Due Diligence Environmental Assessment

Former Buckingham Arms
1 to 9 Walkerville Terrace
Gilberton, South Australia

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EXECUTIVE SUMMARY

Citify Group Pty Ltd (Citify) engaged Agon Environmental Pty Ltd (Agon) to undertake a Due Diligence Environmental Assessment (DDEA) at the property identified as 1-9 Walkerville Terrace, Gilberton SA ('the site') or the Buckingham Arms.

The objective of Agon's assessment is to identify potential environmental liabilities which could have an implication to the future redevelopment of the site including but not limited to the presence of chemical concentrations (in soil, groundwater and soil vapour) which may pose risk to human health or may indicate the requirement to remediate.

The overall investigation consisted of the collection and analysis of site soils from 37 soil bores, groundwater from 3 well locations and soil vapour from 4 well locations on-site to establish whether former site activities may have adversely impacted the site. The results of the assessment identified the following underlying site environmental condition as follows:

- Soils underneath the site are composed of granular fill to a depth 0.6 mbgs which is underlain by a range of clays where groundwater has been identified to occur. Excluding some non-soil inclusions in fill, underlying soils generally did not present olfactory nor other visual evidence of contamination.
- Laboratory analysis of soils for a range of site-specific potential contaminants of concern (PCOCs) did not report chemical concentrations which would constitute site contamination. Detected concentrations were limited to a range of heavy metals, total recoverable hydrocarbons (TRH). polycyclic aromatic hydrocarbon (PAHs) and organochlorine pesticide compounds (OCPs) at levels which does not indicate the presence of a human health or ecological risk in the context of a future residential use.
- Localised fill at former borehole A-BH01 which was previously identified with elevated benzo(a)pyrene concentrations at a depth of 0.3-0.4 m has since been excavated with resultant soils, temporarily stockpiled on-site awaiting future off-site disposal (pending formalisation of off-site disposal classification).
- In similar nature to soils, groundwater samples collected from the three wells onsite were generally not reported with groundwater contaminant concentrations in excess of the adopted criteria. Elevated boron and manganese concentrations identified within on-site wells and has been demonstrated to be attributable to background sources rather than on-site activities and is not considered a form of contamination.
- Soil vapour samples were reported to contain minor concentrations of VOCs in the sites subsurface. Whilst the exact nature of these soil vapour concentrations could not be ascertained (noting VOCs are not present in soil and groundwater media (the later confirmed following a second round of sampling)), the reported VOC concentrations are below the adopted criteria and do not indicate an unacceptable risk to human health.

Furthermore, the potential of unacceptable risk from vapour from the identified potential off-site sites namely the former dry clears to the east and former service station to the south-west is considered to be low, noting:

- Contamination consistent with service stations or drycleaners was not identified in onsite groundwater;

- Both the former dry cleaner and service station sites are located down inferred hydraulic gradient from the site; and
- This is supported by soil vapour assessment results which did not indicate the presence of analytes with a signature consistent with contaminants associated with service stations or dry cleaners.

Overall, the data collected to date does not suggest that there exists an environmental condition within onsite underlying soil, groundwater and soil vapour media that would preclude the development of the site for mixed use including residential purposes.

Agon have recommended that a Construction Environmental Management Plan (CEMP) be developed for the site in order to ensure that contamination of the site does not occur during construction works, and that waste soils are managed appropriately.

Excluding the requirement to develop and execute a CEMP, Agon considers further assessment of underlying environmental media to be unwarranted noting:

- Site contamination that remains in-situ has not been identified above the adopted screening criteria for the proposed mixed use (including residential) development within site bounds.
- A localised area of fill at soil bore A-BH01 that contained PAH contamination above the adopted screening criteria has been excavated and temporarily stockpiled and is to be removed from site; and
- Upon removal of the stockpile of PAH contaminated material, the current environmental conditions do not necessitate future remedial intervention to allow the proposed development to proceed.

All conclusions and findings presented in this report must be read in accordance with Limitations provided in Section 11 and considered with respect to the report in its entirety.

1.0 INTRODUCTION

1.1 Background

Citify Group Pty Ltd (Citify) engaged Agon Environmental Pty Ltd (Agon) to undertake a Due Diligence Environmental Assessment (DDEA) at the property identified as 1-9 Walkerville Terrace, Gilberton SA ('the site') or the Buckingham Arms.

The proposed development aims to restore and retain the SA Local Heritage hotel (two-storey SA Local Heritage listed building (circa 1840's) which forms the southernmost portion of the hotel and restaurant structure at the site) and will redevelop the remainder of the site for a mix of commercial and residential land uses.

The Practice Direction 14 (PD14) was issued by the State Planning Commission under Sections 42 and 127 of the *Planning, Development and Infrastructure Act 2016* and provides requirements that apply in relation to the assessment of potential site contamination when land use changes to a more sensitive use or where a land division proposes a sensitive use. Agon notes that under the PD14, the proposed change of land use from the existing hotel and restaurant use (Tourist Accommodation (Item 4 in the PD14)) and carpark use (no current land use) into a range of mixed used developments which include Residential Class 1 use is considered a change into the most sensitive land use.

This assessment has therefore been developed to meet the technical burden required to demonstrate that environmental site conditions will not preclude the proposed residential portion of the development.

1.2 Objectives

The objective of Agon's assessment is to identify potential environmental liabilities which could have an implication to the future residential (medium density) development of the site. In particular with regards to the change in land use sensitivity.

Agon understands that a Development Application (DA) has been previously issued to The Corporation of the Town of Walkerville ('the Council') for the proposed development (Application ID: 23015883). Agon understands that the endorsement of the DA is pending the results of this assessment.

1.3 Scope of Works

To achieve the programme objective, Agon has undertaken the following scope of works:

- Provision a summary of previous assessments undertaken at the site inclusive of investigations previously undertaken by Agon (see Section 1.5 for source material). This includes the provision of previous soil analytical results;
- Drilling and installation of three groundwater monitoring wells and four soil vapour wells;
- Provide additional intrusive data including additional soil, groundwater and soil vapour analytical data;
- Undertake a Tier 1 Risk Assessment (soil, groundwater and soil vapour media) to identify the presence of site contamination in the context of future residential land use; and

- Development of this report inclusive of an update of the previous Conceptual Site Model (CSM), conclusions and recommendations where warranted.

1.4 Legislative Framework

In addition to the PD14, this assessment has been undertaken in general accordance with the guidance provided within the following documents:

- Schedule B2 of the National Environment Protection Council (1999) National Environment Protection (Assessment of Site Contamination) Measure, as amended in 2013 ("the ASC NEPM"); and
- SA EPA (2018, updated 2019) Guidelines for the assessment and remediation of site contamination ("the GAR").

1.5 Information Sources

The following previous Agon reports have been utilised in the preparation of this report:

- Agon (2022a) Preliminary Site Investigation, Buckingham Arms Hotel, 1-9 Walkerville Terrace, Gilberton, dated 22 June 2022 (Our ref: JC1083_PSI.01); and
- Agon (2022b) Environmental Soil Assessment, 1 to 9 Walkerville Terrace, Gilberton, dated 14 December 2022 (Our ref: JC1225.ESA.01). Please note that this report was previously submitted to Citify as a draft version pending approval of additional groundwater assessment which has since been approved, complete and detailed herein. In lieu of finalising this report, the results of this assessment has been incorporated as part of this submission.

Citify have also provided the following reports undertaken by a separate consultant (AME Consulting (AME)) concurrent with the works previously undertaken:

- AME Consulting (2023a) Provision of Environmental Services, Buckingham Arms Hotel, Walkerville, SA, dated 24 August 2023. This report details a limited soil assessment programme; and
- AME Consulting (2023b) Provision of Environmental Services, Buckingham Arms Hotel, Walkerville, SA, dated 24 August 2023. This report details a limited soil vapour assessment programme.

As a single body of works, this report and associated source material are deemed sufficient to meet the minimum technical requirements of a Detailed Site Investigation (DSI). Agon therefore recommends that the referenced information be read in conjunction with this DDEA and in particular, Agon's PSI (Agon, 2022a).

2.0 SITE IDENTIFICATION INFORMATION

2.1 Site Identification and Current Ownership

The comprises thirteen allotments over an approximate area of 0.6 Ha. A summary of the site's allotment plan and zoning are provided in Table 1 and are further detailed within Agon's previous PSI report (Agon, 2022a). The site's locality and approximate site boundary are provided as Figure A1 in Appendix A.

Table 1: Site Identification Details

Lot Plan Details		CT Title Details	Local Government Area	Current Zoning
AL 1	Deposited Plan 1458 Allotment 1	5611/691	The Corporation of the Town of Walkerville	Local Activity Centre
AL 2	Deposited Plan 1458 Allotment 2			
AL 3	Deposited Plan 1458 Allotment 3	5878/617		
AL 9	Deposited Plan 1458 Allotment 9			
AL 4	Deposited Plan 1458 Allotment 4	5879/724		
AL 5	Deposited Plan 1458 Allotment 5	5219/297		
AL 6	Deposited Plan 1458 Allotment 6	5164/460		
AL 62	Filed Plan 137113 Allotment 62	5782/735		
P 59	Filed Plan 137109 Pieces 59	5952/326		
P 58	Filed Plan 137109 Pieces 58			
AL 60	Filed Plan 137111 Allotment 60	5878/606		
AL 59	Filed Plan 137110 Allotment 59	5878/620		
AL 57	Filed Plan 137108 Allotment 57	5878/618		
AL 56	Filed Plan 137107 Allotment 56	5782/220		

2.2 Site Description and Current Land Use

The site is the premise of the Buckingham Arms Hotel, is situated within the suburb of Gilberton and is located approximately 2.1 km north of the Adelaide Central Business District (CBD).

The main Buckingham Arms Hotel facilities are located on the corner of Walkerville Terrace and Northcote Terrace with Pokies and an alcohol takeaway Sip'n'Save store at the rear of the building. The original extent of the Buckingham Arms Hotel located in the south-west corner of the site (see Figure A1, Appendix A) and is a listed SA Local Heritage Place. The remainder of the site is an asphalt sealed carpark servicing the hotel. There is also a bulk warehouse and maintenance shed/warehouse towards the north-west portion of the site.

The site was in operation during Agon's first site visit during 20 June 2022. Hotel, restaurant and retail operations have since ceased and at present the site has been vacated, the site secured with temporary fencing and all infrastructure remaining in place.

Selected photographs showing the current site condition collected during subsequent phases of site assessment have been provided as Appendix B.

2.3 Surrounding Land Uses

The site is situated on the corner of an intersection and is bound by Walkerville Terrace to the east and south-east and Northcote Terrace to the west and south-west. The northern boundary abuts residential properties and a former chiropractic business. Further details regarding immediate land uses surrounding the site are detailed in Table 2 as follows:

Table 2: Surrounding Land Use

Direction	Land Use Description
North	Former chiropractor business (Rose Family Chiropractic) and numerous residential allotments extending across the suburb of Gilberton, Walkerville and Collinswood.
East	Across Walkerville Terrace are a range of residential and commercial properties further of which are more residential properties.
South	Roadway intersection of Walkerville Terrace, Northcote Terrace and Princess Highway with vacant undeveloped parklands to the south extending to North Adelaide (south of Mann Terrace).
West	Across Northcote Terrace are a range of residential and commercial properties further of which are more residential properties.

Agon notes the following surrounding properties to be environmental concern for the site (Agon, 2022):

- The property addressed as 2 Walkerville Terrace (approximately 30 m to the south-east of the site) was the premise of a former dry-cleaning business which operated between 1959 and 1965 (Agon, 2022); and
- The property addressed as 5 Northcote Terrace situated approximately 25 m southwest of the site were the premises of the Medindie Motor Works during the 1920's and 1930's, the Northcote Service Station in 1940's, Butlers Motor House in the 1950's and finally as the Co-op Motors Service Station to being redeveloped in the 1960's (Agon, 2022). This property forms part of a small commercial precinct to the south-west and is currently a photography studio.

The aforementioned properties form the primary basis of undertaking groundwater assessment works within site bounds.

3.0 ENVIRONMENTAL ASSESSMENT HISTORY

In support of the environmental objective for the site, Citify have commissioned a number of environmental investigations within site bounds which have been summarised as follows:

3.1 Agon 2022 Preliminary Site Investigation

Agon previously completed a PSI for the site (Agon, 2022a) prepared as part of the previous due diligence process to support of the previous purchase of the site by Citify. This assessment included desktop site history research and a comprehensive site inspection.

In brief, the review of the historical information for the site identified the southern portion of the site has historically been associated with the Buckingham Arms Hotel facilities dating back to the 1840's. The remaining northern portion of the site was historically owned by a series of private individuals and comprised numerous residential dwellings dating back prior to the mid 1930's. From the 1950's the site was acquired by private business entities and was progressively redeveloped from the 1950's to the late 2000's into a bituminised carpark servicing the hotel facility which has expanded since.

Agon's PSI identified a range of potentially contaminating activities (PCAs) and associated potential sources of contamination resulting from historical and current land uses of the site which could potentially be considered an environmental encumbrance to the proposed site development. The on-site PCAs previously identified include:

- Potential uncontrolled fill soils underlying the site (including the underlying pavement and foundations of the hotel building and across the rest of the site where former residential properties were located); and
- Hazardous building materials within the fabric of the existing onsite buildings inclusive of asbestos containing materials (ACMs) and lead-bearing paint.

As detailed in Section 2.3, Agon also identified two off-site sources of potential groundwater contamination as part of the review of historical uses of adjacent (<60 m) properties. These properties identified as 2 Walkerville Terrace (approximately 30 m to the south-east of the site) and 5 Northcote Terrace (approximately 25 m southwest of the site) are both considered potential sources of migratory hydrocarbon impacts as a result of historical uses associated with dry cleaning and service station operation respectively.

Due to limited off-site environmental information, Agon's PSI could not determine if these potential offsite sources of contamination have affected or continue to affect the underlying environmental condition of the site. Furthermore, under the PD14, these off-site properties are prescribed as Class 1 Activities (dry cleaning and service stations) and would likely warrant further investigation.

Agon recommends that the PSI be read in conjunction with this submission to provide a greater understanding of the site's overall environmental condition noting that the site's preliminary conceptual site model (CSM) was also established within this submission.

