**Kahuna No. 1 Pty Ltd**

# Stage 1 & 2 Contamination Assessment

## Yamba Gardens Residential Estate

## 52-54 Miles Street (Lot 47 DP 751395), Yamba

Report No. RGS31546.1-AR(Rev1)

23 August 2023

REGIONAL GEOTECHNICAL SOLUTIONS

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Manning-Great Lakes
Port Macquarie
Coffs Harbour

RGS31546.1-AR(Rev1)

23 August 2023

Kahuna No. 1 Pty Ltd
C/o: Garrard Building Pty Limited
PO Box 538
YAMBA NSW 2464

**Attention: Neil Garrard**

Dear Neil

**RE: Yamba Gardens Residential Estate – 52-54 Miles Street (Lot 47 DP 751395), Yamba**

Regional Geotechnical Solutions Pty Ltd (RGS) has previously undertaken Stage 1 and Stage 2 site contamination assessments for the full approximately 21.2ha of Lot 46 and the western approximately 10.9ha of Lot 47 (DP 751395) at 52-54 Miles Street, Yamba, where a residential development is being constructed. The assessment concluded that the site was suitable for residential development from a contamination perspective. The previous assessments did not include the eastern portion (approximately 10.5ha) of Lot 47 which is to remain undeveloped but will be publicly accessible.

Presented herein are the results of a combined Stage 1 and Stage 2 Site Contamination Assessment for the eastern (approximately 10.5ha) portion of Lot 47.

The work presented herein was reviewed by Dr David Tully CEnvP SC. A copy of Dr Tully's letter pertaining to the review is appended to the report.

If you have any questions regarding this project, please contact the undersigned.

For and on behalf of **Regional Geotechnical Solutions Pty Ltd**

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# 1. INTRODUCTION

## 1.1 General

Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a combined Stage 1 and Stage 2 site contamination assessment for the eastern approximately 10.5ha of Lot 7 DP 751395, 52-54 Miles Street, Yamba.

RGS has previously undertaken Stage 1 and Stage 2 site contamination assessments for the full approximately 21.2ha of Lot 46 and the western approximately 10.9ha of Lot 47. The assessment concluded that the sites were suitable for residential development from a contamination perspective.

The previous assessments did not include the eastern portion, approximately 10.5ha, of Lot 47 which is zoned '*R1 Residential*' but is to remain undeveloped and will be publicly accessible.

A site contamination assessment is required to characterise the nature and extent of soil contamination present on the approximately 10.5ha portion in the east of Lot 47, and to evaluate the site's suitability for the proposed recreational land use from a contamination perspective.

## 1.2 Objectives

The objectives of the Stage 1 and Stage 2 site contamination assessment were to:

- Characterise the nature and extent of soil contamination present on the site (if any);
- Assess the suitability of the site for future residential land use; and
- Provide recommendations for on-site management, the need and options for remediation and any further investigation and testing that is required.

## 1.3 Scope of Works

In accordance with the relevant sections of the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013*), the assessment involved the following process:

- A brief study of site history, with the aim of identifying past activities on or near the site that might have the potential to cause contamination;
- Review of selected available recent and historical aerial photography for the last 50 years;
- A search of NSW EPA records, or contaminated land notifications on the site;
- Review of government records of groundwater bores in the area;
- Site walkover to assess visible surface conditions and identify evidence of contamination, or past activities that may cause contamination;
- Using the above information, characterise the site into Areas of Environmental Concern, in which the potential for contamination has been identified, and nominate Chemicals of Concern that might be associated with those activities;
- Undertake sampling and analysis at the selected Areas of Concern to allow for analysis of the presence of contamination;

- Analyse samples for a suite of potential contaminants associated with the past activities (heavy metals as well as a broad suite of common contaminants);
- Evaluate the results against industry accepted criteria for future recreational land use; and
- Preparation of a Stage 1 and Stage 2 site contamination assessment report.

### 1.4 Site Identification

General site information is provided below in Table 1. The site location is shown in Figure 1.

**Table 1: Summary of Site Details**

| Site Details | Description |
|---|---|
| Site location: | 52-54 Miles Street, Yamba |
| Approximate site area: | 10.5 Ha |
| Title Identification Details: | Lot 7 DP 751395 |
| Current Landuse: | Grazing land and bushland |
| Proposed Landuse: | Recreational open space |
| Adjoining Site Uses: | Miles Street and rural lots to the north<br>Golding Lane and a residential Manufactured Housing Estate to the east<br>Grazing land which is currently being developed for residential use to the west<br>Bushland to the south |
| Government Area: | Clarence Valley Council |

## 2. SITE DESCRIPTION

### 2.1 Surface Conditions

The site is situated within a region characterised by low lying sand flats with localised swamp deposits in lower lying areas and depressions across the site. The provided survey indicates that site levels are generally between about RL1.0 to 1.5m (AHD) with lower lying depressions and drainage lines having elevations of between about 0.5 to 1.0m. The intermittent drainage lines drain to both the northeast towards the Clarence River and to the southwest towards Oyster Channel.

The site includes open grassed area primarily in the north with dense melaleuca forest in the upper centre portion and to the southwest. The lower centre is shallow swampland with a strip of grass and scattered trees along the eastern edge. The site is being used for grazing purposes and bee keeping.

### 2.2 Geology

The NSW Government '*MinView*' Geological Survey of NSW indicates that the site is underlain by Estuarine Swamp Deposits that comprise organic rich mud, peat, clay, silt and marine and alluvially

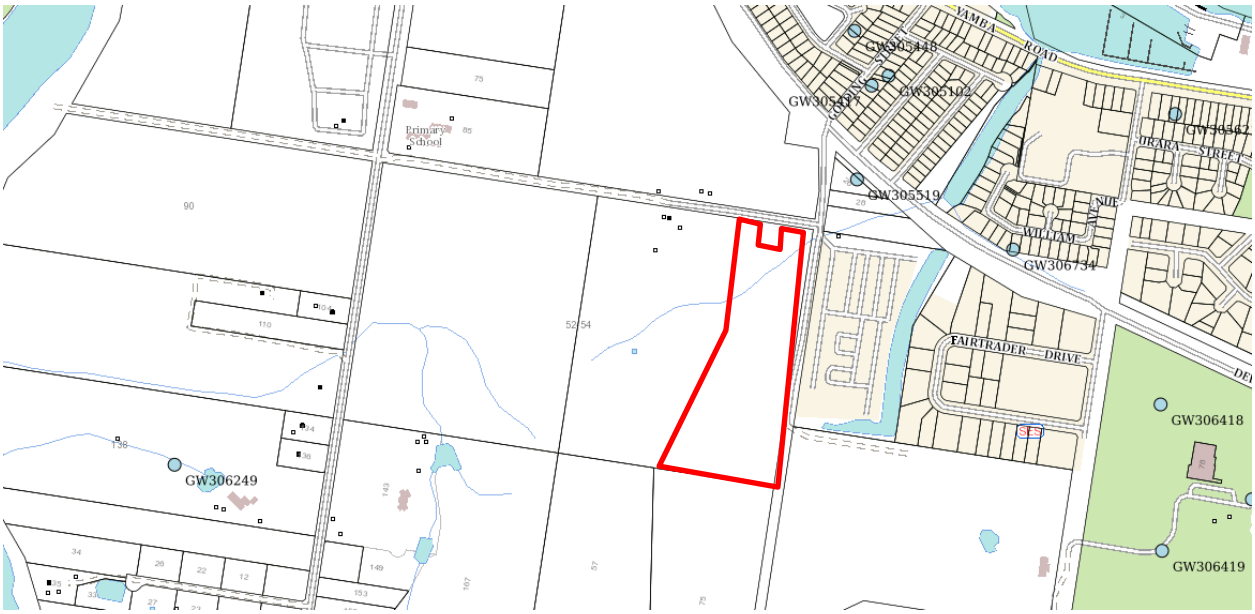
deposited fine to medium grained sand, and by Estuarine Tidal Delta Flat that comprises marine deposited sand, silt, clay, shell and gravel.

RGS has previously undertaken intrusive investigations on which involved the excavation of test pits and the completion of Cone Penetration Tests. The tests generally encountered up to 0.25m of topsoil that overlies firm alluvial Silty CLAY and medium dense to dense alluvial and marine SAND to depths more than 10m.

Groundwater levels are likely to vary and fluctuate across the site and in response to rainfall and have been observed within the adjacent portion of Lot 47 where residential development is proposed to be above the surface level in lower lying portions of the site, to depths of up to 1.3m.

### 2.3 Hydrogeology

A groundwater bore search on the NSW Water Information website, http://waterinfo.nsw.gov.au/gw/ indicates that there are four licenced groundwater bores within about 500m of the site as shown below in Plate 1.




*There are four groundwater bores within about 500m of the site. All four bores are located to the north and east of the site.*

The drill records indicate that the closest bore was drilled in 2006 for domestic purposes and has a final depth of 4m. A water bearing zone was not detailed. The second closest bore was drilled in 2005 and had a standing water level of 1.5m below ground level.

## 2.4 Site History

### 2.4.1 Land Title Search

A land title search was undertaken by Advanced Legal Searches Pty Ltd. A summary of the search is presented in Table 2. The detailed results of the title search are attached.

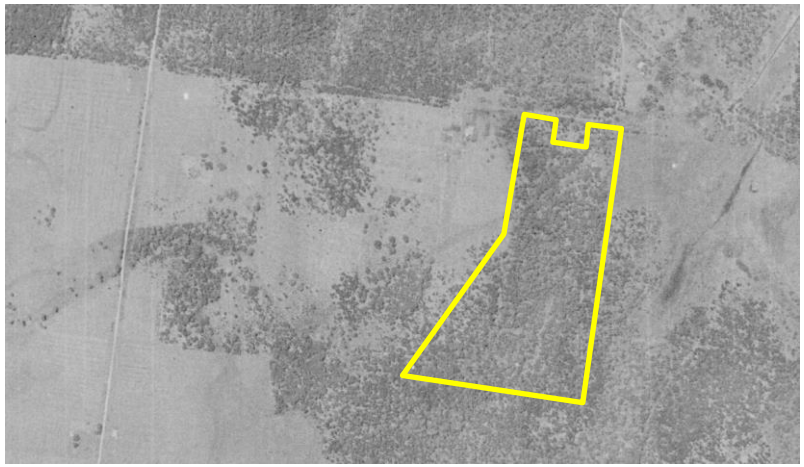
**Table 2: Summary of Land Title Search**

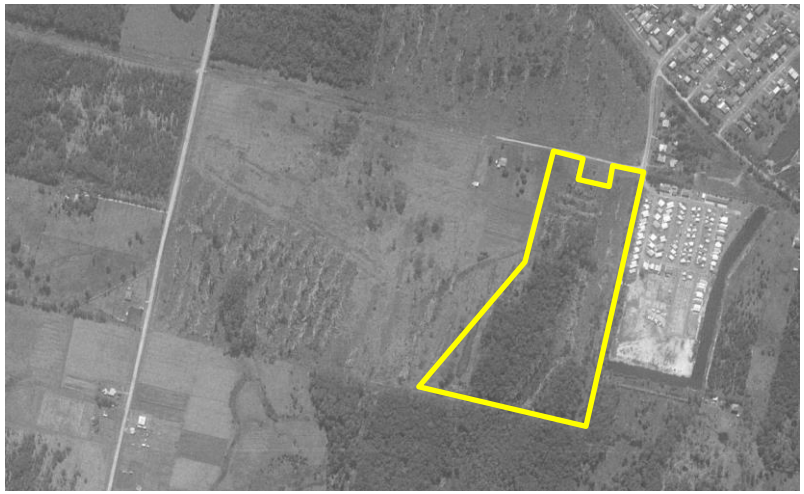
| Lot / DP | Year | Owner / Occupation / Site usage |
|---|---|---|
| Lot 47 DP751395 | 2006 – to date | Kahuna No 1 Pty Limited |
| | 1989 – 2006 | Henry David Brailsford |
| | 1986 – 1989 | Henry David Brailsford |
| | 1963 – 1986 | Gwyn Owen Edwards, store man |
| | 1963 – 1963 | Harold Charles Marshall, farmer |
| | 1952 – 1963 | Samuel Kearney, engine driver |
| | 1952 – 1952 | Susan Jessie Marshall, wife of Harold Charles Marshall, farmer |
| | 1951 – 1952 | Cyril James Landrigan, banana grower<br>John Thomas Commerford, banana grower |
| | 1949 – 1951 | Kevin John Larkin, farmer |
| | 1938 – 1949 | Emma Cox, widow |
| | 1934 – 1938 | Edward Albert Cox, grantee |
| | Prior – 1934 | Crown Land |
| | *(1906 – 1934)* | *(Conditional Purchase 1907 – 21 Grafton to Arthur Ernest Want)* |
| | *(1903 – 1906)* | *(Within Reserve from Sale for Refuge in Time of Flood 36352 vide Government Gazettal 12th September 1903 Folio 6773)* |
| | *(1902 – 1903)* | *(Within Reserve 35379 for Suburban Settlement vide Government Gazettal 22nd November 1902)* |

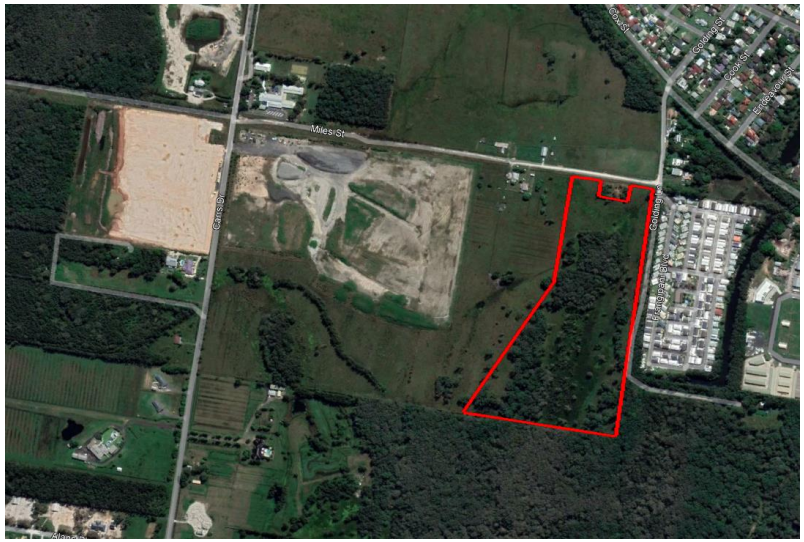
### 2.4.2 Historical Aerial Photography

Available aerial photographs and satellite images of the site were reviewed to assist in identifying past land uses that may contribute to site contamination. The results of the review are summarised in Table 3.

