	%	77			70-130	Pass	
Benzo(k)fluoranthene	%	98			70-130	Pass	
Chrysene	%	90			70-130	Pass	
Dibenz(a.h)anthracene	%	84			70-130	Pass	
Fluoranthene	%	82			70-130	Pass	
Fluorene	%	100			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	81			70-130	Pass	
Naphthalene	%	86			70-130	Pass	
Phenanthrene	%	120			70-130	Pass	
Pyrene	%	80			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	108			70-130	Pass	
4.4'-DDE	%	112			70-130	Pass	
4.4'-DDT	%	99			70-130	Pass	
a-BHC	%	95			70-130	Pass	
Aldrin	%	110			70-130	Pass	
b-BHC	%	100			70-130	Pass	
d-BHC	%	101			70-130	Pass	
Dieldrin	%	108			70-130	Pass	
Endosulfan I	%	110			70-130	Pass	
Endosulfan II	%	100			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	%	103			70-130	Pass	
Endrin	%	120			70-130	Pass	
Endrin aldehyde	%	105			70-130	Pass	
Endrin ketone	%	105			70-130	Pass	
g-BHC (Lindane)	%	101			70-130	Pass	
Heptachlor	%	112			70-130	Pass	
Heptachlor epoxide	%	106			70-130	Pass	
Hexachlorobenzene	%	91			70-130	Pass	
Methoxychlor	%	91			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	87			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	104			30-130	Pass	
2.4-Dichlorophenol	%	109			30-130	Pass	
2.4.5-Trichlorophenol	%	91			30-130	Pass	
2.4.6-Trichlorophenol	%	123			30-130	Pass	
2.6-Dichlorophenol	%	112			30-130	Pass	
4-Chloro-3-methylphenol	%	118			30-130	Pass	
Pentachlorophenol	%	48			30-130	Pass	
Tetrachlorophenols - Total	%	112			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	41			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	32			30-130	Pass	
2-Methylphenol (o-Cresol)	%	102			30-130	Pass	
2-Nitrophenol	%	103			30-130	Pass	
2.4-Dimethylphenol	%	103			30-130	Pass	
2.4-Dinitrophenol	%	48			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	109			30-130	Pass	
4-Nitrophenol	%	97			30-130	Pass	
Dinoseb	%	36			30-130	Pass	
Phenol	%	103			30-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	104			70-130	Pass	
Cyanide (total)	%	100			70-130	Pass	
Fluoride	%	103			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			80-120	Pass	
Cadmium	%	107			80-120	Pass	
Chromium	%	113			80-120	Pass	
Copper	%	107			80-120	Pass	
Lead	%	109			80-120	Pass	
Mercury	%	89			75-125	Pass	
Molybdenum	%	101			80-120	Pass	
Nickel	%	104			80-120	Pass	
Selenium	%	101			80-120	Pass	
Silver	%	102			80-120	Pass	
Tin	%	112			80-120	Pass	
Zinc	%	107			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-No10761	NCP	%	89			70-130	Pass	
TRH C10-C14	M18-No12378	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M18-No10761	NCP	%	71			70-130	Pass	
1.1.1-Trichloroethane	M18-No10761	NCP	%	101			70-130	Pass	
1.2-Dichlorobenzene	M18-No10761	NCP	%	105			70-130	Pass	
1.2-Dichloroethane	M18-No10761	NCP	%	117			70-130	Pass	
Benzene	M18-No10761	NCP	%	108			70-130	Pass	
Ethylbenzene	M18-No10761	NCP	%	88			70-130	Pass	
m&p-Xylenes	M18-No10761	NCP	%	90			70-130	Pass	
o-Xylene	M18-No10761	NCP	%	87			70-130	Pass	
Toluene	M18-No10761	NCP	%	117			70-130	Pass	
Trichloroethene	M18-No10761	NCP	%	109			70-130	Pass	
Xylenes - Total	M18-No10761	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-No10761	NCP	%	81			70-130	Pass	
TRH C6-C10	M18-No10761	NCP	%	87			70-130	Pass	
TRH >C10-C16	M18-No12378	NCP	%	78			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-No14105	NCP	%	100			70-130	Pass	
Acenaphthylene	M18-No14105	NCP	%	112			70-130	Pass	
Anthracene	M18-No14105	NCP	%	112			70-130	Pass	
Benz(a)anthracene	M18-No14105	NCP	%	112			70-130	Pass	