3.2 Agon 2022 Environmental Site Assessment

In order to alleviate concerns regarding underlying soil conditions, Citify commissioned Agon to undertake an Environmental Site Assessment (ESA). The ESA served to address whether site soils were suitable for the proposed residential development and to inform future off-site soil disposal classification should surplus soils be generated as part of the future site development.

Agon notes that the findings of the ESA have been previously reported and submitted as a draft to Citify on 14 December 2022. This report has remained as a draft pending Citify to approve additional scope of works which were to supplement the ESA's findings. Agon have incorporated the details in this assessment into this report in lieu of its finalisation.

3.2.1 Scope of ESA Works

Agon undertook the following soil assessment programme as part of the previous ESA:

- Agon personnel collected soil samples from a total of 16 boreholes advanced across the site using a four-wheel drive mounted drilling rig. Please note that soil sampling could only be undertaken within open areas (the carpark) as drilling within building footprints were impractical. The 16 boreholes were sampled during the following drilling events:
    - 28 November 2022; Agon attended the Wallbridge Gilbert Aztec (WGA) soil core library and collected soil samples from 9 geotechnical soil cores (designated BH01 – BH09) previously drilled across the site by WGA as part of a Citify commissioned geotechnical assessment. The WGA boreholes were drilled to a maximum depth of 19.95 mBGL with the top 2 m sampled by Agon. A total of 40 primary samples and 4 duplicate were collected during these works; and
    - 6 December 2022; Agon attended the site and supervised the drilling of a further 7 boreholes (designated A-BH01 – A-BH07) using a Landcruiser mounted drill rig to supplement the data from the WGA core samples and address data gaps in the previous sampling plan. Boreholes were drilled to a maximum depth of 2.0 mBGL and a total of 37 primary and 4 duplicate samples were collected during these works.
- Field screening of soils in boreholes A-BH01 – A-BH07 for the presence of volatile organic compounds (VOCs) using a pre-calibrated photoionization detector (PID) measuring in part per billion per volume (ppbv);
- Laboratory analysis of soil samples by commercial analytical laboratories using methods registered by the National Association of Testing Authorities (NATA) for identified contaminants of concern;
    - Heavy metals inclusive of lead;
    - Organochlorine pesticide (OCP) and organophosphorus pesticides (OPPs)
    - Petroleum-based chemical compounds inclusive of total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX) compounds, polycyclic aromatic hydrocarbons (PAHs) and phenols;
    - Volatile halogenated compounds (VHCs); and
    - SA EPA Waste Screen, including metals, organic and inorganic analytes.

- All soil primary and intra-laboratory replicate (duplicate) sample analysis was undertaken by Eurofins MGT (Eurofins). Eurofins are accredited by the National Association of Testing Authorities (NATA) for all requested analyses; and
- Comparison of soil analytical results with applicable guidelines (see Section 6.1) to assist in managing potential environmental concerns in relation to the suitability of soils for on-site retention and the formal waste classification of site soils should surplus volumes be identified and require offsite disposal.

Soil sampling locations as part of the ESA are provided in Figure A2, Appendix A. Field methodologies adopted during the soil investigations are detailed in Section 4. Copies of WGA's and Agon's bore logs are provided under Appendix C and D respectively.

3.2.2 ESA Soil Field Observations

The investigation area was sealed with bitumen and fill soils were encountered in all boreholes. Fill extended to depths between 0.4 and 0.9 m below ground surface (mbgs) with an average depth of 0.6 mbgs. Fill soils beneath the bitumen seal typically comprised a layer of pale-yellow brown sandy gravels (road base materials). Underlying fill soils encountered comprised of grey and brown gravelly sands and silty sands overlying dark brown gravelly clays. No inclusions of asbestos containing materials (ACMs) were identified within fill soils.

Trace to minor non-soil inclusions in the form of brick fragments (A-BH02, BH08), brick and concrete fragments (A-BH07, BH01) and ash and cinders (A-BH06) were observed in the fill soils. Excluding the presence of non-soil inclusions, further evidence to indicate either visual or olfactory signs of contamination (stained, odorous or discoloured materials) was not identified within fill soils. Field VOCs measurements (using a PID) ranged between 163 to 324 parts per billion per volume (ppbv). This excludes one field screening result of 850 ppbv (A-BH01 at 0.05-0.15 mbgs). Natural soils underlying the fill soil was observed to comprise red-brown clays, brown with pale brown mottling clays and or brown sandy clays. Visual nor olfactory evidence of contamination was not observed within underlying natural soils.

Further details regarding underlying geology and observations are included in borehole logs presented in Appendix C and D.

3.2.3 ESA Soil Analytical Results

In order to provide a more complete appraisal of the site's soil condition, details of the soil analytical results derived from the ESA programme have been incorporated within Section 7 along with additional in-situ soil and groundwater data collected a part of the additional scope in this DDEA programme.

In order to provide context to AME's soil validation programme in Section 3.3, Agon identified a single result of note within fill sample A-BH01_0.3-0.4 as part of the ESA programme. This sample was reported with concentrations of carcinogenic PAHs (b(a)p TEQ) of 8.9 mg/kg exceeding ASC NEPM HIL B criteria (4 mg/kg) and concentrations of benzo(a)pyrene (b(a)p) of 6.0 mg/kg exceeding the adopted ASC NEPM ESL criterion (4 mg/kg).

This single result was sufficient to require Citify to engage AME to undertake a subsequent soil validation assessment.

3.3 AME 2023 Assessments

In conjunction with the investigations undertaken by Agon, Citify engaged AME Consulting to:

- Undertake a soil excavation and validation activities around Agon soil sample A-BH01 where elevated concentrations of b(a)p were identified (AME, 2023a); and
- Undertake a limited soil vapour assessment by drilling two soil vapour wells and collecting soil vapours samples using a passive sampling device (Waterloo Sampler) (AME, 2023b).

3.3.1 Soil Validation Works

Following Agon's completion of the ESA scope and provision of soil analytical results, Citify requested AME Consulting (AME) to supervise the excavation of soils at an adjacent former Agon soil sample A-BH01 0.3-0.4 in order to segregated and stockpile fill soils previously identified with elevated concentrations of both b(a)p in excess of HIL B and ESL criteria. The resultant excavation, centred around former soil bore A-BH01, was reported a 4 x 4 m in dimension and approximately 0.4 to 0.5 m deep. To validate whether the excavation programme has sufficiently removed elevated b(a)p concentrations, AME collected:

- Five on-situ soil validation samples (VS03 to VS08) from within the base and wall of the excavation; and
- Eight ex-situ soils samples from the resultant base course stockpile (VS11 to VS12) and underlying fill soil stockpile material (samples VS01 and VS02 (and corresponding duplicate samples Dup-1 and Dup-2), VS09 and VS10.

Of the samples collected, in-situ samples VS03 to VS08 and ex-situ samples VS01 and VS-02 (including corresponding duplicate samples) were submitted for PAH analysis. Results of the laboratory testing did not identify concentrations of PAHs inclusive of b(a)p within in-situ samples. Detectable concentrations of b(a)p and total PAHs were identified within the following samples:

- A b(a)p concentration of 0.7 mg/kg and total PAH concentrations 4.5 mg/kg within sample Dup-2 (duplicate of ex-situ sample VS-02). A conservative value of b(a)p TEQ was reported at a concentration of 1.4 mg/kg; and
- A b(a)p concentration of 1.6 mg/kg and total PAH concentrations 12 mg/kg within sample Dup-2 (duplicate of ex-situ sample VS-02). A conservative value of b(a)p TEQ was reported at a concentration of 2.2 mg/kg.

The validation samples appear to have removed target fill soils previously reported by Agon as unsuitable for the intended future use. Soley on the basis of PAHs, the resultant soil stockpile of fill meets the chemical criteria of Intermediate Waste for off-site disposal purposes. Citify have engaged Agon to formally classify these soils in-line with SA EPA soil waste criteria to facilitate future off-site disposal to an authorised soil waste receiving facility. The results of the stockpile waste classification will be presented under separate cover.

This result will need to be formalised by further testing. These soil stockpiles remain on-site pending future assessment.

Agon notes that as part of the aforementioned validation programme, shallow fill soils within A-BH01 have been removed and temporarily stockpiled along with soils with previously elevated b(a)p concentrations.

3.3.2 Limited Soil Vapour Assessment

Concurrent to the soil validation assessment, AME conducted a limited soil validation assessment by drilling two temporary soil vapour bores WSA and WSB (which are adjacent current monitoring wells MW01 and MW03 respectively) to a depth of 1 mbgs. Following drilling, a passive Waterloo Sampler was deployed within each bore and allowed to equilibrate over 8 days. Following retrieval, each Waterloo Sampler was submitted to Eurofins for volatile organic compounds analysis. Results of the analysis showed:

- VOC concentrations were reported to be below the laboratory LOR; and
- Agon did identify that the reported LORs are elevated in particular for volatile TRH fractions.

Whilst AME's investigation does not indicate the presence of gross soil vapour impacts within respective sampling locations, Agon does recognise the limited nature of this soil vapour investigation and the requirement to provide further detail to support the objectives of this DDEA. In this regard, Agon have conducted a more detailed soil vapour assessment programme in-line with ASC NEPM and SA EPA GAR requirements to supplement both the soil and groundwater components of this DDEA.

4.0 FIELD ASSESSMENT

In order to support the investigation undertaken to date, Citify commissioned Agon to undertake further intrusive works within site bounds and investigate the environmental condition of groundwater beneath the site (noting the identified presence of off-site PCA's which may impact the site).

4.1 Underground Services Location

Prior to the commencement of additional intrusive works, Before You Dig (BYD) plans were reviewed and professional underground service location was completed at and immediately adjacent additional intrusive assessment locations A-BH08 to A-BH10 and SV01 to SV04.

As understood numerous alignments of services were identified across the site and along the site boundary (in-line with previous underground utility surveys) inclusive of underground lines for electricity, water, gas and telecommunications. Underground service location (using ground penetrating radar (GPR)) was also undertaken across accessible areas of the site which did not identify areas of excessive fill which may suggest the presence of a waste burial site or voids which may indicate the presence of unidentified vessels such as an underground storage tank (UST).

4.2 Soil Assessment Methodology

Additional soil sampling works were undertaken at the site during the following days:

- 26 and 27 June 2023 to collect additional soil samples during the drilling and conversion of soil bores A-BH08 to A-BH10) into groundwater wells MW01 to MW03 respectively; and
- 17 October 2023 to collect additional soil samples during the establishment of soil vapour wells SV01 to SV04.

The rationale for Agon's nominated sampling locations were associated with previously identified off-site PCA's and were as follows:

Table 3: Additional Sampling Location Rationale

Soil Bore ID	Target PCA/AEC	Fate
A-BH08	Is the closest practical on-site location towards off-site property 5 Northcote Terrace where former service station activities were undertaken.	Each additional borehole was converted into groundwater wells.
A-BH09	Selected as a background location	
A-BH10	Is the closest practical on-site location towards off-site property 2 Walkerville Terrace where former dry-cleaning activities were undertaken.	

Soil vapour wells (SV01 to SV03) were nested alongside monitoring wells MW01 and MW03 (respectively) using the same rationale provided in Table 3. Soil vapour well SV04 which was located within the central portion of the site to provide general coverage across the site for potential soil vapours.

The following soil assessment methodologies were applied during the additional intrusive soil sampling programme (and were also utilised as part of the ESA programme):

- Soil bores were advanced using a truck-mounted drilling rig using a combination of routinely decontaminated push tube and hollow flight stems to respective target depths;
- Soil samples were typically collected at each investigation location from the surface (0-0.1m), sub surface (0.5m) and at one metre intervals; and where changes in lithology were observed and visual/olfactory observations indicated the presence of contamination;
- Drill cuttings from the soil bores were used to backfill each soil bore of origin and excess drilling spoil was retained on-site within a soil stockpiling area within the garden beds;
- The position of each soil investigation location was recorded using a handheld Global Positioning System unit (GPS) and recorded on each soil bore/well log (see Appendix D);
- Soil was logged in accordance with the Unified Soil Classification System (USCS) and field screened for the presence of volatile organic compounds (VOCs) using a pre-calibrated photoionization detector (PID);
- All equipment used to collect soil samples (i.e., hand trowel, hand auger) were decontaminated between sample locations;
- Soil samples were collected in new laboratory supplied containers and placed in a cooler with ice for transport under chain of custody procedures to the analytical laboratories; and
- Quality assurance/quality control samples were collected in the form of soil replicate samples, trip blanks and equipment rinsate blanks.

This soil sampling methodology was also utilised during Agon's ESA programme undertaken on 6 December 2022 (Agon, 2022a).

4.3 Groundwater Well Installation Methodology

The following groundwater well installation programme was undertaken during 26 and 27 June 2023:

- Each well was installed at an approximate drilled depth of 15 mbgs, constructed (by a Class 1 licensed driller) with slotted 50 mm PVC screen installed at 2 m below the inferred depth of water cut and 1 m above. The well annulus was backfilled with graded sand to 0.1 m above the screen followed by 0.5 m of bentonite. The balance of the annulus was grouted to surface with wells finished with flush mounted gatic covers;
- Following installation, the wells were developed on 27 June 2023 by purging the available standing water column using a decontaminated stainless-steel bailer until each well went dry (in this case);
- Each well was left to equilibrate for the minimum period of 7 days prior to formal sampling; and
- A qualified surveyor surveyed the location of each new groundwater monitoring well (MGA coordinates), and the elevation of each well (to Australian Height Datum). Results of the groundwater well survey is presented in Appendix E and included in well logs in Appendix D.

4.4 Groundwater Sampling Methodology

The following initial groundwater sampling and assessment programme was undertaken during 7 and 13 July 2023:

- The groundwater monitoring event (GME) was initially conducted at each new monitoring well on 7 July 2023. During this sampling event, groundwater monitoring wells were gauged for depth to water, total depth and depth to LNAPL (none was identified) from a clearly marked and designated point at the top of each well casing using an interface probe (IP). The IP was decontaminated using a solution of Decon 90, followed by rinsing in potable water between locations;
- Monitoring wells were initially purged and sampled using a low-flow flow sampler with dedicated (single-use) pump bladder and tubing;
- Groundwater from each well was purged until the minimum volume (being the volume of the pump and tubing volumes) were removed and groundwater quality parameters stabilised and sampled thereafter. Please note that due to well siltation (which was previously perceived as a dry well condition) a groundwater sample could not be obtained from MW01 during 7 July 2023. Agon instead collected an additional groundwater sample at MW01 during 13 July 2023 when sufficient groundwater was present within the well;
- Purged groundwater (which did not present with visual or olfactory evidence of contamination) was disposed on-site within garden beds with approval from Citify;
- Groundwater samples were collected in new laboratory supplied containers and placed in a chilled cooler for transport under chain of custody procedures to the analytical laboratories; and
- Quality assurance/quality control samples were collected in the form of a groundwater replicate sample, and an equipment rinsate blank.