**Table 3: Aerial Photograph Summary**

| Photograph (Source) | Photograph/Image Extract | Observations of Site Conditions | Observations of Surrounding Areas |
|---|---|---|---|
| 1958<br>(NSW LPI) |  | Site appears to be primarily used for grazing purposes with areas of bushland. | Bushland to the north and south, farmland to the west, and both farmland and bushland to the east. Farmhouses and associated structures on neighbouring lots. |
| 1980<br>(NSW LPI) |  | Similar to 1958, however, the bushland density and extent has increased. | Similar to 1958, however, clearing and earthworks appear to be underway to the east of the site where a caravan park is currently located. |

| Photograph (Source) | Photograph/Image Extract | Observations of Site Conditions | Observations of Surrounding Areas |
|---|---|---|---|
| 1989 (NSW LPI) |  | The eastern edge, north and the southwest corner of the site have been cleared of vegetation which has been pushed into windrows. | Yamba Waters Holiday Park (current name) has been constructed to the east of the site.<br>A large portion of land to the north and west of the site has been cleared and the vegetation pushed into windrows.<br>A ploughed market garden appears to be present near the northwest site boundary. |
| 2004<br>(Google Earth) |  | Additional clearing has been undertaken and the former vegetation windrows removed. Site is likely used for grazing purposes. | As per 1989.<br>Vegetation windrows have been removed. |

| Photograph (Source) | Photograph/Image Extract | Observations of Site Conditions | Observations of Surrounding Areas |
|---|---|---|---|
| 2022<br>(Google Earth) |  | As per 2004. | As per 2004<br>Earthworks have commenced in Lot 46 to the west of the site. |

### 2.4.3 Site Observations

Field work was undertaken on 15 June 2023. Observations from a contamination perspective made during the site visit are summarised below:

- The site is vegetated with grasses and mature trees;
- The site appears to have been recently used for grazing;
- No evidence of current or former structures were observed;
- No stockpiles were observed;
- No evidence of asbestos containing materials was observed; and
- No visual or olfactory evidence of potential contamination was.

A photograph that illustrates the site conditions is presented below.

*Looking west from the southeast corner of the site. Groups of trees are scattered across this area.*

### 2.4.4 NSW EPA Records

A check with the NSW Office of Environment and Heritage website (www.environment.nsw.gov.au) revealed that no notices have been issued on the site under the Contaminated Land Management Act (1997).

### 2.4.5 Hazardous Chemicals on Premises

A search of records held by SafeWork NSW in 2019 has not located any records regarding the storage of hazardous chemicals at the site. A letter summarizing the search is presented in Appendix A.

### 2.4.6 Cattle Dips

A search of the NSW Government Department of Primary Industries 'Cattle Dip Locator' revealed that there are no known cattle dips located within the site. The closest dip is located to the west of Carrs Drive on Lot 1 DP568545.

### 2.4.7 Site History Summary

Based on available data the chronological development of the site is summarised below:

- The site was generally cleared of vegetation prior to 1958, before regrowth occurred. It is noted that the site was briefly owned by banana growers in the early 1950s, however there is no evidence that the site was used as a banana plantation from the research undertaken. The site was partially re-cleared in the late 1980s;
- No structures have been located on the site; and
- The site appears to have remained largely unchanged from its current state since at least the 1990s and is likely to have been used for grazing purposes.

## 3. FIELD & LABORATORY INVESTIGATIONS

### 3.1 Sampling Plan

The NSW EPA Sampling Design Guidelines (2022) recommend a minimum of 115 sampling locations to characterise a site of 10.5ha.

The site history and site observations indicate that the site has been relatively undeveloped and is likely to have been used predominantly for grazing purposes. As such, the likelihood for gross contamination to be present is considered to be low. On this basis, a reduced sampling regime which has included the collection of soil samples from 50 sampling locations was undertaken simply for characterisation purposes to determine if more detailed sampling and analysis would be appropriate.

Sampling locations were selected using a grid based approach within the identified Area of Environmental Concern (whole site). The sampling locations are shown on Figure 2.

### 3.2 Field Work

Field work for the assessment was undertaken of 15 June 2023 and included:

- Site walkover to assess visible surface conditions and identify evidence of contamination, or past activities that may cause contamination (if any); and
- Collection of soil samples from surface locations (designated A1 to A50) by an Engineering Geologist.

The locations of the sampling points are shown on Figure 2 and were obtained by hand-held GPS.

Soil samples were taken from natural soils using disposable gloves and hand tools which were decontaminated between sampling points using Decon90 detergent and deionised water. The samples were collected in acid-rinsed 250mL glass jars and placed in an ice-chilled cooler box.

### 3.3 Laboratory Analysis

Samples were transported under chain-of-custody conditions to NATA accredited specialist chemical testing laboratories, to be analysed for the following suite of contaminants:

- Polycyclic Aromatic Hydrocarbons (PAH);
- Total Recoverable Hydrocarbons (TRH);
- Benzene, Toluene, Ethyl-benzene, Xylenes (BTEX);
- Organochlorine and Organophosphorus Pesticides (OC/OPs);
- Heavy metals (arsenic, cadmium, chromium, cobalt, copper, lead, mercury, and zinc); and
- Polychlorinated Biphenyls (PCB).

The results are presented in Appendix B.

### 3.4 Data Quality Objectives

The Data Quality Objectives (DQOs) are presented in Table 4.

**Table 4: Data Quality Objectives**

| DQO | Details of Process |
|---|---|
| State the Problem | A Stage 1 and Stage 2 site contamination assessment is required to assess the suitability of the site for recreational land use from a contamination perspective. |
| Identify the Decision | The principal study questions that are:<br>• What is the nature and extent of soil contamination on the subject land (if any)?; and<br>• Is the land suitable for the proposed recreational development from a contamination viewpoint? |
| Identify Inputs to the Decision | The primary inputs are:<br>• Site history study;<br>• Site walkover assessment;<br>• Chemical analysis of selected soil samples; and<br>• Results summary. |
| Define the Boundary of the Assessment | • The spatial boundaries are limited to the property boundaries of the subject site as shown on Figure 1; and<br>• The investigation and screening levels for a Recreational C land use scenario. |
| Develop a Decision Rule | The decision rules for the investigation are:<br>• If concentrations of contaminants in soil exceed the adopted investigation and screening levels for a Recreational C land use scenario, then further assessment may be required.<br>Decision criteria for QA/QC measures are defined in Section 4.1. A decision on the acceptance of analytical data will be made on the basis of the data quality indicators (DQIs) in the context of precision, accuracy, representativeness, completeness and comparability (PARCC) parameters as follows:<br>• **Precision:** NATA registered laboratories were used following industry accepted test methods. An appropriate number of intra-laboratory samples |

| DQO | Details of Process |
|---|---|
| | were collected and analysed (following ASC NEPM guidance), the results of which are considered to be satisfactory;<br>• **Accuracy:** The laboratory limit or reporting (LOR) was appropriate for the screening criteria utilised. A NATA registered laboratory was used following NATA endorsed methods including appropriate method blanks, laboratory control samples, laboratory spikes and duplicates the results of which are considered to be satisfactory.<br>• **Representativeness –** The samples were received by the laboratories in good condition. The data obtained is considered to be representative of the soils present on site;<br>• **Completeness –** Experienced field staff were utilised to undertake the sampling and keep appropriate documentation. Samples were in proper custody between the field and reaching the laboratory. The laboratories performed the tests requested. The data obtained from the field investigations is considered to be relevant and usable; and<br>• **Comparability –** Sample holding times were met and samples were properly and adequately preserved. Field sampling and handling procedures were followed. The data collected is considered to be comparable. |
| Specify Acceptable Limits on Decision Errors | • Acceptable limits for QA/QC measures are defined in Section 4.1;<br>• Acceptable investigation and screening levels are those for a Recreational C land use scenario; and<br>• Specific limits are in accordance with the appropriate NSW EPA guidelines including indicators of data quality and standard procedures for field sampling and handling. |
| Optimise the Design for Obtaining Data | Based on the above steps of the DQO process. The design for obtaining the required data (i.e. proposed field and laboratory investigations) is presented in Section 3.1. |

## 4. GUIDELINES & ASSESSMENT CRITERIA

The assessment was undertaken as outlined in NSW EPA *Guidelines for Consultants Reporting on Contaminated Land (2020)*.

To evaluate results, and for guidance on assessment requirements, the assessment will adopt the guidelines provided in the *National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM 2013)*. The ASC NEPM document provides a range of guidelines for assessment of contaminants for various land use scenarios. It is understood that the future land use for the site is recreational. As such, comparison with the ASC NEPM guideline Health Investigation Levels (HIL) for Recreational C land use is considered appropriate for the site. In accordance with the NEPM guideline the following criteria will be adopted for this assessment:

- Health Investigation Levels for recreational 'C' land use (HIL-C) were used to assess the potential human health impact of heavy metals and PAH;
- Health Screening Levels (HSL-C) for fine textured (clay) soils on a recreational site were adopted as appropriate for the soils encountered to assess the potential human health impact of petroleum hydrocarbons and BTEX compounds;
- Ecological investigation levels (EIL) for recreational land use were used for evaluation of the potential ecological/environmental impact of heavy metals and PAH. No areas of

ecological significance were noted to be present in the immediate vicinity. Soil specific EILs for chromium, copper, nickel and zinc were not calculated as part of this assessment;

- Ecological Screening Levels (ESL) for fine textured (clay) soils on a recreational site were adopted as appropriate for the soils encountered, to assess the potential ecological/environmental impact of petroleum hydrocarbons and BTEX compounds;

In accordance with NEPM 2013, exceedance of the respective criteria does not necessarily deem that remediation or clean-up is required but is a trigger for further assessment of the extent of contamination and associated risks. The adopted criteria are presented in separate results summary tables in Appendix B.

### 4.1 Quality Assurance / Quality Control

Samples were obtained using industry accepted protocols for sample treatment, preservation, and equipment decontamination. Sampling equipment was decontaminated between sample locations and a clean pair of nitrile gloves used for the collection of each sample into laboratory supplied glass sampling jars and bags.

Samples were placed on ice on-site and maintained on ice during transport to the testing laboratories.

Five duplicate soil samples were obtained and are identified below.

**Table 4: Summary of Duplicate Samples**

| Primary Sample (ALS) | Duplicate Sample (ALS) |
|---|---|
| A1 | AD5 |
| A8 | AD1 |
| A16 | AD2 |
| A24 | AD3 |
| A32 | AD4 |

The duplicate samples were submitted to the laboratory for analysis for quality control purposes. Comparison between the primary and duplicate samples are presented in the results summary tables in Appendix B.

The Relative Percent Differences (RPDs) were calculated for the duplicate samples and presented in the results summary table in Appendix B. The RPDs for the samples taken were within or equal to the control limit of 40% for Cd, Pb and Hg. The following RQDs exceeded the 40% control limit:

- One sample (AD1) for As;
- All five samples (AD1 to AD5) for total Cr;
- One sample (AD3) for Cu;
- All five samples for Ni; and
- Four samples (AD1 to AD3 and AD5) for Zn.

It is noted that low analyte concentrations exaggerate the percentage differences with respect to small total concentration differences, therefore where results for the primary and duplicate, were

less than 10 times the laboratory limit of reporting (LOR), the RPDs have been disregarded. Each of the RPD's which exceeded the 40% control limit as outlined above were therefore disregarded on this basis, with the exception of Zinc in sample AD3 and chromium in all five duplicate samples.

Zinc RPD exceedance recorded in sample D1and chromium exceedance in all five duplicate samples is likely to be attributed to the uneven distribution of the metal within the primary and duplicate soil samples. As such, this RPD is not considered to affect the useability of the result.

In addition to the field quality control procedures, the laboratory conducted internal quality control testing including surrogates, blanks, and laboratory duplicate samples. The results are presented with the laboratory test results in Appendix B.

All laboratory quality control data is within acceptable limits for the tests carried out. Therefore, on the basis of the results of the field and laboratory quality control procedures and testing, the data is considered to reasonably represent the concentrations of contaminants in the soils at the sample locations at the time of sampling and the results can be adopted for this assessment.

## 4.2 Results

### 4.2.1 Subsurface Conditions

The recovered samples were topsoil and were collected from between 0.05 and 0.15m below the ground surface. The sample depths are shown on the laboratory test results summary in Appendix B.

The materials present have been described as Sandy SILT, low plasticity, dark brown and dark grey, with some organics.

### 4.2.2 Laboratory Results

An appraisal of the laboratory test results presented in Appendix B is provided below with reference to the adopted soil investigation and screening levels discussed in Section 4.

- Concentrations of Arsenic, Cadmium, total Chromium, Copper, Lead, Nickel, Zinc and Mercury were either below the laboratory limit of reporting or below the adopted health and ecological investigation criteria for a Recreational C site in each of the samples analysed;
- Concentrations of OC/OP pesticides, TRH, PAH, BTEX and PCB were either below the laboratory limit of reporting or below the adopted health or ecological investigation criteria in each of the samples analysed, except for sample A25 which recorded elevated TRH, with $>C_{10}$-$C_{16}$ (360mg/kg) being above the adopted ESL of 120mg/kg; and
- Elevated TRH $>C_{16}$-$C_{40}$ fraction concentrations were reported in all samples analysed for TRH with the exception of sample A10, although concentrations were below the relevant assessment criteria.

In view of the apparent elevated concentrations of TRH reported, sample A25 was subject to the silica gel clean-up process in the laboratory and then reanalysed. The silica gel clean-up process removes mildly polar organic compounds including compounds of natural origin such as humic and fulvic acids, tannins and lignins that may otherwise be included within laboratory results for TRH $>C_{10}$-$C_{40}$. It should be noted that weathering of petroleum can result in the formation of polar compounds as breakdown products, which are also removed during the silica gel clean-up

process. "Fresh" or non-biodegraded petroleum hydrocarbons are generally non-polar compounds. The results of the reanalysis reported >$C_{16}$-$C_{40}$ fraction concentrations below the laboratory limit of reporting and a significantly lower concentration of >$C_{10}$-$C_{16}$ fraction (80mg/kg) which is below the adopted ESL of 120mg/kg.

### 4.3 Conceptual Site Model

Based on the site observations and knowledge obtained about site activities as outlined above, a conceptual site model (CSM) has been developed.

#### 4.3.1 Potential Sources of Contamination

Potential Areas of Environmental Concern (AECs) and Chemicals of Concern (COCs) identified for the assessment are outlined in Table 5.