Benzo(a)pyrene	M18-No14105	NCP	%	117			70-130	Pass	
Benzo(b&j)fluoranthene	M18-No14105	NCP	%	117			70-130	Pass	
Benzo(g.h.i)perylene	M18-No14105	NCP	%	111			70-130	Pass	
Benzo(k)fluoranthene	M18-No14105	NCP	%	124			70-130	Pass	
Chrysene	M18-No14105	NCP	%	112			70-130	Pass	
Dibenz(a.h)anthracene	M18-No14105	NCP	%	124			70-130	Pass	
Fluoranthene	M18-No14105	NCP	%	97			70-130	Pass	
Fluorene	M18-No14105	NCP	%	113			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-No14105	NCP	%	119			70-130	Pass	
Naphthalene	M18-No14105	NCP	%	98			70-130	Pass	
Phenanthrene	M18-No14105	NCP	%	123			70-130	Pass	
Pyrene	M18-No14105	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	M18-No11474	NCP	%	114			70-130	Pass	
4.4'-DDE	M18-No11474	NCP	%	115			70-130	Pass	
4.4'-DDT	M18-No11474	NCP	%	120			70-130	Pass	
a-BHC	M18-No11474	NCP	%	99			70-130	Pass	
Aldrin	M18-No11474	NCP	%	112			70-130	Pass	
b-BHC	M18-No11474	NCP	%	103			70-130	Pass	
d-BHC	M18-No11474	NCP	%	106			70-130	Pass	
Dieldrin	M18-No11474	NCP	%	109			70-130	Pass	
Endosulfan I	M18-No11474	NCP	%	112			70-130	Pass	
Endosulfan II	M18-No11474	NCP	%	105			70-130	Pass	
Endosulfan sulphate	M18-No11474	NCP	%	111			70-130	Pass	
Endrin	M18-No11474	NCP	%	129			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	M18-No11474	NCP	%	106			70-130	Pass	
Endrin ketone	M18-No11474	NCP	%	108			70-130	Pass	
g-BHC (Lindane)	M18-No11474	NCP	%	103			70-130	Pass	
Heptachlor	M18-No11474	NCP	%	122			70-130	Pass	
Heptachlor epoxide	M18-No11474	NCP	%	108			70-130	Pass	
Hexachlorobenzene	M18-No11474	NCP	%	95			70-130	Pass	
Methoxychlor	M18-No11474	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	M18-No10692	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-No14105	NCP	%	113			30-130	Pass	
2.4-Dichlorophenol	M18-No14105	NCP	%	117			30-130	Pass	
2.4.5-Trichlorophenol	M18-No14105	NCP	%	106			30-130	Pass	
2.4.6-Trichlorophenol	M18-No14105	NCP	%	105			30-130	Pass	
2.6-Dichlorophenol	M18-No14105	NCP	%	126			30-130	Pass	
4-Chloro-3-methylphenol	M18-No14105	NCP	%	120			30-130	Pass	
Pentachlorophenol	M18-No14105	NCP	%	51			30-130	Pass	
Tetrachlorophenols - Total	M18-No14105	NCP	%	109			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S18-No12023	NCP	%	37			30-130	Pass	
2-Methyl-4.6-dinitrophenol	S18-No12023	NCP	%	54			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-No14105	NCP	%	114			30-130	Pass	
2-Nitrophenol	M18-No14105	NCP	%	109			30-130	Pass	
2.4-Dimethylphenol	M18-No14105	NCP	%	114			30-130	Pass	
2.4-Dinitrophenol	S18-No12023	NCP	%	70			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-No14105	NCP	%	119			30-130	Pass	
4-Nitrophenol	M18-No14105	NCP	%	98			30-130	Pass	
Dinoseb	M18-No14105	NCP	%	37			30-130	Pass	
Phenol	M18-No14105	NCP	%	114			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M18-No11725	NCP	%	98			70-130	Pass	
Cyanide (total)	M18-No12987	NCP	%	7.0			70-130	Fail	Q08
Fluoride	M18-No12210	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-No12391	NCP	%	138			75-125	Fail	Q08
Cadmium	M18-No12391	NCP	%	107			75-125	Pass	
Chromium	M18-No12391	NCP	%	135			75-125	Fail	Q08
Copper	M18-No12391	NCP	%	121			75-125	Pass	
Lead	M18-No12391	NCP	%	211			75-125	Fail	Q08
Mercury	M18-No12391	NCP	%	120			70-130	Pass	
Molybdenum	M18-No12391	NCP	%	109			75-125	Pass	
Nickel	M18-No12391	NCP	%	64			75-125	Fail	Q08
Selenium	M18-No12391	NCP	%	97			75-125	Pass	
Silver	M18-No12391	NCP	%	103			75-125	Pass	
Tin	M18-No12391	NCP	%	119			75-125	Pass	
Zinc	M18-No12391	NCP	%	2100			75-125	Fail	Q08