Following receipt of anomalous groundwater analytical results due to elevated silts in groundwater, Agon redeveloped each newly installed well during 11 August 2023 in preparation for additional groundwater sample collection which was undertaken on 21 August 2023 as follows:

- Groundwater redevelopment identified that wells contained excessive silts which were sufficient to stratify each well in particular wells MW01 and MW03. This was likely due to the nature of the underlying aquifer being within a primarily clay lithology. Each on-site well was therefore over developed, with each well purged in excess of 60 L to ensure practical removal of silts;
- Each groundwater well was allowed to re-equilibrate another 7 days prior to the secondary groundwater sampling;
- Due to the clay nature of the groundwater aquifer (which increases pump siltation as experienced during the initial groundwater sampling works), groundwater purging and sampling was undertaken using dedicated sampling bailers instead;
- Each well was purged a minimum of 3 well volumes (until groundwater field parameters equilibrated); and
- Following equilibration, primary groundwater samples, one duplicate and quality control samples were collected for laboratory analysis.

A copy of the field purging and sampling sheet of representative groundwater samples are provided as Appendix F.

4.5 Soil Vapour Well Installation and Sampling Methodology

Soil vapour wells SV01 to SV04 were installed as permanent sampling locations at a depth of 1.5 mbgs during 17 October 2023 and were sampled during 20 October 2023 as follows:

- Each soil vapour well assembly comprised a stainless-steel, 150 mm soil vapor probe implant which was connected to the surface using sterilised, quarter inch Teflon tubing and capped at the surface. A 250 g steel weight was attached to the bottom of the implant to ensure the soil vapour well assembly is true to vertical during install and to prevent probe contact with underlying soils;
- The soil vapour well annulus was initially backfilled with quarry sourced and washed, fine (3 mm) size gravels to create a 250 mm screened interval. The remainder of the soil vapour well annulus was backfilled with a 200 mm thick hydrated bentonite seal followed by a bentonite-concrete slurry to the site surface;
- Following a 48-hour equilibration period, soil vapour wells were sampled using laboratory-cleaned and supplied Summa® Canisters. A copy of the cleanliness certificates for the each of the canisters utilised as part of this assessment are provide in Appendix G;
- Prior to soil vapor sampling, each canister was checked for leaks using an analogue vacuum gauge. Each canister was checked for vacuum stability over a 30 second period with the stabilized vacuum reading recorded;
- Agon conducted a leak test using an impervious 20 L shroud and isopropanol during sample extraction at soil vapour well SV01; and
- Following sample collection, each canister was resealed and checked for leaks prior to storage and submission to the laboratory for analysis.

4.6 Laboratory Testing

Laboratory testing of soil, groundwater and soil vapour samples were completed in general accordance with the ASC NEPM for the analytes outlined in the following sections.

4.6.1 Soil Analytical Programme

Selected fill and natural soil samples were analysed for range of the following PCOCs inclusive of heavy metals, TRH, BTEX, PAH and VOCs. Agon also notes that VOC analysis was undertaken within samples with elevated field screening results from both the ESA and groundwater well drilling phases of assessment.

VOC analysis using Selective Ion Monitoring (SIM) was undertaken for selected soil samples collected whilst drilling each soil vapour well. Soils located at the bottom of the soil vapour well screened interval (approximately 1.4 to 1. 5 mbgs) were analysed for VOC (SIM) analysis.

Soil field replicates and equipment rinsate samples were analysed for a range of heavy metals, TRH and BTEX being the primary PCOCs identified within this investigation.

4.6.2 Groundwater Analytical Programme

Each of the 3 primary groundwater samples collected were analysed for target off-site COPCs being TRH, BTEX, heavy metals and VOC's. This analytical programme was deemed sufficient to assess potential

migratory groundwater impacts from previously identified off-site sources being the former dry cleaners to the east and former service station to the southwest.

Groundwater replicate, trip blank and equipment rinsate samples were analysed for a range of heavy metals, TRH, BTEX and VOCs.

4.6.3 Soil Vapour Analytical Programme

Each of the 4 primary and 1 duplicate sample collected at the site were analysed for TO-15 VOC suite. The leak test analysis was undertaken during the sampling of SV01 using isopropanol.

4.7 Analytical Laboratories

All soil and groundwater primary and intra-laboratory replicate (duplicate) sample analysis was undertaken by Environment Testing Laboratories (Eurofins). Soil vapour sample analysis was undertaken by Envirolab Australia (Envirolab). Both Eurofins and Envirolab are National Association of Testing Authorities (NATA) accredited for all requested analyses

5.0 GROUND CONDITIONS ENCOUNTERED

5.1 Site Specific Geology

Based on the latest soil observations, the following soil conditions have been identified underneath the site:

- Fill was present underneath the site in the form of yellow gravelly sand sub-grade to an average depth of 0.3 mbgs which was underlain by pale red to brown clayey sand fill with non-soil inclusions including ash, cinders and brick fragments to depths up to 0.7 mbgs. No inclusions of ACMs were identified within fill soils;
- This was underlain by natural soils in the form of pale brown clayey sands and sandy clays with intermittent bands of gravel to the maximum investigative depth of 15 mbgs;
- Groundwater was encountered at an approximate depth of 12 mbgs and occurs within a primarily clay lithology with minor sand and gravel lenses;
- Both the fill and shallow natural soil descriptions are consistent with ground lithology observed as part of intrusive works undertaken by both Agon and WGA during 2022;
- Field screening of soil samples ranged between 51 ppbv (A-BH10_2.9-2.3) to 181 ppbv A-BH10_11.0. This range is lower than the field screening range reported during 6 December 2022 which were measured between 163 ppbv to 324 ppbv. These ranges exclude one elevated field screening result of 850 ppbv previously measured at A-BH01 within shallow fill soils.

Agon notes the following regarding the field screening results;

- Field screening measurements approaching 200 ppbv are sufficiently elevated to warrant further investigation;
- In this regard, Agon have undertaken a range of VHC/VOC analysis of soil samples with elevated field screening measurements inclusive of the soil sample (A-BH01 at 0.05-0.15 mbg) which was identified with the highest field screening result (within the entirety of Agon's soil sample population);
- Laboratory testing of soils (see Section 7.1) did not identify concentrations of VHC or VOCs above laboratory detection limits; and
- However, an assessment of soil vapours (see Section 7.4) has reported residual concentrations of a range of VOC compounds within underlying soil pore spaces which explain the elevated field screening results measured to date. Regardless of these VOC detections, these concentrations did not indicate a condition which may be a risk to human receptors.

Outside of the non-soil inclusions identified within fill, other visual nor olfactory evidence for soil contamination was not identified within remaining fill or any natural soils.

The geology observed beneath the site are consistent with both published geology and those logged by WGA as part of their geotechnical assessment. Agon's soil bore, groundwater well and soil vapour logs have been provided in Appendix D.

5.2 Site Specific Hydrogeology

Groundwater gauging data and field water quality measurements collected during the groundwater sampling events are provide in the following subsection. Noting that groundwater samples during the initial groundwater sampling event were considered anomalous, Agon have presented the site-specific hydrogeology information collected from the subsequent groundwater assessment (being more representative).

5.2.1 Groundwater Gauging Results

Groundwater gauging data collected during the groundwater assessment period have been summarised as follows:

- Non-aqueous phase liquids (NAPL) were not observed during the gauging, purging and development activities undertaken at each well during groundwater development and sampling activities (during either phase of groundwater sampling):
- Depth to standing water levels (SWLs) and calculated groundwater elevations across the area of investigation were measured as shown in Table 4 below:

Table 4: Groundwater Gauging Results

Monitoring Well	Measured SWL (mbtoc*)	Groundwater Elevations (mAHD)	Inferred Hydraulic Location
MW01	12.201	23.434	Down to cross hydraulic gradient
MW02	12.148	23.698	Up hydraulic gradient
MW03	12.173	23.409	Down hydraulic gradient

*mbtoc = metres below top of casing

5.2.2 Inferred Groundwater Flow

Groundwater flow characteristics inferred during the current investigation have been summarised as follows:

- Agon has adopted the following published groundwater parameters (Domenico and Schwarz, 1998) based on a clayey aquifer horizon:
  - A hydraulic conductivity (K) range of $1x10^{-4}$ to $1x10^{-5}$ m/day; and
  - An average effective porosity of 10%.
- The groundwater gradient beneath the site was calculated as $4.2x10^{-3}$ m/m towards the south, south-west.

Based on the above groundwater parameters, the groundwater seepage velocity calculated beneath the site is approximately between 1.5 x 10^{-4} to 1.5 x 10^{-3} m/year towards the south, south-east towards the River Torrens. This result was expected noting the low transmissivity expected of clay dominated aquifers. A groundwater contour plan has been provided in Figure A3, Appendix A.

5.2.3 Field Groundwater Quality

On-site field groundwater quality data have been summarised below:

Table 5: Groundwater Field Quality Results

Monitoring Well	Dissolved oxygen (DO)	Redox Potential (Eh)	Electrical conductivity (EC)	pH Values	Temperature
MW01	4.28	151.7 mV	3,918 ug/cm	8.26	18.6°C
MW02	5.01	54.3 mV	3,963 ug/cm	8.06	19.3°C
MW03	5.41	115.5 mV	3,458 ug/cm	7.58	19.3°C

Evidence for the presence of contamination in groundwater, such as odours and discoloration, was not observed during the groundwater sampling event. The recorded field quality indicators also support the absence of gross hydrocarbon contamination that may be undergoing bio attenuation, such as dissolved oxygen concentrations near 0ppm and Eh would be near zero or negative if biological mineralisation of hydrocarbons was occurring.

6.0 TIER 1 SCREENING ASSESSMENT

The following screening criteria have been adopted in line with the site's proposed residential use with recreational landscaped features. The screening criteria outlined below are for assessment purposes only and should not be regarded as remediation levels. Where concentrations of contaminants exceed the generic assessment criteria, then further consideration of the specific exposure pathway is required which may warrant further investigation, assessment or the development of a strategy to mitigate the potential risks identified.

6.1 Soil Assessment Framework

The soil screening criteria adopted for this assessment have been derived on the basis of conservative assumptions relating to land use, receptor behaviour, site, building and soil characteristics. In this regard, Agon has considered the most sensitive future site scenario:

- Medium (townhouse-style) to high density (apartment-style) residential development with limited to no direct soil access; and
- The potential for complimentary recreational landscaped features has also been considered by this assessment.

These sensitive site features are supplemented by commercial uses for the site which may be in the form of retail shops and office spaces.

6.1.1 Human Health Screening Criteria

Noting that site design has not been established, Agon has considered various site scenarios which can be considered as part of the site's future development. Within the body of this report, soil analytical results have been assessed against the following ASC NEPM (NEPC 2013) Health Investigation Levels (HIL) criteria:

- HIL B – Medium to High Density Residential; and
- HIL C – Recreational.

Discussion of results has also been assessed against the ASC NEPM Health Screening Levels (HSLs)) for vapour intrusion for further evaluation of potential risks to human health resulting from intrusion of hydrocarbon vapours emanating from on-site soil impacts. HSLs have been adopted based on potential receptors, subsurface lithology and depth of impacts to soil.

In addition, to assess the top 2 metres of soil for potential risks associated with dermal contact with petroleum hydrocarbons and vapour intrusion for maintenance workers, the CRC CARE (2011) direct contact and vapour intrusion HSLs have been adopted. It is considered likely that both current and future site workers have a high likelihood of exposure to shallow soils (up to 2.0 m in depth) through the installation or maintenance of structures such as underground utilities, associated trenches and footings. To assess the top 2 metres of soils for potential effects of petroleum hydrocarbons, the ASC NEPM (2013) Management Limits for TRH have also been considered following application of ESLs and HSLs.

A comparison of soil analytical results against human health screening criteria has been included in Appendix B.

6.1.2 Ecological Screening Criteria

In consideration of minor landscaping works proposed for the site, Agon has adopted the ASC NEPM (NEPC 2013) generic Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) both of which are relevant only to soils that will be within 2 m of the surface. In-line with the sites current and future proposed use, the residential criteria have been adopted.

Please note that Agon has not undertaken additional laboratory analysis to determine site-specific EILs. As previously determined, landscaping forms a minor proportion of the site and establishment of sensitive ecological areas have not been considered as part of the future development. In this regard conservative assumptions (low CEC, neutral soil pH) have been assumed to establish generic EILs.

6.1.3 Preliminary Soil Disposal Criteria

For the purposes of establishing potential off-site disposal classification, soils have been compared against the SA EPA Waste Derived Fill criteria. These criteria are not an indication of site contamination; rather, they have been applied to assess soils for either off-site reuse importation (as Waste Derived Fill) or landfill disposal suitability.

6.2 Groundwater Assessment Framework

The SA EPA the GAR) (in October 2018 and amended in November 2019 to describe the legislative and policy approach to risk-based assessment and remediation of site contamination in South Australia.

This guideline supports the Objects of the *Environment Protection Act 1993* and provides information to assist consultants and auditors to adopt a consistent and compliant interpretation of relevant legislation, policy and guidance. This guideline also provides information to ensure the assessment and remediation of site contamination is conducted to an appropriate standard in South Australia.

In order to establish whether there is actual or potential harm to groundwater (that is not trivial) exists, the GAR requires site-specific environmental values (EVs) to be established. These EVs have been previously established by Agon's PSI which have been applied below:

Table 6: Environmental Values Selected

Environmental Value	Adopted Criteria
Recreation and Aesthetics	GMRRW – NHRMC (2011) and WHO (2017)
Aquatic Freshwater Ecosystems	ANZG (2022)

6.2.1 Recreation and Aesthetics Criteria

The following should be noted regarding the selected recreational groundwater criteria:

- Both the NHMRC 2011 (where it supersedes the ANZECC 2000 criteria) and the ANZECC 2000 (where NHMRC 2008 criteria are not available) have been the main source of Primary Contact Recreation criteria.
- The GAR specifies primary contact recreation uses and objectives using the NHMRC published values (NHMRC Guidelines for Managing Risks in Recreational Groundwater 2011 (NHMRC, 2011)) which in turn are derived from NHMRC 2004 Australian Drinking Water Drinking Guidelines (ADWG 2004) which since been superseded in 2022 (ADWG 2022).