**Table 5: Potential AECs and COCs**

| AEC | Mode of Potential Contamination | Potential COCs | Likelihood of Contamination |
|---|---|---|---|
| AEC1: Entire Site | Spillage of fuel and oils from tractors or other machinery<br>Pesticides from historical spraying<br>Potentially contaminated stormwater flowing across the site | Heavy Metals, TRH, BTEX, PAH, and OC/OPP, | Low |
| *Heavy Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc*<br>*BTEX - Benzene, Toluene, Ethylbenzene and Xylene*<br>*TRH - Total Recoverable Hydrocarbons*<br>*PAH – Polycyclic Aromatic Hydrocarbons*<br>*PCB – Polychlorinated Biphenyls*<br>*OC/OPP – Organochlorine and Organophophorus Pesticides* | | | |

The approximate locations of the AEC's are shown on Figure 2.

The presence of measurable concentrations of chemical substances does not automatically imply that the site will cause harm. In order for this to be the case, an exposure route must be present allowing a source to adversely affect a receptor.

#### 4.3.2 Potential Exposure Pathways and Receptors

Based on the site observations and knowledge obtained about site activities as outlined above, potential exposure pathways and receptors identified for the assessment are summarised in Table 6.

**Table 6: Potential Exposure Pathways and Receptors**

| Chemicals of Concern | Key Pathways | Key Receptors |
|---|---|---|
| Heavy metals | Generation of dust during earthworks which is inhaled | Onsite - Construction and site workers, terrestrial ecosystems<br>Offsite - Adjacent residents |
| Heavy metals, TRH, BTEX, PAH, PCB, OC/OPP | Skin contact / ingestion, plant uptake, inhalation | Onsite - Construction and site workers, future site users, terrestrial ecosystems including vegetation in landscaped areas |
| Heavy Metals, TRH, BTEX, PAH, PCB, OC/OPP | Surface runoff and leaching of soils | Offsite - Surface water ecosystems and users |
| *Heavy Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc*<br>*BTEX - Benzene, Toluene, Ethylbenzene and Xylene*<br>*TRH - Total Recoverable Hydrocarbons*<br>*PAH – Polycyclic Aromatic Hydrocarbons*<br>*PCB – Polychlorinated Biphenyls*<br>*OC/OPP – Organochlorine and Organophophorus Pesticides* | | |

### 4.4 Discussion

A Stage 1 and Stage 2 site contamination assessment was required to assess the nature and extent of soil contamination with regard to the site's suitability for the proposed recreational land use.

The site history study indicates that the site has primarily been used for grazing purposes since at the 1980s. The site layout also appears to have remained unchanged since at least the 1950s. No structures are known to have been located on the site.

No visual or olfactory evidence of contamination (such as oil staining or hydrocarbon odours) were observed nor were ACM identified.

One AEC (AEC1) was identified which occupies the full extent of the site and details are presented within Section 4.3.1.

The results of the laboratory analysis of soil samples collected from targeted locations revealed concentrations of chemicals of concern either below the level of laboratory reporting, or below the adopted HIL/HSL or EIL/ESL for a Recreational C site. The initial analytical results reported elevated concentrations of TRH in all but one of the samples. Due to the absence of visual and olfactory evidence of contamination (hydrocarbon odour and staining), the presence of the elevated TRH results was considered likely to be naturally occurring due to the high organic content present in the sandy silt topsoil. Sample A25 was therefore subject to the silica gel clean-up process to remove mildly polar organic compounds including compounds of natural origin such as humic and fulvic acids, tannins and lignins from the sample. The reanalysis following the clean-up process reported a significant TRH concentrations reduction supporting the likelihood that the hydrocarbons initially reported are of natural origin.

### 4.5 Conclusions and Recommendations

Given the limited nature of this investigation, there is potential for unidentified uncontrolled fill, buried waste, livestock dips and animal burial sites to be present. As such, should potential evidence of site contamination be identified during development activities, such as soil staining, buried materials, or odours, then a site contamination specialist should be contacted for advice without delay.

Should unidentified fill materials be encountered that require removal off site, assessment for a *Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014* in accordance with the *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – the Excavated Natural Material (ENM) Order 2014,* will be required.

Based on the results obtained in this investigation, it is considered that the site is suitable in its current state for the proposed recreational land use with regard to the presence of soil contamination, provided the recommendations and advice of this report are adopted, and site works (if any) are conducted in accordance with appropriate site management protocols and legislative requirements.

## 5. LIMITATIONS

This report comprises the results of an investigation carried out for a specific purpose and client as defined in the document. The report should not be used by other parties or for purposes or projects other than those assumed and stated within the report, as it may not contain adequate or appropriate information for applications other than those assumed or advised at the time of its preparation. The contents of the report are for the sole use of the client and no responsibility or liability will be accepted to any third party. The report should not be reproduced either in part or in full, without the express permission of Regional Geotechnical Solutions Pty Ltd.

Contaminated site investigations are on data collection, judgment, experience, and opinion. By its nature, it is less exact than other engineering disciplines. The findings presented in this report and used as the basis for the recommendations presented herein were obtained using normal, industry accepted practises and standards. To our knowledge, they represent a reasonable interpretation of the general condition of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

Recommendations regarding ground conditions referred to in this report are estimates based on the information available at the time of its writing. Estimates are influenced and limited by the fieldwork method and testing carried out in the site investigation, and other relevant information as has been made available. In cases where information has been provided to Regional Geotechnical Solutions for the purposes of preparing this report it has been assumed that the information is accurate and appropriate for such use. No responsibility is accepted by Regional Geotechnical Solutions for inaccuracies within any data supplied by others.

If site conditions encountered during construction vary significantly from those discussed in this report, Regional Geotechnical Solutions Pty Ltd should be contacted for further advice.

This report alone should not be used by contractors as the basis for preparation of tender documents or project estimates. Contractors using this report as a basis for preparation of tender

documents should avail themselves of all relevant background information regarding the site before deciding on selection of construction materials and equipment.

If you have any questions regarding this project, or require any additional consultations, please contact the undersigned.

For and on behalf of **Regional Geotechnical Solutions Pty Ltd**

Prepared by

**Tom De Jong**

Engineering Geologist

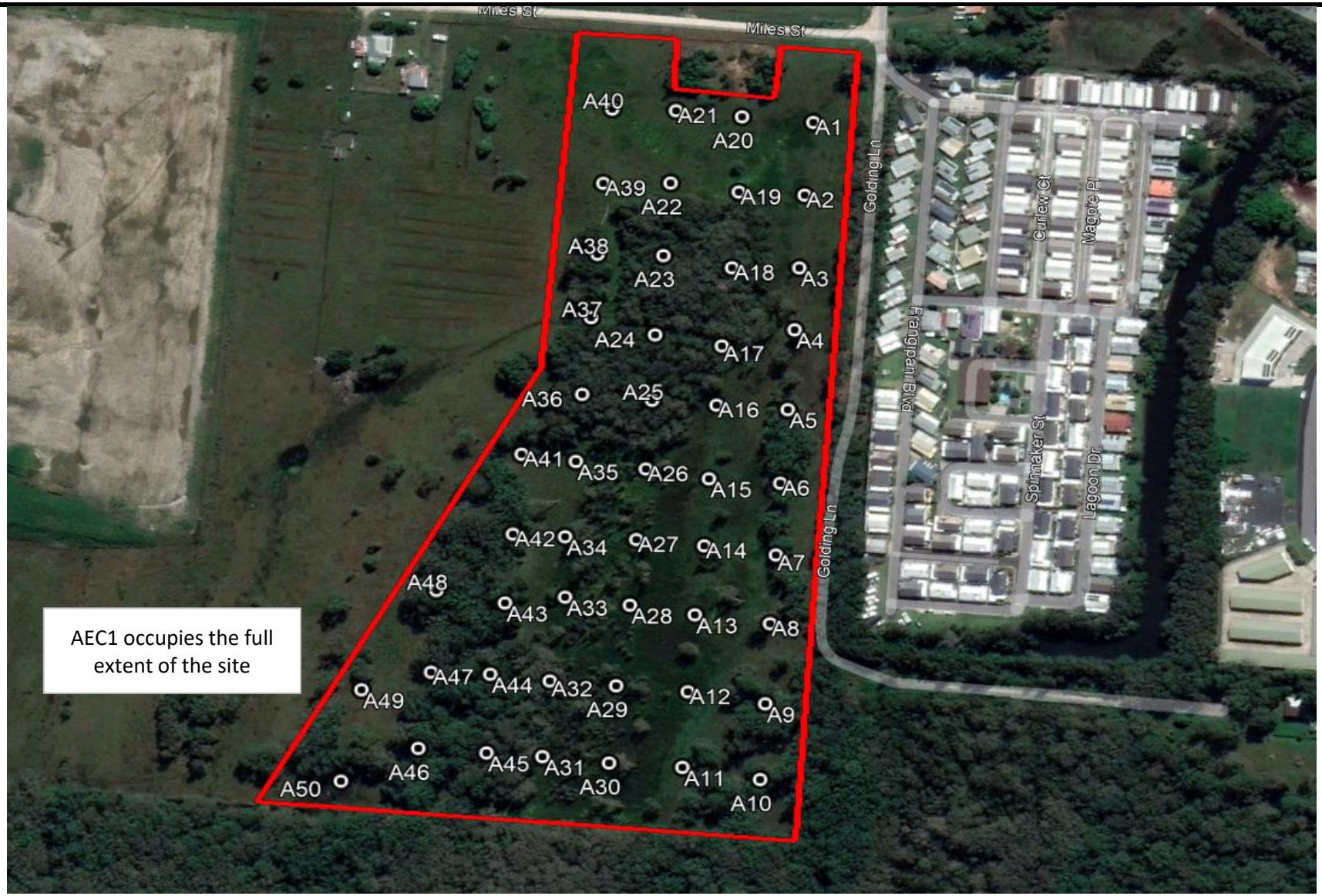
Reviewed by

**Simon Keen**

Senior Geotechnical Engineer

# Figures


| | | | | |
|---|---|---|---|---|
| REGIONAL GEOTECHNICAL SOLUTIONS | **Client:** | Kahuna No. 1 Pty Ltd | Job No. | RGS31546.1 |
| | **Project:** | Stage 1 & 2 Contamination Assessment | Drawn By: | SK |
| | | | Scale: | NTS |
| | | 52-54 Miles Street (Lot 47 DP 751395), Yamba | Date: | 15-Jun-23 |
| | **Title:** | Site Location Plan | Drawing No. | **Figure 1** |




| | | | | |
|---|---|---|---|---|
| REGIONAL GEOTECHNICAL SOLUTIONS | **Client:** | Kahuna No. 1 Pty Ltd | Job No. | RGS31546.1 |
| | **Project:** | Stage 1 & 2 Contamination Assessment | Drawn By: | SK |
| | | | Scale: | NTS |
| | | 52-54 Miles Street (Lot 47 DP 751395), Yamba | Date: | 15-Jun-23 |
| | **Title:** | Sample Location Plan & AEC | Drawing No. | **Figure 2** |

# Appendix A

## Results of Site History Study

# ADVANCE LEGAL SEARCHERS PTY LIMITED

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Telephone: +612 9977 6713
Mobile: 0412 169 809
Email: search@alsearchers.com.au

21st June 2019

**REGIONAL GEOTECHNICAL SOLUTIONS PTY LTD**
Unit 14, 25 – 27 Hurley Drive
**COFFS HARBOUR NSW 2450**

**Attention: Simon Keen**

**RE:** **52 – 54 Miles Street,**
**Yamba**
**RGS31546.1**

| | | | |
|---|---|---|---|
| **Note 1:** | **Lot 46** | **DP 751395** | (page 1) |
| **Note 2:** | **Lot 47** | **DP 751395** | (page 3) |

**Note 1:**

## Current Search

Folio Identifier 46/751395 (title attached)
Crown Plan 2054-1577 (plan attached)
Dated 20th June 2019
Registered Proprietor:
**KAHUNA NO 1 PTY LIMITED**

# Title Tree
# Lot 46 DP 751395

Folio Identifier 46/751395

Certificate of Title Volume 4604 Folio 210

Crown Land

****

# Summary of proprietor(s)
# Lot 46 DP 751395

| Year | Proprietor(s) |
|---|---|
| | **(Lot 46 DP 751395)** |
| 2006 – todate | Kahuna No 1 Pty Limited |
| 1993 – 2006 | Henry David Brailsford |
| | **(Portion 46 Parish Yamba – Area 52 Acres 2 Roods – CTVol 4604 Fol 210)** |
| 1986 – 1993 | Henry David Brailsford |
| 1957 – 1986 | Gwyn Owen Edwards, storeman |
| 1938 – 1957 | Emma Cox, widow |
| 1934 – 1938 | Edward Albert Cox, grantee |
| | **(Portion 46 Parish Yamba – Area 52 Acres 2 Roods)** |
| Prior – 1934 | Crown Land |
| *(1906 – 1934)* | *(Conditional Purchase 1906 – 11 Grafton to Samuel Smith Want)* |
| *(1903 – 1906)* | *(Within Reserve from Sale for Refuge in Time of Flood 36352 vide Government Gazette 12th September 1903 Folio 6773)* |
| *(1902 – 1903)* | *(Within Reserve 35379 for Suburban Settlement vide Government Gazette 22nd November 1902)* |

****

**Note 2:**

# Current Search

Folio Identifier 47/751395 (title attached)
Crown Plan 2054-1577 (plan attached)
Dated 20th June 2019
Registered Proprietor:
**KAHUNA NO 1 PTY LIMITED**