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-No10770	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-No12377	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-No12377	NCP	mg/kg	170	130	29	30%	Pass	
TRH C29-C36	M18-No12377	NCP	mg/kg	230	180	24	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.2.4-Trichlorobenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobutadiene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzene	M18-No10770	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	M18-No10770	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	M18-No10770	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Methylene Chloride	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	M18-No10770	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Styrene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	M18-No10770	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-1.2-Dichloroethene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total	M18-No10770	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-No10770	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-No10770	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-No12377	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-No12377	NCP	mg/kg	410	310	27	30%	Pass	
TRH >C34-C40	M18-No12377	NCP	mg/kg	200	170	19	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M18-No14102	NCP	mg/kg	0.7	0.7	6.0	30%	Pass	
Fluorene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M18-No14102	NCP	mg/kg	0.6	0.7	8.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S18-No10549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S18-No10549	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S18-No10549	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M18-No14102	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M18-No14102	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M18-No14102	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M18-No14102	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M18-No14102	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M18-No14102	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M18-No14102	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M18-No14102	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M18-No14102	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M18-No14102	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-No14102	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M18-No14102	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M18-No14102	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M18-No14102	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M18-No15302	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M18-No12986	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Fluoride	M18-No11956	CP	mg/kg	110	110	6.0	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S18-No10546	NCP	pH Units	5.7	5.6	pass	30%	Pass	
% Moisture	M18-No11933	NCP	%	19	18	3.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-No12328	NCP	mg/kg	4.0	3.9	3.0	30%	Pass	
Cadmium	M18-No12328	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-No12328	NCP	mg/kg	31	30	1.0	30%	Pass	
Copper	M18-No12328	NCP	mg/kg	22	24	9.0	30%	Pass	
Lead	M18-No12328	NCP	mg/kg	33	32	2.0	30%	Pass	
Mercury	M18-No12328	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M18-No12328	NCP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	M18-No12328	NCP	mg/kg	14	13	2.0	30%	Pass	
Selenium	M18-No12328	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M18-No12328	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tin	M18-No12328	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M18-No12328	NCP	mg/kg	62	63	2.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference

Authorised By

Andrew James	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

APPENDIX D

Important Information

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

This Report constitutes or is part of services ("Services") provided by Golder to its client ("Client") under and subject to a contract between Golder and its Client ("Contract"). The contents of this page are not intended to and do not alter Golder's obligations (including any limits on those obligations) to its Client under the Contract.

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The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.

Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.

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