Criteria have therefore been derived from NHMRC 2011, the values of which have been based on ADWG 2022 health-based drinking water and aesthetic criteria.

6.2.2 Aquatic Freshwater Ecosystems

In accordance with the ANZG, the River Torrens is considered a highly disturbed environment (noting its function for stormwater detention and treatment). However, noting its heritage and perceived environmental value, Agon has selected an 95% protective value of freshwater receptors.

In addition to the above EV, Agon has adopted the ASC NEPM Groundwater HSL for residential land use (A) to appraise potential hydrocarbon detections within underlying aquifer.

6.3 Soil Vapour Assessment Framework

The soil vapour screening criteria adopted for this assessment have been derived on the basis of the sites most sensitive land use being for residential purposes. In this regard, the following criteria have been applied:

- ASC NEPM Interim soil vapour health investigation levels (interim HILs), Residential B (medium to high density residential) for selected volatile organic chlorinated compounds (VOCCs) being 1,1,1-trichloroethane, cis-1,2dichloroethene, trichloroethylene, tetrachloroethylene and vinyl chloride; and
- ASC NEPM HSL level A/B (residential) for vapour intrusion for BTEX compounds and naphthalene.

In the absence of additional criteria for a range of soil vapour compounds, Agon have developed soil vapour screening criteria using the US EPA Vapor Intrusion Screening Level (VISL) Calculator. The resultant criteria are presented in Appendix H and in the soil vapour analytical tables in Appendix I).

7.0 ANALYTICAL RESULTS

7.1 Soil Screening Assessment

Soil analytical results are presented in Table I1, Appendix I with laboratory certificates of analysis (COAs) presented in Appendix J.

7.2 Soil Analytical Results

7.2.1 Human Heath and Ecological Screening Criteria

Concentrations of soil analytes above the laboratory limit of reporting (LOR) were limited to a range of heavy metals (on every soil sample analysed) and a range of TRH, PAH and OCPs.

The majority of the reported concentrations were below the adopted human health or ecological screening criteria with the exception of sample A-BH01_0.3-0.4 collected from fill.

Sample A-BH01_0.3-0.4 was reported to contain concentrations of benzo(a)pyrene (b(a)p) TEQ of 8.9 mg/kg exceeding ASC NEMP HIL B criteria (4 mg/kg) and concentrations of b(a)p of 6.0 mg/kg exceeding the adopted ASC NEPM ESL criterion (1.4 mg/kg). Underlying soil sample (A_BH01_0.7-0.8) reported detectable concentrations of b(a)p TEQ below the HIL B criterion of 4 mg/kg. This result vertically delineates the elevated concentrations of PAHs to within the fill horizon.

Fill soils associated with this localised area of b(a)p have since been excavated and temporarily stockpiled on-site. To date, this stockpile remains within site bounds (pending future management).

Concentrations of remaining target contaminants inclusive of BTEX, VOCs, VHCs and OPPs were not reported above the laboratory LOR. Please note: VHC and VOC analysis of soils (from soil bore and groundwater drilling) were undertaken within samples with comparative elevated field screening results. In addition, selected soil samples within each soil vapor well were analysed for VOCs with more sensitive LORs.

None of these samples were reported with VOC or VHC concentrations in excess of the laboratory LOR providing further lines of evidence that intrusive soil vapours (derived from soil media) are not present in the subsurface.

7.2.2 Soil Waste Disposal Criteria

With respect to soil waste classification, some of the reported contaminant detections of metals and PAHs exceeded respective SA EPA WDF criteria as follows:

Table 7: Soil Samples Exceeding SA EPA Offsite Disposal Criteria

Analyte	Sample ID	Concentration (mg/kg)	Target Criteria Exceeded
Zinc	A-BH01_0.2-0.3	280	Waste Fill criterion of 200 mg/kg
	BH9 (0.4-0.5)	240	
	QC06 (duplicate sample of A-BH09 0.4-0.5)	260	
b(a)p	A-BH01_0.3-0.4	6.0	Waste Fill criterion of 1 mg/kg; and Low-level Contaminated criterion of 5 mg/kg
	A-BH05_0.4-0.5	1.2	
	BH1 (0.4-0.5)	1.3	

Analyte	Sample ID	Concentration (mg/kg)	Target Criteria Exceeded
Total PAHs	A-BH01_0.3-0.4	49	Waste Fill criterion of 5 mg/kg; and Intermediate Waste criterion of 40 mg/kg
	A-BH05_0.4-0.5	6.4	
	BH1 (0.4-0.5)	11	
	BH9 (0.4-0.5)	5.3	

Please note that Agon requested the laboratory to retest PAHs in fill sample A-BH01_0.3-0.4 as the reported PAHs results appear anomalous when compared to the dataset for the site. The retest determined that the elevated concentrations were representative of soil conditions.

Excluding fill sample A_BH01_0.3-0.4, additional statistical analysis has been undertaken by Agon with regards to the remaining soil samples to provide a preliminary waste classification by considering both fill and natural soils as a single 'body of waste'.

In accordance with SA EPA guidance, a statistical calculation of the 95% Upper Confidence Limit of the mean (95% UCL) was undertaken for zinc, b(a)p and total PAHs (excluding results from bore A-BH01). This statistical calculation resulted in a 95% UCL mean zinc concentration of 110.7 mg/kg, b(a)p of 0.74 mg/kg and total PAH of 3.36 mg/kg, all below the respective Waste Fill criteria (see Appendix K).

Based on the soil analytical data set, soils as a single body of waste (exclusive of the hot spot area around A_BH01 which has already been excavated) are chemically suitable for Waste Fill disposal.

The fill stockpile generated by AME solely based on PAH results are currently classified as Intermediate Waste soils pending additional assessment to formalise its classification against SA EPA waste disposal guidance.

7.3 Groundwater Analytical Results

Groundwater analytical results are presented in the Table I2, Appendix I. Chain of custody documentation and laboratory certificates of analysis are presented in Appendix J.

Concentrations of a range of heavy metals and minor concentrations of a range of VOCs (including acetone, bromodichloromethane, bromoform, chloroform and chlorodibromomethane) were reported within groundwater collected from all site wells, whilst concentration of TRHs including volatile chain lengths were also reported within MW02 and MW03 as part of initial groundwater sampling works. Of these detections the following were reported in excess of the adopted groundwater screening criteria:

Table 8: Analyte Concentrations Exceeding Criteria

Analyte	Recreational	Freshwater
Arsenic	MW02 and MW03	No criteria
Boron	No criteria	MW02
Copper	No criteria	MW02 and MW03

Whilst Agon can surmise that heavy metals are likely background noting that the most elevated metals concentrations are located within MW02 (the most upgradient well), Agon did not identify the source of halomethanes and acetone noting:

- An upgradient off-site source of VOCs have not been identified for the site to explain the minor reported concentrations of chlorinated compounds; and

- The presence of bromodichloromethane and chloroform which is not a specific contaminant of concern associated with dry cleaning and service station operations is a known residue in treated mains water suggest the samples may include reticulated water.
- The concentrations of these VOCs and acetone tends to be transient, in so much as they are present in initial groundwater sampling and diminish significantly in concentration in subsequent monitoring rounds. These results are potentially attributed to the installation of the groundwater monitoring bores rather than indicative of groundwater quality.
- The presence of TPH C_6-C_9 is due to the presence of halomethanes, not other unidentified hydrocarbons. Halomethanes are eluted during GCMS testing within the time range as TPH C_6 -C_9 and are reported as such.

Subsequent to the anomalies in this result, Agon rechecked the condition of the monitoring wells which identified that each well was heavily stratified, may require further development and as such, the previous samples collected are likely not representative of actual groundwater conditions and may have been affected by drilling water introduced into the well and was no removed appropriately.

Following additional well development activities and subsequent resampling of wells for target COPCs, subsequent analytical reports groundwater concentrations of contaminants were limited to heavy metals. Detections of TRH and VOCs were not identified at concentrations in excess of the laboratory LOR. Of the reported heavy metal concentrations, boron and manganese were present at concentrations in excess of the adopted freshwater screening criteria (ANZG, 2022 and ASC NEPM GIL). Agon considers the subsequent sample results to be representative of groundwater conditions.

Please note that in both events, BTEX was not identified at concentration in excess of the adopted groundwater screening criteria or laboratory LOR.

Agon notes the following regarding the presence of elevated heavy metals in groundwater underlying the site:

- Boron and manganese were not considered specific potential contaminants of concern;
- Boron and manganese are common soil micronutrients and are naturally introduced into soils as a by-product of plant decomposition processes. The presence of boron or manganese in groundwater beneath the site could be attributed to naturally occurring boron and manganese within local soils noting it is also present within underlying site soils at levels which do not indicate the presence of impact; and
- Boron and manganese are present at MW02 (the most upgradient well) it is likely that these metal detections are a result of migratory groundwater from external background sources.

Note that in both sampling events, BTEX was not identified at concentration in excess of the adopted groundwater screening criteria or laboratory LOR. A plan showing the location of elevated groundwater contaminants (as identified by the second round of groundwater testing) are presented as Figure A4, Attachment A.

7.4 Soil Vapour Analytical Results

Soil vapour analytical results are presented in the Table I3, Appendix I. Laboratory certificates of analysis are presented in Appendix J.

Soil vapour analysis reported a range of VOC concentrations within samples collected from every soil vapour well above the laboratory LOR in the form of toluene, ethylbenzene, xylenes, naphthalene, styrene, bromodichloromethane, chlorodibromomethane, chloroform, tetrachloroethene, 1-methyl-4 ethyl benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, styrene, propanol, ethanol, heptane and acetone.

Where available, reported soil vapor concentrations are below ASC NEPM or calculated US EPA VISL criteria (where available).

Soil vapour screening criteria could not be calculated for a number of VOC analytes including acetone, chlorodibromomethane, ethanol, 1-methyl-4 ethyl benzene and styrene. In accordance with the US EPA VISL guidance, these analytes are not sufficiently toxic to have inhalation toxicity information, hence a screening criteria could not be calculated. In addition (as with the rest of VOC detection within soil vapour media) the concentrations reported are marginally above the respective laboratory LORs and do not indicate the presence of gross soil vapour impacts that would create an unacceptable risk to human health.

Considering that a soil nor groundwater source of these vapours were not identified, these vapours (which are solely within underlying soil pore space) are likely to attenuate overtime and disperse once the site's future geotechnical pavement is prepared.

Overall, the minor VOCs detected with underlying soil pore space does not indicate the presence of contamination nor a potential health risk to on-site receptors.

8.0 QUALITY ASSURANCE AND QUALITY CONTROL

A range of field and laboratory quality assurance and quality control (QA & QC) results have been reviewed and verified for the totality of Agon's field sampling assessment programme for the site. Agon considers the fieldwork undertaken, along with the soil and groundwater laboratory analysis, are acceptable for the purposes of confirming the reliability and repeatability of the sampling and laboratory analysis procedures.

8.1 Data Representativeness

8.1.1 Soil and Groundwater Sampling

The current analytical data set was considered to have effectively characterised the sampled soils and groundwater with regards to establishing the site's environmental condition. Holding times for soils and groundwater samples were all in conformance with Table 3 in AS4482.1-2005.

To ensure sample representativeness and sterility, both soil and groundwater samples were collected as follows:

- Single use nitrile gloves which were utilised and changed between each sample collected during this assessment;
- Reusable sampling equipment such as hand trowels, hand augers, drilling stems, and low flow pumps were routinely decontaminated during the soil and groundwater sampling programme undertaken.
- Soil and groundwater samples were placed into clean, laboratory prepared jars and bottles (preserved and unpreserved); and
- Soil and groundwater samples were placed on ice in a cooler box prior to transport to the laboratory.

To support this process, Agon also collected daily field equipment rinsate samples as follows:

- Trip blank TP01 and equipment reinstate RB01 were collected during intrusive soil drilling works 6 December 2022;
- Trip blanks TB02 and TB03 and equipment rinsates RB02 and RB03 were collected during intrusive soil sampling works during 26 and 27 June 2023 respectively;
- Trip blanks TB04 and equipment reinstate RB04 were collected during initial groundwater sampling works during 7 July 2023; and
- Trip blanks TB05 and equipment reinstate RB05 were collected during initial groundwater sampling works during 21 August 2023.

Each field water QC sample was analysed for a range of TRH, BTEX and heavy metals. Concentrations of these contaminants were not identified in any field water QC, which further demonstrates that appropriate decontamination and sampling procedures was undertaken as part of this assessment programme. Results of field water QC analysis is provided in Appendix D.

8.1.2 Soil Vapour Sampling

To ensure representative samples of soil vapour were collected, Agon undertook the following procedures:

- A Certificate confirming the canister was contaminated with the target analytes;
- Summa cannisters were checked for leaks using an analogue gauge prior to attachment into each soil vapour well. For this purpose, each canister was checked for vacuum stability over a 30 second period prior;
- To confirm leaks during sampling, Agon conducted a leak test using an impervious (20 L) plastic shroud and isopropanol during the sampling of soil vapour well, SV01. The results of the leak test were as follows:
    - Minor propanol concentrations (50 µg/m^3) were reported within soil vapour sample SV01 whilst leak test sample (SV_QC04) was reported with a propanol concentration which could not be resolved due to the elevated nature of the propanol detection (<58,140 µg/m^3);
    - The large difference between the propanol concentrations within sample SV01 and leak sample SV_QC04 suggests that in most part, soil vapour sampling was not influenced by atmospheric sources of VOCs;
    - Agon also notes that a minor propanol concentration was also reported in sample SV02 (which was not associated with the leak test). Propanol concentration within SV02 is residual in nature, is below the human health screening criteria and does not indicate the presence of contamination.
- Following Summa canister sample collection, each canister was resealed and checked for leaks prior to storage and submission to the laboratory for analysis.