# Title Tree
# Lot 47 DP 751395

Folio Identifier 47/751395

Certificate of Title Volume 6450 Folio 213

Certificate of Title Volume 6324 Folio's 237 & 238

Certificate of Title Volume 4604 Folio 211

Crown Land

****

# Summary of proprietor(s)
# Lot 47 DP 751395

| Year | Proprietor(s) |
|---|---|
| | **(Lot 47 DP 751395)** |
| 2006 – todate | Kahuna No 1 Pty Limited |
| 1989 – 2006 | Henry David Brailsford |
| | **(Portion 47 Parish Yamba – Area 52 Acres 2 Roods – CTVol 6450 Fol 213)** |
| 1986 – 1989 | Henry David Brailsford |
| 1963 – 1986 | Gwyn Owen Edwards, store man |
| 1963 – 1963 | Harold Charles Marshall, farmer |
| 1952 – 1963 | Samuel Kearney, engine driver |
| 1952 – 1952 | Susan Jessie Marshall, wife of Harold Charles Marshall, farmer |
| | **(Portion 47 Parish Yamba – Area 52 Acres 2 Roods – CTVol 6324 Fol's 237 &238)** |
| 1951 – 1952 | Cyril James Landrigan, banana grower<br>John Thomas Commerford, banana grower |
| | **(Portion 47 Parish Yamba – Area 52 Acres 2 Roods – CTVol 4604 Fol 211)** |
| 1949 – 1951 | Kevin John Larkin, farmer |
| 1938 – 1949 | Emma Cox, widow |
| 1934 – 1938 | Edward Albert Cox, grantee |
| | **(Portion 47 Parish Yamba – Area 52 Acres 2 Roods)** |
| Prior – 1934 | Crown Land |
| *(1906 – 1934)* | *(Conditional Purchase 1907 – 21 Grafton to Arthur Ernest Want)* |
| *(1903 – 1906)* | *(Within Reserve from Sale for Refuge in Time of Flood 36352 vide Government Gazettal 12th September 1903 Folio 6773)* |
| *(1902 – 1903)* | *(Within Reserve 35379 for Suburban Settlement vide Government Gazettal 22nd November 1902)* |

****

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D19/150835

27 June 2019

Regional Geotechnical Solutions
Mr Simon Keen
Unit 14
25-27 Hurley Drive
Coffs Harbour NSW 2450

Dear Mr Keen

**RE SITE: Miles St, Yamba NSW 2464**

I refer to your site search request received by SafeWork NSW on 25 June 2019 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

# Appendix B

## Laboratory Test Results

REGIONAL GEOTECHNICAL SOLUTIONS

**Comparison of Contamination Analysis Results with Adopted Investigation Levels (Results in mg/kg)**

**Client:** Kahuna No. 1 Pty Ltd
**Job No.** RGS31546.1 -AR
**Project:** Yamba Gardens Residential Estate
**Location:** 52-54 Miles Street (Lot 47 DP 751395), Yamba

| SAMPLE | DEPTH (m) | MATERIAL | ASBESTOS | TOTAL RECOVERABLE HYDROCARBONS | | | | | PAH | | OC/OP Pesticides | BTEX | PCBs | Heavy Metals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | C6-C10 | C10-C16 | C16-C34 | C34-C40 | TOTAL 10-40 | Total | b-a-p | | | | As | Cd | Cr (total)# | Cu | Pb | Ni | Zn | Hg |
| A1 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 6 | <1 | 18 | 13 | 12 | 12 | 24 | <0.1 |
| AD5 (A1 Primary) | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 8 | 15 | 10 | 3 | 46 | <0.1 |
| A2 | 0.05 - 0.15 | Topsoil | | <10 | <50 | <100 | <100 | <50 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | <5 | <1 | 14 | 10 | 10 | 7 | 19 | <0.1 |
| A3 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 30 | 8 | 10 | 12 | 38 | <0.1 |
| A4 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 8 | <1 | 18 | 8 | 18 | 8 | 22 | <0.1 |
| A5 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 8 | <1 | 14 | 5 | 8 | 7 | 14 | <0.1 |
| A6 | 0.05 - 0.15 | Topsoil | | <10 | <50 | 260 | 280 | 540 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | 5 | <1 | 12 | <5 | 7 | 5 | 11 | <0.1 |
| A7 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 16 | 5 | 7 | 6 | 15 | <0.1 |
| A8 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 10 | <1 | 22 | 5 | 10 | 8 | 24 | <0.1 |
| AD1 (A8 Primary) | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 8 | 6 | 9 | 2 | 11 | <0.1 |
| A9 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 9 | 5 | 7 | 4 | 16 | <0.1 |
| A10 | 0.05 - 0.15 | Topsoil | | <10 | <50 | <100 | <100 | <50 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | <5 | <1 | 4 | <5 | <5 | 2 | 7 | <0.1 |
| A11 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 6 | <1 | 14 | 9 | 10 | 7 | 12 | <0.1 |
| A12 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 11 | <1 | 22 | 22 | 15 | 15 | 35 | <0.1 |
| A13 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 14 | 12 | 8 | 7 | 31 | <0.1 |
| A14 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 6 | <1 | 24 | 24 | 14 | 14 | 31 | <0.1 |
| A15 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 5 | <1 | 18 | 10 | 9 | 7 | 28 | <0.1 |
| A16 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 7 | <1 | 20 | 9 | 11 | 7 | 31 | <0.1 |
| AD2 (A16 Primary) | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 7 | 10 | 8 | <2 | 18 | <0.1 |
| A17 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 10 | <1 | 25 | 6 | 12 | 10 | 34 | <0.1 |
| A18 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 15 | 13 | 12 | 10 | 27 | <0.1 |
| A19 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 7 | <1 | 29 | 22 | 18 | 15 | 60 | <0.1 |
| A20 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 6 | <1 | 24 | 13 | 12 | 11 | 31 | <0.1 |
| A21 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 16 | 9 | 9 | 7 | 35 | <0.1 |
| A22 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 18 | 9 | 9 | 8 | 44 | <0.1 |
| A23 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 5 | <1 | 22 | 13 | 11 | 11 | 66 | <0.1 |
| A24 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 21 | 17 | 12 | 10 | 59 | <0.1 |
| AD3 (A24 Primary) | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 6 | 10 | 8 | 4 | 23 | <0.1 |
| A25 | 0.05 - 0.15 | Topsoil | | <10 | 360 | 920 | 590 | 1870 | <0.5 | <0.8 | <0.2 | <0.2 | <0.1 | <5 | <1 | 11 | 14 | 8 | 7 | 37 | <0.1 |
| *A25 - Silica gel clean up* | *0.05 - 0.15* | *Topsoil* | | | *80* | | | | | | | | | | | | | | | | |
| A26 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 6 | <1 | 25 | 23 | 16 | 14 | 86 | <0.1 |
| A27 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 9 | 16 | 6 | 8 | 28 | <0.1 |
| A28 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 17 | 24 | 10 | 10 | 68 | <0.1 |
| A29 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 7 | <1 | 20 | 23 | 13 | 11 | 59 | <0.1 |
| A30 | 0.05 - 0.15 | Topsoil | | <10 | <50 | 390 | 230 | 620 | <0.5 | <0.8 | <0.2 | <0.2 | <0.1 | <5 | <1 | 16 | 16 | 17 | 8 | 59 | <0.1 |
| A31 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 5 | <1 | 14 | 19 | 9 | 8 | 33 | <0.1 |
| A32 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 14 | 14 | 8 | 7 | 44 | <0.1 |
| AD4 (A32 Primary) | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 7 | 16 | 8 | 3 | 34 | <0.1 |
| A33 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 20 | 5 | 8 | 6 | 17 | <0.1 |
| A34 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 24 | 9 | 10 | 8 | 26 | <0.1 |
| **CRITERIA (NEPM 2013)** | | | | | | | | | | | | | | | | | | | | | |
| *Health Investigation Level (HIL)*:* | | | *0.001% (w/w)* | | | | | | *300* | *3* | *400* | | *1* | *300* | *90* | *300#* | *17000* | *600* | *1200* | *30000* | *80* |
| *Health Screening Level (HSL)*** | | | | | | | | | | | | | | | | | | | | | |
| *Ecological Screening Level (ESL)**** | | | | *180* | *120* | *1300* | *5600* | | | | | | | | | | | | | | |
| *Ecological Investigation Level (EIL)@* | | | | | | | | | | | | *10* | | *100* | | | | *1100* | | | |
| *Management Limits &* | | | | *800* | *1000* | *3500* | *10000* | | | | | | | | | | | | | | |

**CRITERIA:**
* Health Based Investigation Levels for Recreational C ( NEPM 2013)
** Health Screening Level (F2) for recreational land use and fine grained soil (clay)
*** Ecological Screening Level for recreational land use and fine grained soil
@ Ecological Investigation Level - for recreational landuse
# Total Chromium
## Speciation testing confirmed only Chromium III present
& Mangement Limits for recreational land use and fine grained soil

REGIONAL GEOTECHNICAL SOLUTIONS

**Comparison of Contamination Analysis Results with Adopted Investigation Levels (Results in mg/kg)**

**Client:** Kahuna No. 1 Pty Ltd
**Job No.** RGS31546.1 -AR
**Project:** Yamba Gardens Residential Estate
**Location:** 52-54 Miles Street (Lot 47 DP 751395), Yamba

| SAMPLE | DEPTH (m) | MATERIAL | ASBESTOS | TOTAL RECOVERABLE HYDROCARBONS | | | | | PAH | | OC/OP Pesticides | BTEX | PCBs | Heavy Metals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | C6-C10 | C10-C16 | C16-C34 | C34-C40 | TOTAL 10-40 | Total | b-a-p | | | | As | Cd | Cr (total)# | Cu | Pb | Ni | Zn | Hg |
| A35 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 5 | <1 | 9 | <5 | <5 | 2 | 10 | <0.1 |
| A36 | 0.05 - 0.15 | Topsoil | | <10 | <50 | 240 | 190 | 430 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | <5 | <1 | 5 | <5 | 6 | 2 | 24 | <0.1 |
| A37 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 24 | 11 | 11 | 10 | 66 | <0.1 |
| A38 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 6 | <1 | 26 | 9 | 11 | 10 | 59 | <0.1 |
| A39 | 0.05 - 0.15 | Topsoil | | <10 | <50 | 240 | 120 | 360 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | 6 | <1 | 20 | 13 | 10 | 9 | 54 | <0.1 |
| A40 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 5 | <1 | 23 | 14 | 13 | 10 | 79 | <0.1 |
| A41 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 4 | <5 | <5 | <2 | 23 | <0.1 |
| A42 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 3 | <5 | <5 | <2 | 9 | <0.1 |
| A43 | 0.05 - 0.15 | Topsoil | | <10 | <50 | 140 | <100 | 140 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | <5 | <1 | <2 | <5 | <5 | <2 | <5 | <0.1 |
| A44 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | 17 | 8 | 7 | 3 | 21 | <0.1 |
| A45 | 0.05 - 0.15 | Topsoil | | <10 | 60 | 330 | 200 | 590 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | 11 | <1 | 22 | 22 | 15 | 15 | 35 | <0.1 |
| A46 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | <2 | <5 | <5 | <2 | 8 | <0.1 |
| A47 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | <2 | <5 | <5 | <2 | 5 | <0.1 |
| A48 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | <2 | <5 | <5 | <2 | 10 | <0.1 |
| A49 | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | <5 | <1 | <2 | <5 | <5 | <2 | <5 | <0.1 |
| A50 | 0.05 - 0.15 | Topsoil | | <10 | <50 | 180 | 130 | 310 | <0.5 | <0.5 | <0.2 | <0.2 | <0.1 | <5 | <1 | 4 | <5 | <5 | <2 | 7 | <0.1 |
| D1 RPD% | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 66.7 | 0.0 | 93.3 | 18.2 | 10.5 | 120.0 | 74.3 | 0.0 |
| D2 RPD% | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 33.3 | 0.0 | 96.3 | 10.5 | 31.6 | 150.0 | 53.1 | 0.0 |
| D3 RPD% | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 0.0 | 0.0 | 111.1 | 51.9 | 40.0 | 85.7 | 87.8 | 0.0 |
| D4 RPD% | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 0.0 | 0.0 | 66.7 | 13.3 | 0.0 | 80.0 | 25.6 | 0.0 |
| D5 RPD% | 0.05 - 0.15 | Topsoil | | | | | | | | | | | | 18.2 | 0.0 | 76.9 | 14.3 | 18.2 | 120.0 | 62.9 | 0.0 |
| **CRITERIA (NEPM 2013)** | | | | | | | | | | | | | | | | | | | | | |
| *Health Investigation Level (HIL)*:* | | | *0.001% (w/w)* | | | | | | *300* | *3* | *400* | | *1* | *300* | *90* | *300#* | *17000* | *600* | *1200* | *30000* | *80* |
| *Health Screening Level (HSL)*** | | | | | | | | | | | | | | | | | | | | | |
| *Ecological Screening Level (ESL)**** | | | | *180* | *120* | *1300* | *5600* | | | | | | | | | | | | | | |
| *Ecological Investigation Level (EIL)@* | | | | | | | | | | | | *10* | | *100* | | | | *1100* | | | |
| *Management Limits &* | | | | *800* | *1000* | *3500* | *10000* | | | | | | | | | | | | | | |

**CRITERIA:**
* Health Based Investigation Levels for Recreational C ( NEPM 2013)
** Health Screening Level (F2) for recreational land use and fine grained soil (clay)
*** Ecological Screening Level for recreational land use and fine grained soil
@ Ecological Investigation Level - for recreational landuse
# Total Chromium
## Speciation testing confirmed only Chromium III present

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **ES2316723** | Page | : 1 of 35 |
| Client | : **REGIONAL GEOTECHNICAL SOLUTION** | Laboratory | : Environmental Division Sydney |
| Contact | : MR SIMON KEEN | Contact | : Customer Services ES |
| Address | : Unit 14 25-27 Hurley Drive<br>COFFS HARBOUR NSW, AUSTRALIA 2450 | Address | : 277-289 Woodpark Road Smithfield NSW Australia 2164 |
| Telephone | : +61 02 6553 5641 | Telephone | : +61-2-8784 8555 |
| Project | : RGS31546.1 Proposed Residential Development | Date Samples Received | : 19-May-2023 10:30 |
| Order number | : ---- | Date Analysis Commenced | : 24-May-2023 |
| C-O-C number | : ---- | Issue Date | : 29-May-2023 15:08 |
| Sampler | : ---- | | |
| Site | : ---- | | |
| Quote number | : EN/222 | | |
| No. of samples received | : 55 | | |
| No. of samples analysed | : 55 | | |

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

## *Signatories*

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

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Ankit Joshi | Senior Chemist - Inorganics | Sydney Inorganics, Smithfield, NSW |
| Edwandy Fadjar | Organic Coordinator | Sydney Organics, Smithfield, NSW |

## General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A1 0.05 - 0.15 | A2 0.05 - 0.15 | A3 0.05 - 0.15 | A4 0.05 - 0.15 | A5 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-001 | ES2316723-002 | ES2316723-003 | ES2316723-004 | ES2316723-005 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **46.8** | **47.1** | **35.5** | **33.8** | **19.4** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | **6** | <5 | <5 | **8** | **8** |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **18** | **14** | **30** | **18** | **14** |
| Copper | 7440-50-8 | 5 | mg/kg | **13** | **10** | **8** | **8** | **5** |
| Lead | 7439-92-1 | 5 | mg/kg | **12** | **10** | **10** | **18** | **8** |
| Nickel | 7440-02-0 | 2 | mg/kg | **12** | **7** | **12** | **8** | **7** |
| Zinc | 7440-66-6 | 5 | mg/kg | **24** | **19** | **38** | **22** | **14** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EP066: Polychlorinated Biphenyls (PCB)** | | | | | | | | |
| Total Polychlorinated biphenyls | ---- | 0.1 | mg/kg | ---- | <0.1 | ---- | ---- | ---- |
| **EP068A: Organochlorine Pesticides (OC)** | | | | | | | | |
| alpha-BHC | 319-84-6 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Hexachlorobenzene (HCB) | 118-74-1 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| beta-BHC | 319-85-7 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| gamma-BHC | 58-89-9 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| delta-BHC | 319-86-8 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Heptachlor | 76-44-8 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Aldrin | 309-00-2 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Heptachlor epoxide | 1024-57-3 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| ^ Total Chlordane (sum) | ---- | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| trans-Chlordane | 5103-74-2 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| alpha-Endosulfan | 959-98-8 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| cis-Chlordane | 5103-71-9 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Dieldrin | 60-57-1 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| 4.4`-DDE | 72-55-9 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Endrin | 72-20-8 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| beta-Endosulfan | 33213-65-9 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| ^ Endosulfan (sum) | 115-29-7 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| 4.4`-DDD | 72-54-8 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Endrin aldehyde | 7421-93-4 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |
| Endosulfan sulfate | 1031-07-8 | 0.05 | mg/kg | ---- | <0.05 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A1 0.05 - 0.15 | A2 0.05 - 0.15 | A3 0.05 - 0.15 | A4 0.05 - 0.15 | A5 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-001 | ES2316723-002 | ES2316723-003 | ES2316723-004 | ES2316723-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP068A: Organochlorine Pesticides (OC) - Continued** | | | | | | | | | |
| **4.4`-DDT** | 50-29-3 | 0.2 | mg/kg | | ---- | <0.2 | ---- | ---- | ---- |
| **Endrin ketone** | 53494-70-5 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Methoxychlor** | 72-43-5 | 0.2 | mg/kg | | ---- | <0.2 | ---- | ---- | ---- |
| ^ **Sum of Aldrin + Dieldrin** | 309-00-2/60-57-1 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| ^ **Sum of DDD + DDE + DDT** | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **EP068B: Organophosphorus Pesticides (OP)** | | | | | | | | | |
| **Dichlorvos** | 62-73-7 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Demeton-S-methyl** | 919-86-8 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Monocrotophos** | 6923-22-4 | 0.2 | mg/kg | | ---- | <0.2 | ---- | ---- | ---- |
| **Dimethoate** | 60-51-5 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Diazinon** | 333-41-5 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Chlorpyrifos-methyl** | 5598-13-0 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Parathion-methyl** | 298-00-0 | 0.2 | mg/kg | | ---- | <0.2 | ---- | ---- | ---- |
| **Malathion** | 121-75-5 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Fenthion** | 55-38-9 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Chlorpyrifos** | 2921-88-2 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Parathion** | 56-38-2 | 0.2 | mg/kg | | ---- | <0.2 | ---- | ---- | ---- |
| **Pirimphos-ethyl** | 23505-41-1 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Chlorfenvinphos** | 470-90-6 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Bromophos-ethyl** | 4824-78-6 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Fenamiphos** | 22224-92-6 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Prothiofos** | 34643-46-4 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Ethion** | 563-12-2 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Carbophenothion** | 786-19-6 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **Azinphos Methyl** | 86-50-0 | 0.05 | mg/kg | | ---- | <0.05 | ---- | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| **Naphthalene** | 91-20-3 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| **Acenaphthylene** | 208-96-8 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| **Acenaphthene** | 83-32-9 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| **Fluorene** | 86-73-7 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| **Phenanthrene** | 85-01-8 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| **Anthracene** | 120-12-7 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| **Fluoranthene** | 206-44-0 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A1 0.05 - 0.15 | A2 0.05 - 0.15 | A3 0.05 - 0.15 | A4 0.05 - 0.15 | A5 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-001 | ES2316723-002 | ES2316723-003 | ES2316723-004 | ES2316723-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | ---- | **0.6** | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | ---- | **1.2** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | ---- | <10 | ---- | ---- | ---- |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | ---- | <50 | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | ---- | <100 | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | ---- | <100 | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | ---- | <50 | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | ---- | <10 | ---- | ---- | ---- |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | ---- | <10 | ---- | ---- | ---- |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | ---- | <50 | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | ---- | <100 | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | ---- | <100 | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | ---- | <50 | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | <50 | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | ---- | <0.2 | ---- | ---- | ---- |
| Toluene | 108-88-3 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A1 0.05 - 0.15 | A2 0.05 - 0.15 | A3 0.05 - 0.15 | A4 0.05 - 0.15 | A5 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-001 | ES2316723-002 | ES2316723-003 | ES2316723-004 | ES2316723-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| ^ Sum of BTEX | ---- | 0.2 | mg/kg | | ---- | <0.2 | ---- | ---- | ---- |
| ^ Total Xylenes | ---- | 0.5 | mg/kg | | ---- | <0.5 | ---- | ---- | ---- |
| Naphthalene | 91-20-3 | 1 | mg/kg | | ---- | <1 | ---- | ---- | ---- |
| **EP066S: PCB Surrogate** | | | | | | | | | |
| Decachlorobiphenyl | 2051-24-3 | 0.1 | % | | ---- | **77.0** | ---- | ---- | ---- |
| **EP068S: Organochlorine Pesticide Surrogate** | | | | | | | | | |
| Dibromo-DDE | 21655-73-2 | 0.05 | % | | ---- | **83.4** | ---- | ---- | ---- |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | | | | | | | |
| DEF | 78-48-8 | 0.05 | % | | ---- | **87.3** | ---- | ---- | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 0.5 | % | | ---- | **104** | ---- | ---- | ---- |
| 2-Chlorophenol-D4 | 93951-73-6 | 0.5 | % | | ---- | **99.7** | ---- | ---- | ---- |
| 2.4.6-Tribromophenol | 118-79-6 | 0.5 | % | | ---- | **67.9** | ---- | ---- | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 0.5 | % | | ---- | **93.8** | ---- | ---- | ---- |
| Anthracene-d10 | 1719-06-8 | 0.5 | % | | ---- | **92.8** | ---- | ---- | ---- |
| 4-Terphenyl-d14 | 1718-51-0 | 0.5 | % | | ---- | **85.9** | ---- | ---- | ---- |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 0.2 | % | | ---- | **97.0** | ---- | ---- | ---- |
| Toluene-D8 | 2037-26-5 | 0.2 | % | | ---- | **77.3** | ---- | ---- | ---- |
| 4-Bromofluorobenzene | 460-00-4 | 0.2 | % | | ---- | **91.6** | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A6 0.05 - 0.15 | A7 0.05 - 0.15 | A8 0.05 - 0.15 | A9 0.05 - 0.15 | A10 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-006 | ES2316723-007 | ES2316723-008 | ES2316723-009 | ES2316723-010 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **24.1** | **30.1** | **26.0** | **15.4** | **14.3** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | **5** | <5 | **10** | <5 | <5 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **12** | **16** | **22** | **9** | **4** |
| Copper | 7440-50-8 | 5 | mg/kg | <5 | **5** | **5** | **5** | <5 |
| Lead | 7439-92-1 | 5 | mg/kg | **7** | **7** | **10** | **7** | <5 |
| Nickel | 7440-02-0 | 2 | mg/kg | **5** | **6** | **8** | **4** | **2** |
| Zinc | 7440-66-6 | 5 | mg/kg | **11** | **15** | **24** | **16** | **7** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EP066: Polychlorinated Biphenyls (PCB)** | | | | | | | | |
| Total Polychlorinated biphenyls | ---- | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | <0.1 |
| **EP068A: Organochlorine Pesticides (OC)** | | | | | | | | |
| alpha-BHC | 319-84-6 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Hexachlorobenzene (HCB) | 118-74-1 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| beta-BHC | 319-85-7 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| gamma-BHC | 58-89-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| delta-BHC | 319-86-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Heptachlor | 76-44-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Aldrin | 309-00-2 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Heptachlor epoxide | 1024-57-3 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| ^ Total Chlordane (sum) | ---- | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| trans-Chlordane | 5103-74-2 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| alpha-Endosulfan | 959-98-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| cis-Chlordane | 5103-71-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Dieldrin | 60-57-1 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| 4.4`-DDE | 72-55-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Endrin | 72-20-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| beta-Endosulfan | 33213-65-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| ^ Endosulfan (sum) | 115-29-7 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| 4.4`-DDD | 72-54-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Endrin aldehyde | 7421-93-4 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |
| Endosulfan sulfate | 1031-07-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | ---- | <0.05 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A6 0.05 - 0.15 | A7 0.05 - 0.15 | A8 0.05 - 0.15 | A9 0.05 - 0.15 | A10 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-006 | ES2316723-007 | ES2316723-008 | ES2316723-009 | ES2316723-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP068A: Organochlorine Pesticides (OC) - Continued** | | | | | | | | | |
| **4.4`-DDT** | 50-29-3 | 0.2 | mg/kg | | <0.2 | ---- | ---- | ---- | <0.2 |
| **Endrin ketone** | 53494-70-5 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Methoxychlor** | 72-43-5 | 0.2 | mg/kg | | <0.2 | ---- | ---- | ---- | <0.2 |
| ^ **Sum of Aldrin + Dieldrin** | 309-00-2/60-57-1 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| ^ **Sum of DDD + DDE + DDT** | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **EP068B: Organophosphorus Pesticides (OP)** | | | | | | | | | |
| **Dichlorvos** | 62-73-7 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Demeton-S-methyl** | 919-86-8 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Monocrotophos** | 6923-22-4 | 0.2 | mg/kg | | <0.2 | ---- | ---- | ---- | <0.2 |
| **Dimethoate** | 60-51-5 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Diazinon** | 333-41-5 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos-methyl** | 5598-13-0 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Parathion-methyl** | 298-00-0 | 0.2 | mg/kg | | <0.2 | ---- | ---- | ---- | <0.2 |
| **Malathion** | 121-75-5 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Fenthion** | 55-38-9 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos** | 2921-88-2 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Parathion** | 56-38-2 | 0.2 | mg/kg | | <0.2 | ---- | ---- | ---- | <0.2 |
| **Pirimphos-ethyl** | 23505-41-1 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Chlorfenvinphos** | 470-90-6 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Bromophos-ethyl** | 4824-78-6 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Fenamiphos** | 22224-92-6 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Prothiofos** | 34643-46-4 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Ethion** | 563-12-2 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Carbophenothion** | 786-19-6 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **Azinphos Methyl** | 86-50-0 | 0.05 | mg/kg | | <0.05 | ---- | ---- | ---- | <0.05 |
| **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 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A6 0.05 - 0.15 | A7 0.05 - 0.15 | A8 0.05 - 0.15 | A9 0.05 - 0.15 | A10 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-006 | ES2316723-007 | ES2316723-008 | ES2316723-009 | ES2316723-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | ---- | ---- | ---- | **0.6** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | ---- | ---- | ---- | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | ---- | ---- | ---- | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | ---- | ---- | ---- | <50 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | **170** | ---- | ---- | ---- | <100 |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | **260** | ---- | ---- | ---- | <100 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | **430** | ---- | ---- | ---- | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | ---- | ---- | ---- | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | ---- | ---- | ---- | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | ---- | ---- | ---- | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | **260** | ---- | ---- | ---- | <100 |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | **280** | ---- | ---- | ---- | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | **540** | ---- | ---- | ---- | <50 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | ---- | ---- | ---- | <50 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | ---- | ---- | ---- | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A6 0.05 - 0.15 | A7 0.05 - 0.15 | A8 0.05 - 0.15 | A9 0.05 - 0.15 | A10 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-006 | ES2316723-007 | ES2316723-008 | ES2316723-009 | ES2316723-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| ^ Sum of BTEX | ---- | 0.2 | mg/kg | | <0.2 | ---- | ---- | ---- | <0.2 |
| ^ Total Xylenes | ---- | 0.5 | mg/kg | | <0.5 | ---- | ---- | ---- | <0.5 |
| Naphthalene | 91-20-3 | 1 | mg/kg | | <1 | ---- | ---- | ---- | <1 |
| **EP066S: PCB Surrogate** | | | | | | | | | |
| Decachlorobiphenyl | 2051-24-3 | 0.1 | % | | 81.8 | ---- | ---- | ---- | 82.2 |
| **EP068S: Organochlorine Pesticide Surrogate** | | | | | | | | | |
| Dibromo-DDE | 21655-73-2 | 0.05 | % | | 79.6 | ---- | ---- | ---- | 80.2 |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | | | | | | | |
| DEF | 78-48-8 | 0.05 | % | | 90.5 | ---- | ---- | ---- | 84.2 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 0.5 | % | | 89.9 | ---- | ---- | ---- | 91.0 |
| 2-Chlorophenol-D4 | 93951-73-6 | 0.5 | % | | 92.8 | ---- | ---- | ---- | 82.2 |
| 2.4.6-Tribromophenol | 118-79-6 | 0.5 | % | | 68.0 | ---- | ---- | ---- | 74.7 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 0.5 | % | | 95.4 | ---- | ---- | ---- | 98.6 |
| Anthracene-d10 | 1719-06-8 | 0.5 | % | | 95.6 | ---- | ---- | ---- | 95.7 |
| 4-Terphenyl-d14 | 1718-51-0 | 0.5 | % | | 88.0 | ---- | ---- | ---- | 88.2 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 0.2 | % | | 88.0 | ---- | ---- | ---- | 79.5 |
| Toluene-D8 | 2037-26-5 | 0.2 | % | | 82.6 | ---- | ---- | ---- | 79.5 |
| 4-Bromofluorobenzene | 460-00-4 | 0.2 | % | | 81.7 | ---- | ---- | ---- | 80.2 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A11 0.05 - 0.15 | A12 0.05 - 0.15 | A13 0.05 - 0.15 | A14 0.05 - 0.15 | A15 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-011 | ES2316723-012 | ES2316723-013 | ES2316723-014 | ES2316723-015 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **50.0** | **58.0** | **65.9** | **60.4** | **37.6** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | **6** | **11** | <5 | **6** | **5** |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **14** | **22** | **14** | **24** | **18** |
| Copper | 7440-50-8 | 5 | mg/kg | **9** | **22** | **12** | **24** | **10** |
| Lead | 7439-92-1 | 5 | mg/kg | **10** | **15** | **8** | **14** | **9** |
| Nickel | 7440-02-0 | 2 | mg/kg | **7** | **15** | **7** | **14** | **7** |
| Zinc | 7440-66-6 | 5 | mg/kg | **12** | **35** | **31** | **31** | **28** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A16 0.05 - 0.15 | A17 0.05 - 0.15 | A18 0.05 - 0.15 | A19 0.05 - 0.15 | A20 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-016 | ES2316723-017 | ES2316723-018 | ES2316723-019 | ES2316723-020 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | 38.5 | 35.6 | 43.8 | 53.8 | 51.1 |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | 7 | 10 | <5 | 7 | 6 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | 20 | 25 | 15 | 29 | 24 |
| Copper | 7440-50-8 | 5 | mg/kg | 9 | 6 | 13 | 22 | 13 |
| Lead | 7439-92-1 | 5 | mg/kg | 11 | 12 | 12 | 18 | 12 |
| Nickel | 7440-02-0 | 2 | mg/kg | 7 | 10 | 10 | 15 | 11 |
| Zinc | 7440-66-6 | 5 | mg/kg | 31 | 34 | 27 | 60 | 31 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A21 0.05 - 0.15 | A22 0.05 - 0.15 | A23 0.05 - 0.15 | A24 0.05 - 0.15 | A25 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-021 | ES2316723-022 | ES2316723-023 | ES2316723-024 | ES2316723-025 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **42.8** | **31.3** | **43.4** | **50.2** | **52.4** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | <5 | <5 | **5** | <5 | <5 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **16** | **18** | **22** | **21** | **11** |
| Copper | 7440-50-8 | 5 | mg/kg | **9** | **9** | **13** | **17** | **14** |
| Lead | 7439-92-1 | 5 | mg/kg | **9** | **9** | **11** | **12** | **8** |
| Nickel | 7440-02-0 | 2 | mg/kg | **7** | **8** | **11** | **10** | **7** |
| Zinc | 7440-66-6 | 5 | mg/kg | **35** | **44** | **66** | **59** | **37** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EP066: Polychlorinated Biphenyls (PCB)** | | | | | | | | |
| Total Polychlorinated biphenyls | ---- | 0.1 | mg/kg | ---- | ---- | ---- | ---- | <0.1 |
| **EP068A: Organochlorine Pesticides (OC)** | | | | | | | | |
| alpha-BHC | 319-84-6 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Hexachlorobenzene (HCB) | 118-74-1 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| beta-BHC | 319-85-7 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| gamma-BHC | 58-89-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| delta-BHC | 319-86-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Heptachlor | 76-44-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Aldrin | 309-00-2 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Heptachlor epoxide | 1024-57-3 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| ^ Total Chlordane (sum) | ---- | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| trans-Chlordane | 5103-74-2 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| alpha-Endosulfan | 959-98-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| cis-Chlordane | 5103-71-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Dieldrin | 60-57-1 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| 4.4`-DDE | 72-55-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endrin | 72-20-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| beta-Endosulfan | 33213-65-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| ^ Endosulfan (sum) | 115-29-7 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| 4.4`-DDD | 72-54-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endrin aldehyde | 7421-93-4 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endosulfan sulfate | 1031-07-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A21 0.05 - 0.15 | A22 0.05 - 0.15 | A23 0.05 - 0.15 | A24 0.05 - 0.15 | A25 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-021 | ES2316723-022 | ES2316723-023 | ES2316723-024 | ES2316723-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP068A: Organochlorine Pesticides (OC) - Continued** | | | | | | | | | |