8.2 Data Accuracy

Data accuracy is measured by comparing the results from each sample's analysis to a 'true' concentration, obtained by spiking a sample with known amount of a chemically similar 'surrogate' compound and comparing the surrogate analytical result to the true concentration value. Surrogates are only used for organic compounds. The ratio of these values is the surrogate recovery, and ideally this is 100%. Variation either side of 100% only up to predefined control limits is considered acceptable. Data accuracy control limits adopted for this waste classification investigation are as follows:

- Surrogate Recoveries should be in the range of 60% to 130%.
- All surrogate recoveries to be within the adopted acceptance range.
- All matrix spike recoveries to be within the acceptable range.

All laboratory QAQC results were within the acceptable control limits as indicated in the laboratory reports in Attachment D.

8.3 Data Precision

Data precision is measured by comparing the Relative Percentile Difference (RPD%) between results from a primary sample and a duplicate. The absolute value of the percent ratio of the difference between the primary and duplicate results, and the mean of the two results, is referred to as the relative percentile difference (RPD).

Agon collected the following primary and duplicate sample pairs to demonstrate data precision:

Table 9: Primary and Duplicate Sample Schedule

Primary Sample(s)	Duplicate Sample(s)	Analysis
BH5 (0.4-0.5)	QC03	Heavy metals
BH6 (0.4-0.5)	QC02	
A-BH01_0.3-0.4	QC01	
A-BH03_0.05-0.15	QC03	
A-BH06_0.4-0.5	QC04	
A-BH09_0.4-0.5	QC06	
MW02	QC09	TRH
MW02	QC10	TRH and BTEX
SV04_1.4-1.5	SV_QC02	VOCs (at SIM level)
SV04	SV_QC03	TO-15 VOC Suite

All RPD results were reported below the ASC NEPM acceptable criteria of 30% with the exception of the RPD between the following:

- Arsenic (45.2%) between primary soil sample BH5 (0.4-0.5) and QC03; and
- Lead (45.5%) between primary soil sample A-BH06_0.4-0.5and QC04.

This elevated RPD is attributed to the exaggeration of small differences at low concentrations between the primary and duplicate sample and is immaterial as the highest sample result has been adopted as representative.

8.4 QAQC Conclusions

The QAQC results discussed above indicate that the data Agon have collected to inform this investigation are reliable and form a suitable basis for the conclusions of this report.

9.0 UPDATED CONCEPTUAL SITE MODEL

The following subsections supplement the preliminary CSM established in Section 4.0 and so that plausible exposure pathways may be established or proven.

9.1 Summary of Ground Conditions

A review of available information, including bore logs indicate that site geology/hydrogeology can be summarised as follows:

- The investigation area was sealed with bitumen and fill soils were encountered in all boreholes. Fill extended to depths between 0.4 and 0.9 m below ground surface (mbgs) with an average depth of 0.6 mbgs;
- Fill soils beneath the bitumen seal typically comprised a layer of pale-yellow brown sandy gravels (road base materials). Underlying fill soils encountered comprised of grey and brown gravelly sands and silty sands overlying dark brown gravelly clays;
- Trace to minor non-soil inclusions in the form of brick fragments (A-BH02, BH08), brick and concrete fragments (A-BH07, BH01) and ash and cinders (A-BH06) were observed in the fill soils. Excluding the presence of non-soil inclusions, further evidence to indicate either visual or olfactory signs of contamination (stained, odorous or discoloured materials) was not identified within fill soils. Field VOCs measurements (using a PID) ranged between 163 to 324 parts per billion per volume (ppbv) with a maximum of 850 ppbv (A-BH01 at 0.05-0.15 mbgs);
- Natural materials underlying fill soils was observed to comprise red-brown clays, brown with pale brown mottling clays and or brown sandy clays. Visual nor olfactory evidence of contamination was not observed within underlying natural soils;
- Local groundwater occurs within a large clay aquifer with SWL at approximately 12 mbgs. Olfactory nor visual evidence of contamination was not identified within underlying groundwater. This includes for the presence of LNAPL; and
- Groundwater has been calculated to flow between 1.5 x 10^{-4} to 1.5 x 10^{-3} m/year towards the south, south-east.

Ground conditions provide minor evidence of contamination and are limited to observed non-soil inclusion in fill and some elevated field screening results.

9.2 Extent of Identified Contamination

On the basis of the soil, groundwater and soil vapour analytical testing undertaken as part of this assessment, Agon have not identified concentrations of PCOCs which would meet the definition of site contamination noting:

- The localised b(a)p concentrations previously identified within fill soils at borehole A-BH01 (during the progress of overall site works) has since been excavated and temporarily stockpiled on-site pending formalisation of its off-site disposal classification;
- With the exclusion of these now excavated and stockpiled soils, the minimal contamination of soils does not preclude the proposed future residential (medium density) use with landscaped areas;

- Similarly, groundwater quality is characterised by concentrations of metals that are considered to be representative of hydraulic conditions and in general, most concentrations were reported below the adopted water quality indicators.
- Several volatile compounds associated with treated water have been identified in groundwater. Notably, the concentrations of these chemicals diminished rapidly during subsequent sampling are either reported at much lower concentrations, or not above the laboratory LOR. The VOCs are considered an artifact of the installation of the groundwater bores and not represented of contamination in groundwater.
- In both soil and groundwater, evidence for the presence of VOCs that would trigger further assessment has not been demonstrated noting:
    - Field screening of soil samples identified elevated measurements up to a result of 850 ppbv in one sample;
    - Selected soil samples with elevated field screening results have laboratory tested for VHC and VOCs, none of which returned results which would indicate the presence of volatile chemicals in underlying soil media;
    - Agon also notes that soils associated with the highest field screening measurements (shallow fill soils within A-BH01) have been subsequent excavation and temporarily stockpiled on-site as part of soil validation works to excavate soils previously identified with elevated concentrations of b(a)p; and
    - Whilst initial groundwater assessment works identified with minor VOC concentration within the underlying aquifer, these have since been attributed to the well installation process (wells were insufficiently developed). Following well redevelopment and resampling, results did not indicate the presence of volatile chemicals in the groundwater.
- Soil vapour testing has identified the presence of a range of VOC analytes with underlying soil pore spaces. Whilst present, underlying VOCs are at concentrations which are largely residual and below adopted screening criteria hence does not pose a potential risk to on-site receptors.

In brief, previously identified on and off-site PCAs does not appear to have adversely impacted the underlying site condition and as such, would not preclude the proposed residential development of the site.

Please note that this conclusion excludes the presence of hazardous materials within the existing building fabrics. We understand that these materials will be managed by Citify as part of future building demolition work to ensure the sound state of the site is maintained.

9.3 Exposure Pathways and Receptors

Whilst Agon maintains that potential pathways (Agon, 2022a) and a range of current and future receptor continue to be valid for the site, an actual exposure pathway has not been identified as neither soils remaining insitu nor source(s) groundwater and soil vapour contamination have been identified within site bounds.

There is a likelihood that an inhalation risk of hazardous materials (asbestos and lead-bearing dust) may be realised if hazardous material is not appropriately managed during future demolition activities of the existing hotel and restaurant building. Agon has developed a CEMP for Citify to be utilised for future building demolition activities to maintain the relatively sound condition of underlying site soils.

Upon removal of the stockpiled soils containing b(a)p above the adopted HSL's, the environmental risk as it pertains to current and future receptors at the site is therefore considered low and any preclusions to Citify's proposed site development is not warranted.

Agon's understanding of potential health and ecological site risks (as presented in the updated CSM) are in consideration of the following:

- Health and ecological risks are based on a range of Tier 1 screening criteria and not site-specific risk targets. This assessment has not identified any concentrations of either soil, groundwater and soil vapour contaminant to warrant a higher level of risk investigation based on the analytical data acquired; and
- Agon's characterisation of the soil, groundwater and soil vapour conditions are based on information collected in accordance with current industry practice and within accessible areas of the site. Regardless of the sampling density achieved, there exists a potential for variations in chemical conditions between sampling conditions.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 Soil Conditions

Agon has undertaken an intrusive assessment of site soils between 22 June 2022 to 27 October 2023 including the collection of samples from 37 borehole locations across accessible areas of the site (outside of building and infrastructure footprints).

Soils underneath the site are composed granular fill occasionally containing brick, concrete and other wastes to an average depth of 0.6 mbgs which is underlain by a range of clay lithologies horizon where groundwater has been identified to occur. Fill and natural soils generally did not present evidence of contamination. Whilst elevated field screening for VOCs identified elevated measurements, laboratory testing has demonstrated that these measurements re not associated with volatile contaminants.

Laboratory analysis of soils for a range of site-specific PCOCs did not report chemical concentrations which would constitute site contamination. Detections above the laboratory LOR were limited to a range of heavy metals, PAH, TRH and OCP which were reported at insufficient concentrations to indicate the presence of a human health risk in the context of a future residential development.

This excludes ex-situ soil materials which previously represented fill soils at former bore hole A-BH01 where elevated concentrations of b(a)p were previously identified and has since been excavated awaiting formal classification for off-site disposal purposes.

In general, the reported chemical concentrations of underlying site soils suggest that known on and off-site PCA's have not significantly impacted the site.

10.2 Groundwater Conditions

Groundwater beneath the site occurs in a largely clay lithology approximately 12 meters below current site levels. The calculated direction of local groundwater flow is inferred toward the south, south-east towards the River Torrens. Groundwater quality at groundwater bore MW02 located within northern area of the site, and not near any potential site contamination source areas is therefore considered representative of hydraulic conditions.

In similar nature to soils, groundwater samples collected from the three wells onsite were generally not reported with groundwater contaminant concentrations in excess of the adopted criteria. Boron and manganese reported at concentrations above the adopted water quality screening criteria has been demonstrated to be attributable to background sources rather than on-site activities and is not considered contamination. Similarly, the presence of some transient minor concentrations of hydrocarbons (acetone) and halogenated compounds are not attributed to the site / offsite pollution but rather as an artifact of groundwater bore installation techniques that include the use of reticulated potable water.

Furthermore, evidence for the presence of hydrocarbon-based impacts (including in the form of intrusive vapours) as a result of former dry cleaning and service station activities off-site have not been identified noting:

- Groundwater analytical results were not reported with concentrations of dissolved hydrocarbons (inclusive of volatile fractions) which would suggest that groundwater from either potential sources of off-site impacts have migrated within site bounds; and

- Both the former dry cleaner and service station sites are located down the inferred hydraulic gradient from the site.

Overall, there is no evidence to suggest that there exists an environmental condition within underlying soil and groundwater media that would preclude the development of the site to future residential use.

10.3 Soil Vapour Condition

Agon's soil vapour assessment reported the presence of residual VOC concentrations in the subsurface. These concentrations were largely residential in nature and are below available screening criteria hence does not pose an unacceptable risk to on-site receptors.

Considering that an onsite soil nor on or offsite groundwater source of these vapours were not identified, these vapours (which are solely within underlying soil pore space) are likely to attenuate overtime and disperse once the site's future geotechnical pavement is prepared.

10.4 Recommendations and Conclusions

Agon recommends that a Construction Environmental Management Plan (CEMP) be prepared and submitted to the development's Approval Body (or its delegate) for endorsement prior to site construction works. The CEMP will enable Citify to maintain the environmental conditions identified by this assessment and will consider:

- Formal decommissioning of each groundwater monitoring well prior to future construction activities.
- Development of an unexpected finds protocol for the management of environmental conditions which may differ from what has been identified to date; and
- Conduct a pre-demolition asbestos register for the site noting this is a requirement for all buildings constructed prior to 2004.

The CEMP will also make refence or append other relevant construction plans such as a Traffic Management Plan (TMP) which are considered requisite as part of future construction protocols.

Excluding the requirement to develop and execute a CEMP, Agon considers further assessment of underlying environmental media to be unwarranted noting:

- The site assessment did not identify site contamination above the adopted human health screening investigation levels with the exclusion of a localised area of fill at soil bore A-BH01 containing PAHs. The affected fill has subsequently been excavated and temporarily stockpiled onsite pending disposal offsite;
- Soil vapour / groundwater pollution based on current site data suggests the identified nearby / offsite potentially contaminating land uses, namely a dry cleaners and services, are not currently, or foreseeably entering the site that would preclude the proposed residential use; and
- Upon removal of the stockpiled soils containing PAHs, the current environmental conditions do not necessitate future remedial intervention to allow the proposed development to proceed.

All conclusions and findings presented in this report must be read in accordance with Limitations provided in Section 11 and considered with respect to the report in its entirety.

11.0 LIMITATIONS OF THIS REPORT

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The Services were carried out for the Specific Purpose, outlined in the body of the Proposal. To the fullest extent permitted by law, Agon, its related bodies corporate, its officers, consultants, employees and agents assume no liability, and will not be liable to any person, or in relation to, any losses, damages, costs or expenses, and whether arising in contract, tort including negligence, under statute, in equity or otherwise, arising out of, or in connection with, any matter outside the Specific Purpose.

The Client acknowledged and agreed that proposed investigations were to rely on information provided to Agon by the Client or other third parties. Agon made no representation or warranty regarding the completeness or accuracy of any descriptions or conclusions based on information supplied to it by the Client, its employees or other third parties during provision of the Services. Under no circumstances shall Agon has any liability for, or in relation to, any work, reports, information, plans, designs, or specifications supplied or prepared by any third party, including any third party recommended by Agon. The Client releases and indemnifies Agon from and against all Claims arising from errors, omissions or inaccuracies in documents or other information provided to Agon by the Client, its employees or other third parties.

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12.0 REFERENCES

Agon (2022a) Preliminary Site Investigation, Buckingham Arms Hotel, 1-9 Walkerville Terrace, Gilberton, dated 22 June 2022 (Our ref: JC1083_PSI.01)

Agon (2022b) Environmental Soil Assessment,1 to 9 Walkerville Terrace, Gilberton, dated 14 December 2022 (Our ref: JC1225.ESA.01 Draft)

AME Consulting (2023a) Provision of Environmental Services, Buckingham Arms Hotel, Walkerville, SA, dated 24 August 2023. This report details a limited soil assessment programme; and

AME Consulting (2023b) Provision of Environmental Services, Buckingham Arms Hotel, Walkerville, SA, dated 24 August 2023. This report details a limited soil vapours assessment programme.

CSIRO (2022) Atlas of Australian Acid Sulphate Soils

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DPTI – Department of Planning Transport and Infrastructure (2023), Land Services SA, South Australian Integrated Land Information System (SAILIS), located at: http://www.sailis.sa.gov.au.

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SA EPA – South Australian Environment Protection Authority (2023) Site Contamination Index, located at https://www.epa.sa.gov.au/public_register/site_contamination_index

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NHMRC - Natural Health and Medical Research Council (2021) National Water Quality Management Strategy, Australian Drinking Water Guidelines 6 2011. Version 3.6 March 2021

SA EPA (2010) Current criteria for the classification of waste—including Industrial and Commercial Waste (Listed) and Waste Soil – "the EPA Waste Criteria

SA EPA (2019) Guidelines for the assessment and remediation of site contamination ("the GAR")

US EPA (2023) Vapour Intrusion Screening Level (VISL) calculator, located at: https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator

APPENDIX A: AGON FIGURES

agon ENVIRONMENTAL

Client: Citify Group Pty Ltd
Site: 1-9 Walkerville Terrace, Gilberton

REF#: JC1225 **Drafted:** CE
Revision: B **Dated:** 25/10/2023

Legend

- Approximate Site Boundary
- Approximate site location (see inset)
- Approximate Monitoring Well Location
- Approximate Soil Vapour Well Location
- Approximate Extent if Heritage listed portion

Figure A1:
Site Locality and Site Features Plan

N

0 25 m

Approximate Scale (Inset)

agon ENVIRONMENTAL

Client: Citify Group Pty Ltd
Site: 1-9 Walkerville Terrace, Gilberton

REF#: JC1225 **Drafted:** CE
Revision: B **Dated:** 25/10/2023

Legend

- Approximate Site Boundary
- Agon Soil Sampling Locations
- WGA Soil Sampling Locations

Figure A2:
Soil Sampling Locations

N

0 25 m

Approximate Scale (Inset)

agon ENVIRONMENTAL

Client: : Citify Group Pty Ltd
Site: 1-9 Walkerville Terrace, Gilberton

REF#: JC1225 **Drafted:** CE
Revision: B **Dated**: 25/10/2023

Legend

Approximate Site Boundary

Approximate Well Location

SWL Static Water Level

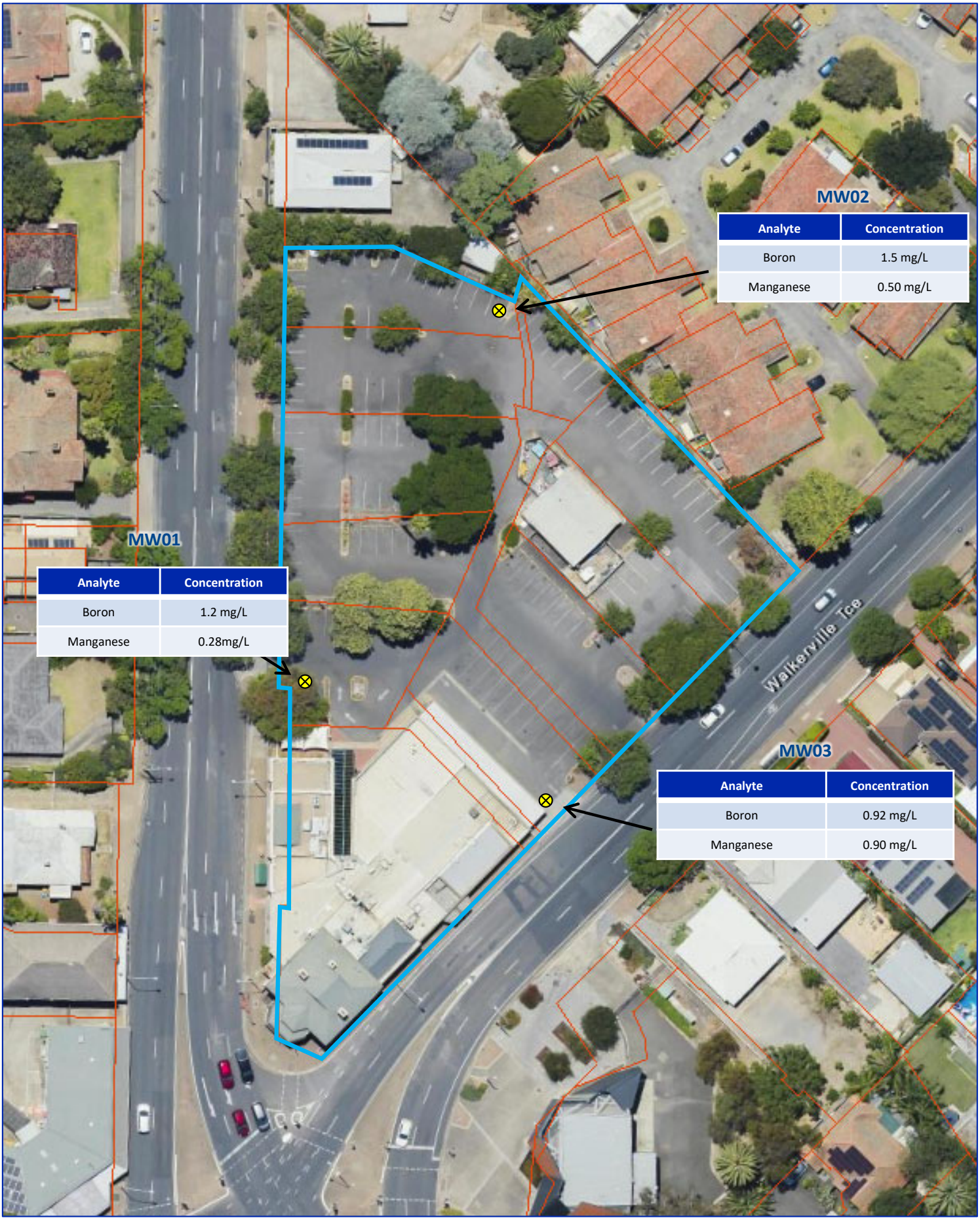
Inferred Groundwater Contour (mAHD)

Figure A3:
Groundwater Gauging Plan

N

0 25 m

Approximate Scale (Inset)



agon ENVIRONMENTAL

Client: : Citify Group Pty Ltd
Site: 1-9 Walkerville Terrace, Gilberton

REF#: JC1225 **Drafted:** CE
Revision: B **Dated**: 25/10/2023

Legend

Approximate Site Boundary

Approximate Well Location

SWL = Static Water Level

Figure A4:
Groundwater Elevated Analytical Results Plan

N

0 25 m

Approximate Scale (Inset)

APPENDIX B: SELECTED PHOTOGRAPHS

Photograph 1: View of the following a subsequent visit following the PSI assessment. Site operations have ceased at this time and the site vacated.

Photograph 2: Hard waste and some equipment were left in place as part of site abandonment. Agon did not identify storage of bulk chemicals during the PSI and as part of subsequent assessments.

Appendix B – Selected Photographs

Photograph 3: View of borehole A-BH05. In all cases, soils did not present with visual or olfactory evidence of gross contamination.

Photograph 4: View of soils from A-BH01. Soil at and adjacent this bore location has since been excavated to a depth of 0.5 following the discovery of fill soils with elevated benzo(a)pyrene concentrations.

Appendix B – Selected Photographs

Photograph 5: View of the A-BH01 soil excavation as part of AME's soil validation works. The resultant soils have been temporarily stockpiled on-site pending future off-site disposal.

Photograph 6: Each newly installed wells was found to require further redevelopment due to stratification of silts within the water column. Following redevelopment, wells were resampled.

Appendix B – Selected Photographs

Photograph 7: Summa Canisters were checked for leaks using an analogue vacuum gauge .

Photograph 8: View of the soil vapour sampling set-up for soil vapour sample well SV04 and duplicate sample SV_QC03.

Appendix B – Selected Photographs

APPENDIX C: WGA BORELOGS

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 14/11/2022
Date Logged: 14/11/2022
Logged by: JT
Drilling Method: Push Tube
Drill Rig/Mount: Ezi Probe - Isuzu

Borehole No.
BH 1
Page 1

Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**
Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over gravelly SAND, fine to medium grained, light yellow	D			Pavement
		brown, fine to medium gravel, subangular, with low plasticity silty				~350 mm thick
		fines				
0.5	FILL	gravelly silty SAND, fine to medium grained, brown, fine to coarse	D			rubble fill
		gravel, subangular with brick fragments				
	CL	sandy CLAY, low plasticity, brown, fine to medium grained sand	≥Wp	Fb/H	500	NATURAL
	CH	CLAY, high plasticity, red brown from 0.75 m			600	B-horizon
1.0						
					600	
	CL	grades medium plasticity, trace pale brown calcareous pockets				
		from 1.1 m			600	
1.5					600	
		with pale brown calcareous pockets and trace fine to medium				
		calcrete nodules from 1.5 m			600	
					600	
2.0						
					600	
					600	
2.5					600	
					600	
		minor grey, yellow brown from 2.8 m			600	
3.0						

Depth to Groundwater: None Observed **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled:	14/11/2022
Date Logged:	14/11/2022
Logged by:	**JT**
Drilling Method:	Push Tube
Drill Rig/Mount:	Ezi Probe-Isuzu

Borehole No.

BH 1

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy CLAY, as above	≥Wp		540	
					530	
3.5		becoming orange brown, brown, grey mottled, minor black speckles			500	
		reducing calcareous content from 3.4 m				
					450	
					490	
4.0						
					500	
					550	
4.5					580	
	CL/CH	silty CLAY, medium high plasticity, brown, grey mottled, minor black speckles			600	
					600	
5.0						
		trace pale brown/white calcareous pockets and fine calcrete nodules, subangular from 5.0 m			600	
					600	
5.5					600	
					600	
		with pale brown/white calcareous pockets, fine calcrete nodules, fine to medium grained sand from 2.8 m			600	
6.0		Borehole terminated at 6.0 m (target depth)				

Depth to Groundwater: None Observed **Trees at Site: Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled:	14/11/2022	
Date Logged:	14/11/2022	**Borehole No.**
Logged by:	**JT**	**BH 2**
Drilling Method:	Push Tube	
Drill Rig/Mount:	Ezi Probe-Isuzu	Page 1

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over sandy GRAVEL, fine to medium, subangular fine to	D			Pavement
		medium grained sand, light to pale yellow brown, with silty fines				~350 mm thick
0.5	FILL	gravelly silty SAND, fine to medium grained, brown, dark brown, fine	D			rubble fill
		gravel, subangular, with brick fragments				
	CL	sandy CLAY, low plasticity, brown, red brown, fine to medium	≤Wp			NATURAL
		grained sand		Vst/Fb	300	
1.0		becoming red brown				B-horizon
	CL	grades medium to high plasticity	≥Wp	H/Fb	430	
		trace pale brown calcareous pockets and fine calcrete nodules,			580	
		subangular from 1.2 m				
1.5					550	
		with pale brown calcareous pockets and trace fine to medium				
		calcrete gravel, subangular from 1.5 m			560	
					600	
2.0						
					550	
					600	
2.5					600	
					580	
		becoming trace pale brown calcareous pockets from 2.7m				
					600	
3.0						

Depth to Groundwater: None Observed **Trees at Site: Yes**

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Date Logged: 14/11/2022
Logged by: JT
Drilling Method: Push Tube
Drill Rig/Mount: Ezi Probe - Isuzu

Borehole No.
BH 2
Page 2

Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949
Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

Depth below surface (m)	USCS Symbol	Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components)	Condition of soil: Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	Structure and additional observations: (e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy CLAY, as above	≥Wp	Vst	380	
					370	
3.5				H	400	
					600	
					550	
4.0						
					460	
					600	
4.5					580	
		grades medium plasticity, brown to grey minor black speckles			600	
					580	
5.0						
					600	
		with pale brown to white calcareous pockets and fine to coarse				
		calcrete gravel, subangular from 5.1 m			550	
5.5					450	
						cores broken
					600	
6.0		Borehole terminated at 6.0 m (target depth)				

Depth to Groundwater: None Observed
Trees at Site: Yes

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Date Drilled:	14/11/2022
Date Logged:	14/11/2022
Logged by:	**JT**
Drilling Method:	Push Tube
Drill Rig/Mount:	Ezi Probe-Isuzu

Borehole No.

BH 3

Page 1

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over gravelly SAND, fine to medium grained, light yellow	D			Pavement
		brown, fine gravel, subangular, with low plasticity silty fines				~300 mm thick
	FILL	gravelly silty SAND fine to medium grained, dark brown, fine gravel,	D			rubble fill
0.5		subangular, wood fragments, brick fragments				
	CL	sandy CLAY, low plasticity, red brown, brown, fine to medium	<Wp	Fb		NATURAL
		grained sand				
	CH	CLAY, high plasticity, red brown, from 0.8 m	<Wp	Fb/H	600	B-horizon
1.0						
					600	
	CL	grades low plasticity, with fine to medium grained sand, pale brown				
		calcareous pockets and trace fine calcrete nodules, from 1.1 m			500	
1.5				Fb		cores broken up
						to 2.5 m
2.0						
2.5						
				Fb/H	600	
3.0					600	

Depth to Groundwater: None Observed **Trees at Site: Yes**

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Logged by:	**JT**
Drilling Method:	Push Tube
Drill Rig/Mount:	Ezi Probe-Isuzu

Borehole No.

BH 3

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy CLAY, as above	<Wp			cores broken
						up to 3.75 m
3.5						
				Fb/H	600	
4.0						
						cores broken
						up to 4.4 m
4.5		grades medium plasticity brown grey, minor black speckles, with fine		Fb/H	600	
		to medium grained sand, trace pale brown to white calcareous				
		pockets from 4.4 m			600	
					600	
5.0						
					600	
					600	
		with pale brown to white calcareous pockets and fine to medium				
5.5		calcrete gravel, subangular from 5.3 m				cores broken
					600	
					600	
6.0		Borehole terminated at 6.0 m (target depth)				

Depth to Groundwater: None Observed **Trees at Site:** **Yes**

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Date Logged:	14/11/2022	
Logged by:	**JT**	**BH 4**
Drilling Method:	Push Tube	
Drill Rig/Mount:	Ezi Probe-Isuzu	Page 1

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over sandy GRAVEL, fine to medium, subangular, fine to	D			Pavement
		medium grained sand, light yellow brown, with silty fines				~300 mm thick
	FILL	concrete and silty SAND, fine to medium grained, grey	D			rubble fill
0.5	CL	sandy CLAY, low plasticity, red brown, brown, fine to medium	<Wp	Fb/H	600	
		grained sand				
	CH	CLAY, high plasticity, red brown			600	B-horizon
					600	
1.0	CL	grades medium plasticity with pale brown calcareous pockets and				
		trace fine calcrete nodules from 0.9 m			540	
			≥Wp	Vst	370	
1.5					350	
						cores broken
					350	
2.0						
					380	
		grades medium plasticity, fine to medium calcrete gravel,				
		subangular from 2.1 m				cores broken
2.5					380	
				H	450	
					420	
3.0						

Depth to Groundwater: None Observed **Trees at Site: Yes**

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Logged by:	**JT**
Drilling Method:	Push Tube
Drill Rig/Mount:	Ezi Probe-Isuzu

Borehole No.