| **4.4`-DDT** | 50-29-3 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Endrin ketone** | 53494-70-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Methoxychlor** | 72-43-5 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| ^ **Sum of Aldrin + Dieldrin** | 309-00-2/60-57-1 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| ^ **Sum of DDD + DDE + DDT** | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **EP068B: Organophosphorus Pesticides (OP)** | | | | | | | | | |
| **Dichlorvos** | 62-73-7 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Demeton-S-methyl** | 919-86-8 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Monocrotophos** | 6923-22-4 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Dimethoate** | 60-51-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Diazinon** | 333-41-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos-methyl** | 5598-13-0 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Parathion-methyl** | 298-00-0 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Malathion** | 121-75-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Fenthion** | 55-38-9 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos** | 2921-88-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Parathion** | 56-38-2 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Pirimphos-ethyl** | 23505-41-1 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorfenvinphos** | 470-90-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Bromophos-ethyl** | 4824-78-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Fenamiphos** | 22224-92-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Prothiofos** | 34643-46-4 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Ethion** | 563-12-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Carbophenothion** | 786-19-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Azinphos Methyl** | 86-50-0 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| **Naphthalene** | 91-20-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Acenaphthylene** | 208-96-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Acenaphthene** | 83-32-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Fluorene** | 86-73-7 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Phenanthrene** | 85-01-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Anthracene** | 120-12-7 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Fluoranthene** | 206-44-0 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A21 0.05 - 0.15 | A22 0.05 - 0.15 | A23 0.05 - 0.15 | A24 0.05 - 0.15 | A25 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-021 | ES2316723-022 | ES2316723-023 | ES2316723-024 | ES2316723-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| **Pyrene** | 129-00-0 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Benz(a)anthracene** | 56-55-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Chrysene** | 218-01-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Benzo(b+j)fluoranthene** | 205-99-2 205-82-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Benzo(k)fluoranthene** | 207-08-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Benzo(a)pyrene** | 50-32-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Indeno(1.2.3.cd)pyrene** | 193-39-5 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Dibenz(a.h)anthracene** | 53-70-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Benzo(g.h.i)perylene** | 191-24-2 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| ^ **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 | | ---- | ---- | ---- | ---- | **1.0** |
| ^ **Benzo(a)pyrene TEQ (LOR)** | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | **1.9** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| **C10 - C14 Fraction** | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | <50 |
| **C15 - C28 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **870** |
| **C29 - C36 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **640** |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **1510** |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| **>C10 - C16 Fraction** | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **360** |
| **>C16 - C34 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **920** |
| **>C34 - C40 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **590** |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **1870** |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **360** |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Toluene** | 108-88-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Ethylbenzene** | 100-41-4 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A21 0.05 - 0.15 | A22 0.05 - 0.15 | A23 0.05 - 0.15 | A24 0.05 - 0.15 | A25 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-021 | ES2316723-022 | ES2316723-023 | ES2316723-024 | ES2316723-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| **ortho-Xylene** | 95-47-6 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| ^ **Total Xylenes** | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | ---- | ---- | ---- | ---- | <1 |
| **EP066S: PCB Surrogate** | | | | | | | | | |
| **Decachlorobiphenyl** | 2051-24-3 | 0.1 | % | | ---- | ---- | ---- | ---- | **86.8** |
| **EP068S: Organochlorine Pesticide Surrogate** | | | | | | | | | |
| **Dibromo-DDE** | 21655-73-2 | 0.05 | % | | ---- | ---- | ---- | ---- | **82.1** |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | | | | | | | |
| **DEF** | 78-48-8 | 0.05 | % | | ---- | ---- | ---- | ---- | **91.3** |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 0.5 | % | | ---- | ---- | ---- | ---- | **97.8** |
| **2-Chlorophenol-D4** | 93951-73-6 | 0.5 | % | | ---- | ---- | ---- | ---- | **83.6** |
| **2.4.6-Tribromophenol** | 118-79-6 | 0.5 | % | | ---- | ---- | ---- | ---- | **87.5** |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | ---- | ---- | ---- | ---- | **95.4** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | ---- | ---- | ---- | ---- | **93.9** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | ---- | ---- | ---- | ---- | **88.9** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | ---- | ---- | ---- | ---- | **80.6** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | ---- | ---- | ---- | ---- | **84.4** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | ---- | ---- | ---- | ---- | **84.4** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A26 0.05 - 0.15 | A27 0.05 - 0.15 | A28 0.05 - 0.15 | A29 0.05 - 0.15 | A30 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-026 | ES2316723-027 | ES2316723-028 | ES2316723-029 | ES2316723-030 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **64.3** | **68.1** | **79.4** | **67.1** | **59.2** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | **6** | <5 | <5 | **7** | <5 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **25** | **9** | **17** | **20** | **16** |
| Copper | 7440-50-8 | 5 | mg/kg | **23** | **16** | **24** | **23** | **16** |
| Lead | 7439-92-1 | 5 | mg/kg | **16** | **6** | **10** | **13** | **17** |
| Nickel | 7440-02-0 | 2 | mg/kg | **14** | **8** | **10** | **11** | **8** |
| Zinc | 7440-66-6 | 5 | mg/kg | **86** | **28** | **68** | **59** | **59** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EP066: Polychlorinated Biphenyls (PCB)** | | | | | | | | |
| Total Polychlorinated biphenyls | ---- | 0.1 | mg/kg | ---- | ---- | ---- | ---- | <0.1 |
| **EP068A: Organochlorine Pesticides (OC)** | | | | | | | | |
| alpha-BHC | 319-84-6 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Hexachlorobenzene (HCB) | 118-74-1 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| beta-BHC | 319-85-7 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| gamma-BHC | 58-89-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| delta-BHC | 319-86-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Heptachlor | 76-44-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Aldrin | 309-00-2 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Heptachlor epoxide | 1024-57-3 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| ^ Total Chlordane (sum) | ---- | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| trans-Chlordane | 5103-74-2 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| alpha-Endosulfan | 959-98-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| cis-Chlordane | 5103-71-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Dieldrin | 60-57-1 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| 4.4`-DDE | 72-55-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endrin | 72-20-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| beta-Endosulfan | 33213-65-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| ^ Endosulfan (sum) | 115-29-7 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| 4.4`-DDD | 72-54-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endrin aldehyde | 7421-93-4 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endosulfan sulfate | 1031-07-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A26 0.05 - 0.15 | A27 0.05 - 0.15 | A28 0.05 - 0.15 | A29 0.05 - 0.15 | A30 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-026 | ES2316723-027 | ES2316723-028 | ES2316723-029 | ES2316723-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EP068A: Organochlorine Pesticides (OC) - Continued** | | | | | | | | | |
| **4.4`-DDT** | 50-29-3 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Endrin ketone** | 53494-70-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Methoxychlor** | 72-43-5 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| ^ **Sum of Aldrin + Dieldrin** | 309-00-2/60-57-1 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| ^ **Sum of DDD + DDE + DDT** | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **EP068B: Organophosphorus Pesticides (OP)** | | | | | | | | | |
| **Dichlorvos** | 62-73-7 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Demeton-S-methyl** | 919-86-8 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Monocrotophos** | 6923-22-4 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Dimethoate** | 60-51-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Diazinon** | 333-41-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos-methyl** | 5598-13-0 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Parathion-methyl** | 298-00-0 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Malathion** | 121-75-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Fenthion** | 55-38-9 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos** | 2921-88-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Parathion** | 56-38-2 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Pirimphos-ethyl** | 23505-41-1 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorfenvinphos** | 470-90-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Bromophos-ethyl** | 4824-78-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Fenamiphos** | 22224-92-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Prothiofos** | 34643-46-4 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Ethion** | 563-12-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Carbophenothion** | 786-19-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Azinphos Methyl** | 86-50-0 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| **Naphthalene** | 91-20-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Acenaphthylene** | 208-96-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Acenaphthene** | 83-32-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Fluorene** | 86-73-7 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Phenanthrene** | 85-01-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Anthracene** | 120-12-7 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| **Fluoranthene** | 206-44-0 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A26 0.05 - 0.15 | A27 0.05 - 0.15 | A28 0.05 - 0.15 | A29 0.05 - 0.15 | A30 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-026 | ES2316723-027 | ES2316723-028 | ES2316723-029 | ES2316723-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.8 |
| ^ 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 | | ---- | ---- | ---- | ---- | **1.0** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | **1.9** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | <50 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **300** |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **230** |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **530** |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **390** |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **230** |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **620** |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | <50 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A26 0.05 - 0.15 | A27 0.05 - 0.15 | A28 0.05 - 0.15 | A29 0.05 - 0.15 | A30 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-026 | ES2316723-027 | ES2316723-028 | ES2316723-029 | ES2316723-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| **ortho-Xylene** | 95-47-6 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| ^ **Total Xylenes** | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | ---- | ---- | ---- | ---- | <1 |
| **EP066S: PCB Surrogate** | | | | | | | | | |
| **Decachlorobiphenyl** | 2051-24-3 | 0.1 | % | | ---- | ---- | ---- | ---- | **117** |
| **EP068S: Organochlorine Pesticide Surrogate** | | | | | | | | | |
| **Dibromo-DDE** | 21655-73-2 | 0.05 | % | | ---- | ---- | ---- | ---- | **91.2** |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | | | | | | | |
| **DEF** | 78-48-8 | 0.05 | % | | ---- | ---- | ---- | ---- | **92.5** |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 0.5 | % | | ---- | ---- | ---- | ---- | **94.5** |
| **2-Chlorophenol-D4** | 93951-73-6 | 0.5 | % | | ---- | ---- | ---- | ---- | **82.7** |
| **2.4.6-Tribromophenol** | 118-79-6 | 0.5 | % | | ---- | ---- | ---- | ---- | **82.8** |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | ---- | ---- | ---- | ---- | **92.0** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | ---- | ---- | ---- | ---- | **94.9** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | ---- | ---- | ---- | ---- | **88.8** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | ---- | ---- | ---- | ---- | **76.2** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | ---- | ---- | ---- | ---- | **74.9** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | ---- | ---- | ---- | ---- | **77.9** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A31 0.05 - 0.15 | A32 0.05 - 0.15 | A33 0.05 - 0.15 | A34 0.05 - 0.15 | A35 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-031 | ES2316723-032 | ES2316723-033 | ES2316723-034 | ES2316723-035 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **57.6** | **54.8** | **36.7** | **54.1** | **22.6** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | **5** | <5 | <5 | <5 | **5** |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **14** | **14** | **20** | **24** | **9** |
| Copper | 7440-50-8 | 5 | mg/kg | **19** | **14** | **5** | **9** | <5 |
| Lead | 7439-92-1 | 5 | mg/kg | **9** | **8** | **8** | **10** | <5 |
| Nickel | 7440-02-0 | 2 | mg/kg | **8** | **7** | **6** | **8** | **2** |
| Zinc | 7440-66-6 | 5 | mg/kg | **33** | **44** | **17** | **26** | **10** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A36 0.05 - 0.15 | A37 0.05 - 0.15 | A38 0.05 - 0.15 | A39 0.05 - 0.15 | A40 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-036 | ES2316723-037 | ES2316723-038 | ES2316723-039 | ES2316723-040 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | 33.2 | 49.9 | 43.7 | 41.4 | 56.5 |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | <5 | <5 | 6 | 6 | 5 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | 5 | 24 | 26 | 20 | 23 |
| Copper | 7440-50-8 | 5 | mg/kg | <5 | 11 | 9 | 13 | 14 |
| Lead | 7439-92-1 | 5 | mg/kg | 6 | 11 | 11 | 10 | 13 |
| Nickel | 7440-02-0 | 2 | mg/kg | 2 | 10 | 10 | 9 | 10 |
| Zinc | 7440-66-6 | 5 | mg/kg | 24 | 66 | 59 | 54 | 79 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EP066: Polychlorinated Biphenyls (PCB)** | | | | | | | | |
| Total Polychlorinated biphenyls | ---- | 0.1 | mg/kg | <0.1 | ---- | ---- | <0.1 | ---- |
| **EP068A: Organochlorine Pesticides (OC)** | | | | | | | | |
| alpha-BHC | 319-84-6 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Hexachlorobenzene (HCB) | 118-74-1 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| beta-BHC | 319-85-7 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| gamma-BHC | 58-89-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| delta-BHC | 319-86-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Heptachlor | 76-44-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Aldrin | 309-00-2 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Heptachlor epoxide | 1024-57-3 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| ^ Total Chlordane (sum) | ---- | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| trans-Chlordane | 5103-74-2 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| alpha-Endosulfan | 959-98-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| cis-Chlordane | 5103-71-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Dieldrin | 60-57-1 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| 4.4`-DDE | 72-55-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Endrin | 72-20-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| beta-Endosulfan | 33213-65-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| ^ Endosulfan (sum) | 115-29-7 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| 4.4`-DDD | 72-54-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Endrin aldehyde | 7421-93-4 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| Endosulfan sulfate | 1031-07-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A36 0.05 - 0.15 | A37 0.05 - 0.15 | A38 0.05 - 0.15 | A39 0.05 - 0.15 | A40 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-036 | ES2316723-037 | ES2316723-038 | ES2316723-039 | ES2316723-040 |
| | | | | Result | Result | Result | Result | Result |
| **EP068A: Organochlorine Pesticides (OC) - Continued** | | | | | | | | |
| **4.4`-DDT** | 50-29-3 | 0.2 | mg/kg | <0.2 | ---- | ---- | <0.2 | ---- |
| **Endrin ketone** | 53494-70-5 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Methoxychlor** | 72-43-5 | 0.2 | mg/kg | <0.2 | ---- | ---- | <0.2 | ---- |
| ^ **Sum of Aldrin + Dieldrin** | 309-00-2/60-57-1 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| ^ **Sum of DDD + DDE + DDT** | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **EP068B: Organophosphorus Pesticides (OP)** | | | | | | | | |
| **Dichlorvos** | 62-73-7 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Demeton-S-methyl** | 919-86-8 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Monocrotophos** | 6923-22-4 | 0.2 | mg/kg | <0.2 | ---- | ---- | <0.2 | ---- |
| **Dimethoate** | 60-51-5 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Diazinon** | 333-41-5 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Chlorpyrifos-methyl** | 5598-13-0 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Parathion-methyl** | 298-00-0 | 0.2 | mg/kg | <0.2 | ---- | ---- | <0.2 | ---- |
| **Malathion** | 121-75-5 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Fenthion** | 55-38-9 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Chlorpyrifos** | 2921-88-2 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Parathion** | 56-38-2 | 0.2 | mg/kg | <0.2 | ---- | ---- | <0.2 | ---- |
| **Pirimphos-ethyl** | 23505-41-1 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Chlorfenvinphos** | 470-90-6 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Bromophos-ethyl** | 4824-78-6 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Fenamiphos** | 22224-92-6 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Prothiofos** | 34643-46-4 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Ethion** | 563-12-2 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Carbophenothion** | 786-19-6 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **Azinphos Methyl** | 86-50-0 | 0.05 | mg/kg | <0.05 | ---- | ---- | <0.05 | ---- |
| **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 | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A36 0.05 - 0.15 | A37 0.05 - 0.15 | A38 0.05 - 0.15 | A39 0.05 - 0.15 | A40 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-036 | ES2316723-037 | ES2316723-038 | ES2316723-039 | ES2316723-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | ---- | ---- | **0.6** | ---- |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | ---- | ---- | **1.2** | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | ---- | ---- | <10 | ---- |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | ---- | ---- | <50 | ---- |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | **140** | ---- | ---- | **170** | ---- |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | **200** | ---- | ---- | **130** | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | **340** | ---- | ---- | **300** | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | ---- | ---- | <10 | ---- |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | ---- | ---- | <10 | ---- |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | ---- | ---- | <50 | ---- |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | **240** | ---- | ---- | **240** | ---- |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | **190** | ---- | ---- | **120** | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | **430** | ---- | ---- | **360** | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | ---- | ---- | <50 | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | ---- | ---- | <0.2 | ---- |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A36 0.05 - 0.15 | A37 0.05 - 0.15 | A38 0.05 - 0.15 | A39 0.05 - 0.15 | A40 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-036 | ES2316723-037 | ES2316723-038 | ES2316723-039 | ES2316723-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| ^ Sum of BTEX | ---- | 0.2 | mg/kg | | <0.2 | ---- | ---- | <0.2 | ---- |
| ^ Total Xylenes | ---- | 0.5 | mg/kg | | <0.5 | ---- | ---- | <0.5 | ---- |
| Naphthalene | 91-20-3 | 1 | mg/kg | | <1 | ---- | ---- | <1 | ---- |
| **EP066S: PCB Surrogate** | | | | | | | | | |
| Decachlorobiphenyl | 2051-24-3 | 0.1 | % | | **91.2** | ---- | ---- | **87.5** | ---- |
| **EP068S: Organochlorine Pesticide Surrogate** | | | | | | | | | |
| Dibromo-DDE | 21655-73-2 | 0.05 | % | | **87.5** | ---- | ---- | **80.3** | ---- |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | | | | | | | |
| DEF | 78-48-8 | 0.05 | % | | **84.9** | ---- | ---- | **78.8** | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 0.5 | % | | **94.8** | ---- | ---- | **91.9** | ---- |
| 2-Chlorophenol-D4 | 93951-73-6 | 0.5 | % | | **83.3** | ---- | ---- | **81.7** | ---- |
| 2.4.6-Tribromophenol | 118-79-6 | 0.5 | % | | **76.6** | ---- | ---- | **74.4** | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 0.5 | % | | **94.2** | ---- | ---- | **92.5** | ---- |
| Anthracene-d10 | 1719-06-8 | 0.5 | % | | **94.1** | ---- | ---- | **93.1** | ---- |
| 4-Terphenyl-d14 | 1718-51-0 | 0.5 | % | | **87.9** | ---- | ---- | **87.7** | ---- |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 0.2 | % | | **82.6** | ---- | ---- | **80.7** | ---- |
| Toluene-D8 | 2037-26-5 | 0.2 | % | | **82.7** | ---- | ---- | **73.5** | ---- |
| 4-Bromofluorobenzene | 460-00-4 | 0.2 | % | | **84.8** | ---- | ---- | **79.5** | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A41 0.05 - 0.15 | A42 0.05 - 0.15 | A43 0.05 - 0.15 | A44 0.05 - 0.15 | A45 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-041 | ES2316723-042 | ES2316723-043 | ES2316723-044 | ES2316723-045 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **21.8** | **19.1** | **6.8** | **49.3** | **19.0** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | <5 | <5 | <5 | <5 | <5 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **4** | **3** | <2 | **17** | <2 |
| Copper | 7440-50-8 | 5 | mg/kg | <5 | <5 | <5 | **8** | <5 |
| Lead | 7439-92-1 | 5 | mg/kg | <5 | <5 | <5 | **7** | <5 |
| Nickel | 7440-02-0 | 2 | mg/kg | <2 | <2 | <2 | **3** | <2 |
| Zinc | 7440-66-6 | 5 | mg/kg | **23** | **9** | <5 | **21** | **8** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EP066: Polychlorinated Biphenyls (PCB)** | | | | | | | | |
| Total Polychlorinated biphenyls | ---- | 0.1 | mg/kg | ---- | ---- | <0.1 | ---- | <0.1 |
| **EP068A: Organochlorine Pesticides (OC)** | | | | | | | | |
| alpha-BHC | 319-84-6 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Hexachlorobenzene (HCB) | 118-74-1 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| beta-BHC | 319-85-7 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| gamma-BHC | 58-89-9 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| delta-BHC | 319-86-8 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Heptachlor | 76-44-8 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Aldrin | 309-00-2 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Heptachlor epoxide | 1024-57-3 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| ^ Total Chlordane (sum) | ---- | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| trans-Chlordane | 5103-74-2 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| alpha-Endosulfan | 959-98-8 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| cis-Chlordane | 5103-71-9 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Dieldrin | 60-57-1 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| 4.4`-DDE | 72-55-9 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Endrin | 72-20-8 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| beta-Endosulfan | 33213-65-9 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| ^ Endosulfan (sum) | 115-29-7 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| 4.4`-DDD | 72-54-8 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Endrin aldehyde | 7421-93-4 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| Endosulfan sulfate | 1031-07-8 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A41 0.05 - 0.15 | A42 0.05 - 0.15 | A43 0.05 - 0.15 | A44 0.05 - 0.15 | A45 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-041 | ES2316723-042 | ES2316723-043 | ES2316723-044 | ES2316723-045 |
| | | | | Result | Result | Result | Result | Result |
| **EP068A: Organochlorine Pesticides (OC) - Continued** | | | | | | | | |
| **4.4`-DDT** | 50-29-3 | 0.2 | mg/kg | ---- | ---- | <0.2 | ---- | <0.2 |
| **Endrin ketone** | 53494-70-5 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Methoxychlor** | 72-43-5 | 0.2 | mg/kg | ---- | ---- | <0.2 | ---- | <0.2 |
| ^ **Sum of Aldrin + Dieldrin** | 309-00-2/60-57-1 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| ^ **Sum of DDD + DDE + DDT** | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **EP068B: Organophosphorus Pesticides (OP)** | | | | | | | | |
| **Dichlorvos** | 62-73-7 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Demeton-S-methyl** | 919-86-8 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Monocrotophos** | 6923-22-4 | 0.2 | mg/kg | ---- | ---- | <0.2 | ---- | <0.2 |
| **Dimethoate** | 60-51-5 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Diazinon** | 333-41-5 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Chlorpyrifos-methyl** | 5598-13-0 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Parathion-methyl** | 298-00-0 | 0.2 | mg/kg | ---- | ---- | <0.2 | ---- | <0.2 |
| **Malathion** | 121-75-5 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Fenthion** | 55-38-9 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Chlorpyrifos** | 2921-88-2 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Parathion** | 56-38-2 | 0.2 | mg/kg | ---- | ---- | <0.2 | ---- | <0.2 |
| **Pirimphos-ethyl** | 23505-41-1 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Chlorfenvinphos** | 470-90-6 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Bromophos-ethyl** | 4824-78-6 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Fenamiphos** | 22224-92-6 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Prothiofos** | 34643-46-4 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Ethion** | 563-12-2 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Carbophenothion** | 786-19-6 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **Azinphos Methyl** | 86-50-0 | 0.05 | mg/kg | ---- | ---- | <0.05 | ---- | <0.05 |
| **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 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A41 0.05 - 0.15 | A42 0.05 - 0.15 | A43 0.05 - 0.15 | A44 0.05 - 0.15 | A45 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-041 | ES2316723-042 | ES2316723-043 | ES2316723-044 | ES2316723-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| **Pyrene** | 129-00-0 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Benz(a)anthracene** | 56-55-3 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Chrysene** | 218-01-9 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Benzo(b+j)fluoranthene** | 205-99-2 205-82-3 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Benzo(k)fluoranthene** | 207-08-9 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Benzo(a)pyrene** | 50-32-8 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Indeno(1.2.3.cd)pyrene** | 193-39-5 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Dibenz(a.h)anthracene** | 53-70-3 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Benzo(g.h.i)perylene** | 191-24-2 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| ^ **Sum of polycyclic aromatic hydrocarbons** | ---- | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| ^ **Benzo(a)pyrene TEQ (zero)** | ---- | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| ^ **Benzo(a)pyrene TEQ (half LOR)** | ---- | 0.5 | mg/kg | | ---- | ---- | **0.6** | ---- | **0.6** |
| ^ **Benzo(a)pyrene TEQ (LOR)** | ---- | 0.5 | mg/kg | | ---- | ---- | **1.2** | ---- | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 10 | mg/kg | | ---- | ---- | <10 | ---- | <10 |
| **C10 - C14 Fraction** | ---- | 50 | mg/kg | | ---- | ---- | <50 | ---- | <50 |
| **C15 - C28 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | <100 | ---- | **260** |
| **C29 - C36 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | **110** | ---- | **210** |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | mg/kg | | ---- | ---- | **110** | ---- | **470** |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 10 | mg/kg | | ---- | ---- | <10 | ---- | <10 |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 10 | mg/kg | | ---- | ---- | <10 | ---- | <10 |
| **>C10 - C16 Fraction** | ---- | 50 | mg/kg | | ---- | ---- | <50 | ---- | **60** |
| **>C16 - C34 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | **140** | ---- | **330** |
| **>C34 - C40 Fraction** | ---- | 100 | mg/kg | | ---- | ---- | <100 | ---- | **200** |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 50 | mg/kg | | ---- | ---- | **140** | ---- | **590** |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 50 | mg/kg | | ---- | ---- | <50 | ---- | **60** |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 0.2 | mg/kg | | ---- | ---- | <0.2 | ---- | <0.2 |
| **Toluene** | 108-88-3 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **Ethylbenzene** | 100-41-4 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A41 0.05 - 0.15 | A42 0.05 - 0.15 | A43 0.05 - 0.15 | A44 0.05 - 0.15 | A45 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-041 | ES2316723-042 | ES2316723-043 | ES2316723-044 | ES2316723-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| ^ Sum of BTEX | ---- | 0.2 | mg/kg | | ---- | ---- | <0.2 | ---- | <0.2 |
| ^ Total Xylenes | ---- | 0.5 | mg/kg | | ---- | ---- | <0.5 | ---- | <0.5 |
| Naphthalene | 91-20-3 | 1 | mg/kg | | ---- | ---- | <1 | ---- | <1 |
| **EP066S: PCB Surrogate** | | | | | | | | | |
| Decachlorobiphenyl | 2051-24-3 | 0.1 | % | | ---- | ---- | **107** | ---- | **89.1** |
| **EP068S: Organochlorine Pesticide Surrogate** | | | | | | | | | |
| Dibromo-DDE | 21655-73-2 | 0.05 | % | | ---- | ---- | **96.1** | ---- | **74.0** |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | | | | | | | |
| DEF | 78-48-8 | 0.05 | % | | ---- | ---- | **102** | ---- | **82.6** |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 0.5 | % | | ---- | ---- | **91.3** | ---- | **93.2** |
| 2-Chlorophenol-D4 | 93951-73-6 | 0.5 | % | | ---- | ---- | **81.7** | ---- | **84.8** |
| 2.4.6-Tribromophenol | 118-79-6 | 0.5 | % | | ---- | ---- | **70.8** | ---- | **67.7** |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 0.5 | % | | ---- | ---- | **93.7** | ---- | **93.8** |
| Anthracene-d10 | 1719-06-8 | 0.5 | % | | ---- | ---- | **94.9** | ---- | **93.5** |
| 4-Terphenyl-d14 | 1718-51-0 | 0.5 | % | | ---- | ---- | **89.0** | ---- | **84.8** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 0.2 | % | | ---- | ---- | **96.0** | ---- | **96.2** |
| Toluene-D8 | 2037-26-5 | 0.2 | % | | ---- | ---- | **94.7** | ---- | **98.1** |
| 4-Bromofluorobenzene | 460-00-4 | 0.2 | % | | ---- | ---- | **92.0** | ---- | **98.9** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | A46 0.05 - 0.15 | A47 0.05 - 0.15 | A48 0.05 - 0.15 | A49 0.05 - 0.15 | A50 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-046 | ES2316723-047 | ES2316723-048 | ES2316723-049 | ES2316723-050 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **15.9** | **18.2** | **15.1** | **15.8** | **24.7** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | <5 | <5 | <5 | <5 | <5 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **4** | <2 | <2 | <2 | **4** |
| Copper | 7440-50-8 | 5 | mg/kg | <5 | <5 | <5 | <5 | <5 |
| Lead | 7439-92-1 | 5 | mg/kg | <5 | <5 | <5 | <5 | <5 |
| Nickel | 7440-02-0 | 2 | mg/kg | <2 | <2 | <2 | <2 | <2 |
| Zinc | 7440-66-6 | 5 | mg/kg | <5 | **5** | **10** | <5 | **7** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EP066: Polychlorinated Biphenyls (PCB)** | | | | | | | | |
| Total Polychlorinated biphenyls | ---- | 0.1 | mg/kg | ---- | ---- | ---- | ---- | <0.1 |
| **EP068A: Organochlorine Pesticides (OC)** | | | | | | | | |
| alpha-BHC | 319-84-6 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Hexachlorobenzene (HCB) | 118-74-1 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| beta-BHC | 319-85-7 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| gamma-BHC | 58-89-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| delta-BHC | 319-86-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Heptachlor | 76-44-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Aldrin | 309-00-2 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Heptachlor epoxide | 1024-57-3 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| ^ Total Chlordane (sum) | ---- | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| trans-Chlordane | 5103-74-2 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| alpha-Endosulfan | 959-98-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| cis-Chlordane | 5103-71-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Dieldrin | 60-57-1 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| 4.4`-DDE | 72-55-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endrin | 72-20-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| beta-Endosulfan | 33213-65-9 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| ^ Endosulfan (sum) | 115-29-7 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| 4.4`-DDD | 72-54-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endrin aldehyde | 7421-93-4 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |
| Endosulfan sulfate | 1031-07-8 | 0.05 | mg/kg | ---- | ---- | ---- | ---- | <0.05 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A46 0.05 - 0.15 | A47 0.05 - 0.15 | A48 0.05 - 0.15 | A49 0.05 - 0.15 | A50 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-046 | ES2316723-047 | ES2316723-048 | ES2316723-049 | ES2316723-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EP068A: Organochlorine Pesticides (OC) - Continued** | | | | | | | | | |
| **4.4`-DDT** | 50-29-3 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Endrin ketone** | 53494-70-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Methoxychlor** | 72-43-5 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| ^ **Sum of Aldrin + Dieldrin** | 309-00-2/60-57-1 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| ^ **Sum of DDD + DDE + DDT** | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **EP068B: Organophosphorus Pesticides (OP)** | | | | | | | | | |
| **Dichlorvos** | 62-73-7 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Demeton-S-methyl** | 919-86-8 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Monocrotophos** | 6923-22-4 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Dimethoate** | 60-51-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Diazinon** | 333-41-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos-methyl** | 5598-13-0 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Parathion-methyl** | 298-00-0 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Malathion** | 121-75-5 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Fenthion** | 55-38-9 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorpyrifos** | 2921-88-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Parathion** | 56-38-2 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| **Pirimphos-ethyl** | 23505-41-1 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Chlorfenvinphos** | 470-90-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Bromophos-ethyl** | 4824-78-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Fenamiphos** | 22224-92-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Prothiofos** | 34643-46-4 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Ethion** | 563-12-2 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Carbophenothion** | 786-19-6 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **Azinphos Methyl** | 86-50-0 | 0.05 | mg/kg | | ---- | ---- | ---- | ---- | <0.05 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| **Naphthalene** | 91-20-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Acenaphthylene** | 208-96-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Acenaphthene** | 83-32-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Fluorene** | 86-73-7 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Phenanthrene** | 85-01-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Anthracene** | 120-12-7 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Fluoranthene** | 206-44-0 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A46 0.05 - 0.15 | A47 0.05 - 0.15 | A48 0.05 - 0.15 | A49 0.05 - 0.15 | A50 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-046 | ES2316723-047 | ES2316723-048 | ES2316723-049 | ES2316723-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | **0.6** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | <50 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **110** |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **140** |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **250** |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | ---- | ---- | ---- | ---- | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **180** |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | ---- | ---- | ---- | ---- | **130** |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | **310** |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | <50 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A46 0.05 - 0.15 | A47 0.05 - 0.15 | A48 0.05 - 0.15 | A49 0.05 - 0.15 | A50 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | | ES2316723-046 | ES2316723-047 | ES2316723-048 | ES2316723-049 | ES2316723-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| **ortho-Xylene** | 95-47-6 | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | ---- | ---- | ---- | ---- | <0.2 |
| ^ **Total Xylenes** | ---- | 0.5 | mg/kg | | ---- | ---- | ---- | ---- | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | ---- | ---- | ---- | ---- | <1 |
| **EP066S: PCB Surrogate** | | | | | | | | | |
| **Decachlorobiphenyl** | 2051-24-3 | 0.1 | % | | ---- | ---- | ---- | ---- | **110** |
| **EP068S: Organochlorine Pesticide Surrogate** | | | | | | | | | |
| **Dibromo-DDE** | 21655-73-2 | 0.05 | % | | ---- | ---- | ---- | ---- | **87.5** |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | | | | | | | |
| **DEF** | 78-48-8 | 0.05 | % | | ---- | ---- | ---- | ---- | **84.6** |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 0.5 | % | | ---- | ---- | ---- | ---- | **94.6** |
| **2-Chlorophenol-D4** | 93951-73-6 | 0.5 | % | | ---- | ---- | ---- | ---- | **83.4** |
| **2.4.6-Tribromophenol** | 118-79-6 | 0.5 | % | | ---- | ---- | ---- | ---- | **78.7** |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | ---- | ---- | ---- | ---- | **95.0** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | ---- | ---- | ---- | ---- | **98.3** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | ---- | ---- | ---- | ---- | **88.3** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | ---- | ---- | ---- | ---- | **77.9** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | ---- | ---- | ---- | ---- | **77.2** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | ---- | ---- | ---- | ---- | **77.1** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | AD1 0.05 - 0.15 | AD2 0.05 - 0.15 | AD3 0.05 - 0.15 | AD4 0.05 - 0.15 | AD5 0.05 - 0.15 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 | 15-May-2023 00:00 |
| Compound | CAS Number | LOR | Unit | ES2316723-051 | ES2316723-052 | ES2316723-053 | ES2316723-054 | ES2316723-055 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 1.0 | % | **28.3** | **40.7** | **35.6** | **47.6** | **50.0** |
| **EG005(ED093)T: Total Metals by ICP-AES** | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | mg/kg | <5 | <5 | <5 | <5 | <5 |
| Cadmium | 7440-43-9 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Chromium | 7440-47-3 | 2 | mg/kg | **8** | **7** | **6** | **7** | **8** |
| Copper | 7440-50-8 | 5 | mg/kg | **6** | **10** | **10** | **16** | **15** |
| Lead | 7439-92-1 | 5 | mg/kg | **9** | **8** | **8** | **8** | **10** |
| Nickel | 7440-02-0 | 2 | mg/kg | **2** | <2 | **4** | **3** | **3** |
| Zinc | 7440-66-6 | 5 | mg/kg | **11** | **18** | **23** | **34** | **46** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