BH 4

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy CLAY, as above, pocket of fine to medium grained sand	≥Wp			cores broken
				H	450	
3.5		becoming orange brown, brown, minor black speckles	>Wp	Vst	220	
				H	500	
					480	
4.0						
		becoming brown to grey from 4.0 m			470	
		pocket of fine to medium calcrete gravel, subangular			550	
		from 4.2 m-4.4 m				
4.5					580	
					600	
		grades medium plasticity, trace pale brown/white calcareous				
		pockets from 4.7 m			600	
5.0						
					600	
					600	
5.5					600	
					600	
		with pale brown/white calcareous pockets, and fine calcrete				
		nodules, subangular			600	
6.0		Borehole terminated at 6.0 m (target depth)				

Depth to Groundwater: None Observed **Trees at Site: Yes**

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Logged by: JT
Drilling Method: Push Tube
Drill Rig/Mount: Ezi Probe-Isuzu

Borehole No.
BH 5
Page 1

Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949
Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

Depth below surface (m)	USCS Symbol	Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components)	Condition of soil: Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	Structure and additional observations: (e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over sandy GRAVEL, fine to medium, subangular, fine	D			Pavement
		to medium grained sand, light yellow brown, with silty fines				~250 mm thick
	FILL	gravelly silty SAND, fine to coarse grained, dark brown, fine to	D			rubble fill
		medium gravel, subangular, trace brick fragments				
0.5	FILL	sandy CLAY, low to medium plasticity, red brown, orange brown,	>Wp			
		fine to medium grained sand trace gravel				site won fill
	CL	sandy CLAY, low plasticity, red brown, brown, fine to medium	>Wp	Vst	350	NATURAL
		grained sand				
	CH	CLAY, high plasticity , red-brown		H	600	B-horizon
1.0						
					550	
	CL	grades medium plasticity, pale brown calcareous pockets and				
		trace pockets of fine to medium calcrete gravel, subangular			420	
1.5					460	
					500	
					600	
2.0						
					600	
		grades low plasticity, higher proportion of sand from 2.25 m			600	
2.5						cores broken
					550	
					540	
3.0		pocket of fine to medium grained sand				

Depth to Groundwater: None Observed
Trees at Site: Yes

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Drilling Method: Push Tube
Drill Rig/Mount: Ezi Probe-Isuzu

Borehole No.
BH 5
Page 2

Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**
Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	Structure and additional observations (e.g. soil origin, defects, cementing, likely I_{pt} (%))
	CL	sandy CLAY, as above, pocket of fine to medium grained sand	>Wp	Vst	300	
		grades low to medium plasticity minor black speckles from 3.2 m		H	440	
3.5					470	
		trace pale brown calcareous pockets and fine calcrete gravel, subangular from 3.6 m			410	
				Vst	380	
4.0					350	
				H	480	
4.5					470	
					520	
					530	
5.0						
		grades medium plasticity orange brown, brown mottled, minor black speckles, minor grey, trace pale brown calcareous pockets			600	
					600	
5.5					580	
		with pale brown/white calcareous pockets and fine to medium calcrete gravel, subangular, brown, grey mottled from 5.5 m			550	
					430	
6.0		Borehole terminated at 6.0 m (target depth)				

Depth to Groundwater: None Observed **Trees at Site:** **Yes**

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Date Drilled: 14/11/2022
Date Logged: 14/11/2022
Logged by: JT
Drilling Method: Push Tube
Drill Rig/Mount: Ezi Probe-Isuzu

Borehole No.
BH 6
Page 1

Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949
Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	Structure and additional observations (e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over gravelly SAND, fine to medium grained, pale yellow	D			Pavement
		brown/light yellow brown, fine to medium gravel, subangular,				~300 mm thick
		with low plasticity silty fines				
	FILL	gravelly silty SAND, fine to medium grained, dark brown, brown,	D			rubble fill
0.5		fine gravel, subangular, trace of concrete and brick fragments				
	CL	sandy CLAY, low plasticity, orange brown, red brown, fine to medium	≤Wp	H/Fb	600	NATURAL
		grained sand				
	CH	CLAY, high plasticity red brown			600	B-horizon
1.0						
					600	
	CL	grades medium plasticity with pale brown calcareous pockets and				
		trace fine calcrete gravel, subangular			600	
1.5					600	
					600	
		grades low plasticity, higher proportion of sand				
			<Wp	Fb		cores broken
2.0						up to 3.0 m
2.5						
3.0						

Depth to Groundwater: None Observed **Trees at Site: Yes**

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Date Logged:	14/11/2022
Logged by:	**JT**
Drilling Method:	Push Tube
Drill Rig/Mount:	Ezi Probe-Isuzu

Borehole No.

BH 6

Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy CLAY, low plasticity, orange brown, brown, fine to medium	>Wp	Fb/H	600	
		grained sand, trace pale brown calcareous pockets				
					450	
3.5					430	
		grade low to medium plasticity, orange brown, red brown, minor			600	
		black speckles, trace pocket of fine to medium calcrete gravel,				
		subangular from 3.7 m			600	
4.0						
					600	
					600	
		grades medium plasticity from 4.3 m				
4.5					600	
					600	
					600	
5.0						
					550	
		becoming orange brown, red brown, grey mottled from 5.1 m				
		with pale brown/white calcareous pockets and			600	
		fine to medium calcrete gravel, subangular from 5.2 m				
5.5					600	
					580	
						cores broken
6.0		Borehole terminated at 6.0 m (target depth)				

Depth to Groundwater: None Observed **Trees at Site:** **Yes**

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Date Drilled:	14/11/2022	**Borehole No.**
Date Logged:	14/11/2022	
Logged by:	**JT**	**BH 7**
Drilling Method:	Push Tube	
Drill Rig/Mount:	Ezi Probe-Isuzu	Page 1

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over sandy GRAVEL, fine to medium, angular to	D			Pavement
		subangular, fine to medium grained sand, light yellow brown, with				~400 mm
		low plasticity silty fines				
0.5	CL	sandy CLAY, low plasticity, dark brown, brown, fine to medium	<Wp	H/Fb	500	NATURAL
		grained sand				
	CH	CLAY, high plasticity, red brown			540	B-horizon
					600	
1.0						
	CL	grades medium plasticity pale brown calcareous pockets, trace fine			500	
		calcrete gravel, subangular from 1.0 m				
					600	
1.5					600	
					600	
		grades low plasticity, higher proportion of sand from 1.7 m				
						cores broken up
2.0						to 2.1 m
				Vst/Fb	300	
		grades low to medium plasticity, orange brown, minor black				
		speckles, trace pale brown calcareous pockets from 2.25m		H/Fb	450	
2.5						
					420	
					480	
3.0					450	

Depth to Groundwater: None Observed **Trees at Site: Yes**

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Date Logged:	14/11/2022
Logged by:	**JT**
Drilling Method:	Push Tube
Drill Rig/Mount:	Ezi Probe-Isuzu

Borehole No.

BH 7

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy CLAY, as above, minor grey	≥Wp	Vst	370	
		pocket of fine calcrete gravel, subangular at 3.2 m - 3.3 m			320	
3.5					370	
					380	
		becoming brown, orange brown, grey mottled, minor black		H	550	
4.0		speckles, trace pale brown calcareous pockets from 3.8 m				
					530	
					600	
4.5					600	
					600	
					600	
5.0						
					600	
					600	
5.5					600	
					600	
					600	
6.0		Borehole terminated at 6.0 m (target depth)				

Depth to Groundwater: None Observed **Trees at Site:** **Yes**

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Date Logged: 15/11/2022
Logged by: JT
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe, Isuzu

Borehole No.
BH 8
Page 1

Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949
Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	Structure and additional observations (e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over sandy GRAVEL, fine to medium, subangular, fine to	D			Pavement
		medium grained sand, light yellow brown				~350 mm thick
		pocket of brick fragments				
0.5	CH	CLAY/sandy CLAY, high plasticity, red brown, fine to medium	≤Wp	Fb/Vst	300	NATURAL
		grained sand				B-horizon
				Fb/H	580	
	CL	grades medium plasticity, with pale brown calcareous pockets			570	
1.0		and fine to medium calcrete gravel, subangular, with fine to				
		medium grained sand, orange brown, red brown from 0.8 m			600	
					600	
1.5					600	
						SPT 1.5 - 1.95 m
						10, 15, 18
						N= 33
2.0						
		grades sandy silty CLAY, medium plasticity, brown, orange brown	≥Wp	H	580	
					570	
		becoming trace pale brown calcareous pockets and fine to medium				
2.5		calcrete gravel, subangular from 2.3 m			550	
					440	
		minor grey				
					450	
3.0						

Depth to Groundwater: 12.6 m
Trees at Site: Yes

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Date Drilled: 15/11/2022
Date Logged: 15/11/2022
Logged by: JT
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe, Isuzu

Borehole No.
BH 8
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Legend:

Moisture Condition	Density Index - Granular	Consistency - Cohesive	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**
Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy silty CLAY, as above	>Wp	Vst		SPT 3.0 - 3.45 m
						6, 9, 16
						N= 25
3.5						
		calcareous content absent from 3.5 m			300	
		becoming orange brown, red brown, minor grey, black speckles from 3.75 m			380	
4.0					330	
					300	
	CH	silty CLAY, high plasticity, red brown, orange brown, grey mottled,	≤Wp	H/Fb	450	
4.5		black speckles, with fine to medium grained sand				
						SPT 4.5 - 4.95 m
						12, 23, 30
						N= 53
5.0						
					600	
					600	
5.5					600	
					550	
					600	
6.0						

Depth to Groundwater: 12.6 m **Trees at Site:** **Yes**

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Drilling Method:	Push Tube	
Drill Rig/Mount:	Ezi-probe, Isuzu	Page 3

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
6.0	CH	Silty CLAY, high plasticity, red brown, orange brown, grey mottled	<Wp	H		SPT 6.0 - 6.45 m
						11, 29, 30
						N= 59
		with pale brown to white calcareous pockets				
6.5						
	CL	sandy silty CLAY, low plasticity, brown, grey, fine to medium grained	<Wp	Fb		
		sand with pale brown/white calcareous pockets and fine to				
		medium calcareous gravel, subangular				
7.0						
		becoming yellow brown, brown grey				* High drilling
		with pocket of fine to coarse gravels (quartzite, siltstone),				resistance
		subrounded to subangular from 7.1 m - 7.4 m				
7.5		pocket of sand to silty SAND, fine to medium grained, yellow brown				
	SP/GP	sandy GRAVEL to gravelly SAND, fine to coarse gravel (quartzite),	D	D		SPT 7.5 - 7.95 m
		fine to coarse grained sand, brown, trace silty fines				10, 18, 26
						N= 44
						Coarse Grained
8.0						Alluvium
8.5						
	CL	sandy silty CLAY, low plasticity, grey green, yellow brown mottled,	≥Wp	H/Fb	600	
		fine to medium grained sand, with fine to medium gravel				
9.0		(top 200 mm)	>Wp	H	450	

Depth to Groundwater: 12.6 m **Trees at Site: Yes**

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Drill Rig/Mount:	Ezi-probe, Isuzu	Page 4

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
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Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
9.0	CL	sandy silty CLAY, as above	≤Wp	H/Fb		SPT 9.0 - 9.45 m
						9, 17, 33
						N= 50
9.5		becoming brown, orange brown, mottled grey from 9.4 m with pale brown calcareous pockets, fine to medium calcrete gravel, subangular				
10.0	CL	silty CLAY, medium plasticity, orange brown, brown, grey mottled trace fine to medium grained sand, trace pale brown calcareous pockets and pocket of fine calcareous gravel, subangular	>Wp	Vst	370	becoming moister
					300	
					300	
10.5						
						SPT 10.5 - 10.95 m
		calcareous content absent from 10.6 m				12, 11, 14
						N= 25
11.0						
					330	
		with fine to medium grained sand from 11.2 m			250	
11.5					250	
					250	
					280	
12.0						

Depth to Groundwater: 12.6 m **Trees at Site: Yes**

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Borehole No.
BH 8
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Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949
Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
12.0	CL	sandy silty CLAY, low to medium plasticity, orange brown, brown, grey mottled, fine to medium grained sand	>Wp	Vst		SPT 12 - 12.45 m 8, 8, 18 N= 26
12.5	SM/SC	silty SAND/clayey SAND, fine to coarse grained, brown, grey, with fine to coarse gravel (quartzite), subangular to subrounded, with pocket of low plasticity sandy CLAY	M M-W			Coarse Grained Alluvium Groundwater Struck
13.0	GP	sandy GRAVEL, fine to coarse, subangular to subrounded, fine to coarse grained sand, brown, yellow brown, grey, with low plasticity fines, possibly trace cobbles	W	VD		* High drilling resistances
13.5						SPT 13.5 - 13.95 m 25/140 mm N= R
14.0						
14.5						
15.0						

Depth to Groundwater: 12.6 m **Trees at Site: Yes**

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Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
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Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
15.0	GP	sandy GRAVEL, as above	W			SPT 15 - 15.45 m
						30/90 mm
						N= R
15.5						
16.0						
		increasing fines content from 16 m				
	CL	silty CLAY, low to medium plasticity, yellow brown, grey mottled,	>Wp	Vst	300	
		trace fine grained sand, trace pocket of fine to coarse grained				
16.5		sand, becoming grey from 16.3 m			250	
						U50 16.5 - 16.9 m
						400/400 mm
					280	
17.0						SPT 16.9 - 17.35 m
						4, 7, 5
						N= 12
	ML/CL	Clayey SILT/silty CLAY, low plasticity, light grey, yellow brown	>Wp	St	150	
		mottled in places, with black speckles, trace shells, with fine to				Blanche Point
17.5		medium grained sand			130	Formation
					150	
					140	
18.0						

Depth to Groundwater: 12.6 m **Trees at Site: Yes**

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Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
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Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
18.0	ML/CL	Clayey SILT/silty CLAY, as above	>Wp	St		SPT 18 - 18.45 m
						3, 3, 14
						N= 17
		becoming grey green				
18.5	ML/CL	clayey SILT/silty CLAY, low plasticity, dark grey, with black speckles,	>Wp	Vst	300	
		with pocket of shell, fine to medium grained sand				*High drilling
					350	resistance
					380	
19.0						
					390	
					350	
19.5					390	
						SPT 19.5 - 19.95 m
						19/130 mm
						N= R
20.0						
		Borehole terminated at 19.95 m (target depth)				
20.5						
21.0						

Depth to Groundwater: 12.6 m **Trees at Site: Yes**

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Borehole No.