## Surrogate Control Limits

| Sub-Matrix: SOIL | | Recovery Limits (%) | |
|---|---|---|---|
| Compound | CAS Number | Low | High |
| **EP066S: PCB Surrogate** | | | |
| Decachlorobiphenyl | 2051-24-3 | 39 | 149 |
| **EP068S: Organochlorine Pesticide Surrogate** | | | |
| Dibromo-DDE | 21655-73-2 | 49 | 147 |
| **EP068T: Organophosphorus Pesticide Surrogate** | | | |
| DEF | 78-48-8 | 35 | 143 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | |
| Phenol-d6 | 13127-88-3 | 63 | 123 |
| 2-Chlorophenol-D4 | 93951-73-6 | 66 | 122 |
| 2.4.6-Tribromophenol | 118-79-6 | 40 | 138 |
| **EP075(SIM)T: PAH Surrogates** | | | |
| 2-Fluorobiphenyl | 321-60-8 | 70 | 122 |
| Anthracene-d10 | 1719-06-8 | 66 | 128 |
| 4-Terphenyl-d14 | 1718-51-0 | 65 | 129 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 63 | 125 |
| Toluene-D8 | 2037-26-5 | 67 | 124 |
| 4-Bromofluorobenzene | 460-00-4 | 66 | 131 |

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **ES2320306** | Page | : 1 of 2 |
| **Amendment** | : **1** | | |
| Client | : **REGIONAL GEOTECHNICAL SOLUTION** | Laboratory | : Environmental Division Sydney |
| Contact | : MR SIMON KEEN | Contact | : Customer Services ES |
| Address | : Unit 14 25-27 Hurley Drive<br>COFFS HARBOUR NSW, AUSTRALIA 2450 | Address | : 277-289 Woodpark Road Smithfield NSW Australia 2164 |
| Telephone | : +61 02 6553 5641 | Telephone | : +61-2-8784 8555 |
| Project | : RGS31546.1 Proposed Residential Development | Date Samples Received | : 19-Jun-2023 16:40 |
| Order number | : ---- | Date Analysis Commenced | : 20-Jun-2023 |
| C-O-C number | : ---- | Issue Date | : 21-Jun-2023 17:04 |
| Sampler | : ---- | | |
| Site | : 52-53 Miles Street, Yamba | | |
| Quote number | : EN/222 | | |
| No. of samples received | : 1 | | |
| No. of samples analysed | : 1 | | |

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

## *Signatories*

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

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Edwandy Fadjar | Organic Coordinator | Sydney Organics, Smithfield, NSW |

## General Comments

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

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

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

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

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

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

- Amendment (DD/MM/YYYY): This report has been amended as a result of misinterpretation of sample identification numbers (IDs) for sample 1 ES2320306. All analysis results are as per the previous report.

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Sample ID | A25 0.05-0.15 | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-May-2023 00:00 | ---- | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | ES2320306-001 | -------- | -------- | -------- | -------- |
| | | | | | Result | ---- | ---- | ---- | ---- |
| **EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup** | | | | | | | | | |
| **C10 - C14 Fraction** | ---- | 50 | mg/kg | | <50 | **----** | **----** | **----** | **----** |
| **C15 - C28 Fraction** | ---- | 100 | mg/kg | | **110** | **----** | **----** | **----** | **----** |
| **C29 - C36 Fraction** | ---- | 100 | mg/kg | | <100 | **----** | **----** | **----** | **----** |
| **C10 - C36 Fraction (sum)** | ---- | 50 | mg/kg | | **110** | **----** | **----** | **----** | **----** |
| **EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup** | | | | | | | | | |
| **>C10 - C16 Fraction** | ---- | 50 | mg/kg | | **80** | **----** | **----** | **----** | **----** |
| **>C16 - C34 Fraction** | ---- | 100 | mg/kg | | <100 | **----** | **----** | **----** | **----** |
| **>C34 - C40 Fraction** | ---- | 100 | mg/kg | | <100 | **----** | **----** | **----** | **----** |
| **>C10 - C40 Fraction (sum)** | ---- | 50 | mg/kg | | **80** | **----** | **----** | **----** | **----** |

# Appendix C

## Report Review by Certified Environmental Practitioner Site Contamination Specialist

# Contaminated Land Solutions

22 August 2023

Ref: 0067.L04

Regional Geotechnical Solutions Pty Ltd
Unit 4
25-27 Hurley Drive
Coffs Harbour
NSW 2450

For the attention of Simon Keen

Dear Simon,

**RE: Report Review Stage 1 & 2 Site Contamination Assessment Report – Yamba Gardens Residential Estate, 52-54 Miles Street (Lot 47 DP 751395), Yamba**

I, Dr David Tully of Contaminated Land Solutions Pty Ltd, am a Certified Environmental Practitioner Site Contamination Specialist (General Certified Environmental Practitioner certification no. 1138 and Site Contamination Specialist certification no. SC40084).

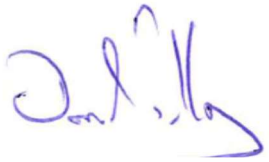
I confirm I have reviewed the Regional Geotechnical Solutions report entitled "*Stage 1 & 2 Site Contamination Assessment Report – Yamba Gardens Residential Estate, 52-54 Miles Street (Lot 47 DP 751395), Yamba*" (Ref: RGS31546.1-AR(Rev1)), dated 22 August 2023 and a copy of which I have retained.

I can confirm that on the basis of the information contained within the report, I support the conclusions and recommendations provided therein.

Should the client, regulator or local authority have any queries regarding the report review, I can be contacted by e-mail via david.tully@contaminatedlandsolutions.com.au. Specific queries regarding the content of the report should be addressed to Simon Keen at Regional Geotechnical Solutions.

For and on behalf of

**Contaminated Land Solutions Pty Ltd**



Dr David Tully CEnvP SC
Director
Contaminated Land Solutions Pty Ltd

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