BH 9

Page 1

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
	FILL	bitumen over sandy GRAVEL, fine to medium, subangular, fine to	D			Pavement
		coarse grained sand, light yellow brown, with silty fines				~400 mm thick
0.5	Fill	sandy CLAY, low plasticity, brown, dark brown, fine to medium	<Wp	Fb		rubble fill
		grained sand, with fine to coarse gravel, subangular, flaky shape				
1.0	CL	sandy CLAY, low plasticity, red brown, brown, fine to medium	<Wp	Fb		NATURAL
		grained sand, trace rootlets				B-horizon
	CH	CLAY, high plasticity, red-brown				
		1.0 m		Fb/H	600	
	CL	grades sandy CLAY, medium plasticity, trace pale brown calcareous				
1.5		pockets and fine calcrete gravel, subangular, orange brown,			580	
		brown from 1.3 m				SPT 1.5 - 1.95 m
						5, 15, 15
						N= 30
2.0						
		grades sandy silty CLAY, low plasticity, with pale brown calcareous			600	calcareous
		pockets and trace fine calcrete gravel, subangular from 2.0 m				
		becoming brown from 2.2 m		Fb		cores broken
2.5						
3.0						

Depth to Groundwater: 13 m **Trees at Site: Yes**

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Borehole No.

BH 9

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
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Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
3.0	CL	sandy silty CLAY, as above	~Wp	Fb		SPT 3.0 - 3.45m
						10, 15, 22
						N= 37
3.5						
		reducing calcareous content from 3.5 m				
4.0						
		grades silty CLAY, medium plasticity, with fine to medium grained		Fb/H	450	
		sand, with pocket of fine to medium calcrete gravel, subangular				
		from 4.0 m			430	
4.5					600	
						SPT 4.5 - 4.95 m
						15, 21, 27
						N= 48
5.0						
	CH	silty CLAY, high plasticity, orange brown, brown, grey mottled,	>Wp	H	600	
		minor black speckles, trace fine to medium grained sand				
					600	
5.5		trace pale brown calcareous pockets at 5.4 m			600	
					600	
		with pale brown calcareous pockets and fine calcrete gravel,				cores broken
6.0		subangular from 5.8 - 6.0 m				

Depth to Groundwater: 13 m **Trees at Site:** **Yes**

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Borehole No.

BH 9

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
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USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**

Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

Depth below surface (m)	USCS Symbol	Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components)	Condition of soil: Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	Structure and additional observations: (e.g. soil origin, defects, cementing, likely I_{pt} (%))
	CH	silty CLAY, as above	≤Wp	H		SPT 6.0 - 6.45 m
						10, 14, 23
						N= 37
6.5						
	CL	grades medium plasticity, with pale brown calcareous pockets and				
		fine calcrete gravel, subangular				
7.0						
7.5						
						SPT 7.5 - 7.95 m
						15, 23/15 mm
		pocket of fine to medium calcrete gravel, subangular				N= R
	CL	sandy silty CLAY, low plasticity, brown, pale brown, with	<Wp	Fb		
8.0		calcareous pockets and fine to medium calcrete gravel, subangular				*High drilling
						resistance
8.5						
						* medium to high
						drilling resistance
						from 8.5 m
9.0						

Depth to Groundwater: 13 m

Trees at Site: **Yes**

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Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
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Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
9.0		silty CLAY, medium plasticity, orange brown, brown, grey mottled,	≥Wp	Vst		SPT 9.0 - 9.45 m
		trace fine to medium grained sand and pale brown calcareous				5, 8, 11
		pockets				N= 19
9.5						
		calcareous content absent from 9.5 m			320	
					350	
10.0			>Wp		340	* slightly moist than
						above
					320	
					300	
10.5						
						SPT 10.5 - 10.95 m
						5, 6, 11
						N= 17
11.0						
					340	
					330	
11.5					360	
					350	
		grades sandy CLAY from 11.8 m			300	
12.0						

Depth to Groundwater: 13 m **Trees at Site: Yes**

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Borehole No.

BH 9

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
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Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
12.0	CL	sandy CLAY, low to medium plasticity, orange brown, brown, grey mottled, fine to medium grained sand	>Wp	Vst		U50 12 - 12.4 m
12.5		grades low plasticity, brown, grey mottled, trace pocket of sand lenses, fine to medium grained sand				SPT 12.4 - 12.85 m 9, 14, 16 N= 30
13.0				St	160	* cores wet
					120	* Groundwater struck
	CL/SC	sandy CLAY/clayey SAND, low plasticity, fine to medium grained	>Wp/w		150	
13.5		sand, brown, grey mottled		St-Vst	200	
						SPT 13.6 - 14.05 m 5, 19, 30 N= 49
14.0	GP	sandy GRAVEL (quartzite, siltstone), fine to coarse, subangular to subrounded, fine to coarse grained sand, brown, yellow brown, with silty fines	W	D		Coarse Grained Alluvium
14.5						
15.0						

Depth to Groundwater: 13 m **Trees at Site: Yes**

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Drill Rig/Mount:	Ezi-probe, Isuzu	Page 6

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: WGA221949

Location: 1 TO 9 WALKERVILLE TERRACE, GILBERTON

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
15.0	GP	sandy GRAVEL, as above, possibly trace cobbles	W	VD		SPT 15 - 15.45 m
						10/20 mm
						N= R
15.5						
16.0						
		pocket of medium plasticity clay, brown, grey mottled				
16.5						
		pocket of medium plasticity clay, brown, grey mottled				SPT 16.5 - 16.95 m
		~100mm				25/140 mm
17.0						N= R
	CL/ML	Interbedded band of cherty SILTSTONE, recovered as fine to coarse	W			Blanche Point
17.5		gravel sized rock fragments, light grey, with black speckles,				Formation
		rock strength, trace shells, with clayey SILT/silty				
		CLAY, low plasticity, light grey, yellow brown mottled, black	>Wp			* High drilling
		speckles, trace shells at 17.4 m - 17.6 m and 17.85 m 18 m				resistance
18.0						

Depth to Groundwater: 13 m **Trees at Site: Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 16/11/2022
Date Logged: 16/11/2022
Logged by: JT
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe, Isuzu

Borehole No.
BH 9
Page 7

Legend:

Moisture Condition	**Density Index - Granular**	**Consistency - Cohesive**	
D - Dry	VL/L - Very Loose/Loose	VS - Very Soft	Vst-Very Stiff
M - Moist	MD- Medium Dense	S - Soft	H - Hard
W - Wet	D/VD- Dense/Very Dense	F - Firm	Fb - Friable
Wp - Plastic Limit		St - Stiff	
USCS: Unified Soil Classification System		↓GW = Groundwater	

Project Number: **WGA221949**
Location: **1 TO 9 WALKERVILLE TERRACE, GILBERTON**

		Composition of soil	Condition of soil			Structure and additional observations
Depth below surface (m)	USCS Symbol	Soil Description (type, plasticity, grading, colour, secondary and minor components)	Moisture Condition	Consistency or Density Index	Hand Penetrometer Reading (kPa)	(e.g. soil origin, defects, cementing, likely I_{pt} (%))
	CL/ML	clayey SILT/silty CLAY, low plasticity, light grey, minor yellow	>Wp			SPT 18 - 18.45 m
		brown mottled, black speckles				5, 16/90 mm
						N= R
18.5						* High drilling
		becoming dark grey from 18.5 m				to refusal type of
		pocket of cemented rock with shells at 18.7 m and 18.9 m				resistance
						SPT at 18.9 m refusal
19.0		Borehole refusal at 18.9 m				
19.5						
20.0						
20.5						
21.0						

Depth to Groundwater: 13 m **Trees at Site: Yes**

APPENDIX D: AGON BORELOGS

ENVIRONMENTAL BOREHOLE LOG A-BH01

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1 Walkerville Terrace

DRILL MODEL MAI
DRILL METHOD Push Tube
TOTAL DEPTH 2.0 m
DIAMETER 25 mm
DRILLING COMPANY GEODRILL

BOREHOLE NUMBER A-BH01
DRILLING DATE 6/12/22

COMMENTS

LOGGED BY HT
CHECKED BY DM

Depth (m)	PID (ppb)	Samples	Graphic Log	Moisture	Material Description	Additional Observations
0				D	BITUMEN	
0.1	850	A-BH01 (0.05-0.15)			FILL: sandy gravel, sub-rounded to sub-angular to 20 mm, fine to coarse grained sands, cream brown, dry.	
0.2						
0.3	310	A-BH01 (0.2-0.3)			FILL: silty gravelly sand, fine to medium grained sands, pale brown, dry, sub-rounded to sub-angular gravles 6 to 10 mm, low plasticity fines.	
0.4	223	A-BH01 (0.3-0.4) +QC01+QC02			FILL: gravelly silty sand, fine to coarse grained sands, brown, dry, low plasticity fines.	
0.5						
0.6						
0.7	163	A-BH01 (0.7-0.8)			CLAY: medium plasticity, brown, dry.	
0.8						
0.9						
1						
1.1						
1.2						
1.3	0	A-BH01 (1.3-1.4)			As above but with pale brown mottling.	
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2					End of Borehole 2.0 m	
2.1						
2.2						
2.3						

ENVIRONMENTAL BOREHOLE LOG A-BH02

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1 Walkerville Terrace

DRILL MODEL MAI
DRILL METHOD Push Tube
TOTAL DEPTH 1.5 m
DIAMETER 25 mm
DRILLING COMPANY GEODRILL

BOREHOLE NUMBER A-BH02
DRILLING DATE 6/12/22

COMMENTS

LOGGED BY HT
CHECKED BY DM

Depth (m)	PID (ppb)	Samples	Graphic Log	Moisture	Material Description	Additional Observations
0				D	BITUMEN	
0.1	198	A-BH02 (0.05-0.15)			FILL: sandy gravel, sub-rounded to sub-angular to 20 mm, fine to coarse grained sands, cream brown, dry.	
0.2						
0.3	312	A-BH02 (0.3-0.4)			FILL: gravelly clay, low to medium plasticity, grey-brown, dry sub-rounded to sub-angular gravels.	Brick fragments.
0.4	320	A-BH02 (0.4-0.5)			CLAY: medium plasticity, red-brown, dry.	Grey dust down edge of core.
0.5						
0.6						
0.7						
0.8						
0.9						
1						
1.1	0	A-BH02 (1.1-1.2)			As above but brown with pale brown mottling.	
1.2						
1.3						
1.4	280	A-BH02 (1.4-1.5)				
1.5					End of Borehole 1.5 m	
1.6						
1.7						
1.8						
1.9						
2						
2.1						
2.2						
2.3						

ENVIRONMENTAL BOREHOLE LOG A-BH03

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1 Walkerville Terrace

DRILL MODEL MAI
DRILL METHOD Push Tube
TOTAL DEPTH 2.0 m
DIAMETER 25 mm
DRILLING COMPANY GEODRILL

BOREHOLE NUMBER A-BH03
DRILLING DATE 6/12/22
EASTING
NORTHING

COMMENTS

LOGGED BY HT
CHECKED BY DM

Depth (m)	PID (ppb)	Samples	Graphic Log	Moisture	Material Description	Additional Observations
0				D	BITUMEN	
0.1	198	A-BH03- (0.05-0.15) +QC03			FILL: sandy gravel, sub-rounded to sub-angular to 20 mm, fine to coarse grained sands, cream brown, dry.	
0.2						
0.3	0	A-BH03- (0.3-0.4)			FILL: gravelly clay, low to medium plasticity, grey-brown, dry, sub-rounded to sub-angular gravles,	
0.4						
0.5	231	A-BH03- (0.5-0.6)			CLAY: medium plasticity, red-brown, dry.	
0.6						
0.7						
0.8						
0.9						
1						
1.1	0	A-BH03- (1.1-1.2)			As above but brown with pale brown mottling.	
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9	196	A-BH03- (1.9-2.0)				
2					End of Borehole 2.0 m	
2.1						
2.2						
2.3						

ENVIRONMENTAL BOREHOLE LOG A-BH04

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1 Walkerville Terrace

DRILL MODEL MAI
DRILL METHOD Push Tube
TOTAL DEPTH 1.5 m
DIAMETER 25 mm
DRILLING COMPANY GEODRILL

BOREHOLE NUMBER A-BH04
DRILLING DATE 6/12/22

COMMENTS

LOGGED BY HT
CHECKED BY DM

Depth (m)	PID (ppb)	Samples	Graphic Log	Moisture	Material Description	Additional Observations
0				D	BITUMEN	
0.1	214	A-BH04 (0.05-0.15)			FILL: sandy gravel, sub-rounded to sub-angular to 20 mm, fine to coarse grained sands, cream brown, dry.	
0.4	189	A-BH04 (0.4-0.5)			CLAY: medium plasticity, red-brown, dry.	
0.9	319	A-BH04 (0.9-1.0)			As above but brown with pale brown mottling.	
1.4	321	A-BH04 (1.4-1.5)				
1.5					End of Borehole1.5 m	

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ENVIRONMENTAL BOREHOLE LOG A-BH05

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1 Walkerville Terrace

DRILL MODEL MAI
DRILL METHOD Push Tube
TOTAL DEPTH 1.5 m
DIAMETER 25 mm
DRILLING COMPANY GEODRILL

BOREHOLE NUMBER A-BH05
DRILLING DATE 6/12/22

COMMENTS

LOGGED BY HT
CHECKED BY DM

Depth (m)	PID (ppm)	Samples	Graphic Log	Moisture	Material Description	Additional Observations
0				D	BITUMEN	
0.1	185	A-BH05 (0.05-0.15)			FILL: sandy gravel, sub-rounded to sub-angular 20 mm, fine to coarse grained sands, cream brown, dry.	
0.4	0	A-BH05 (0.4-0.5)			FILL: gravelly clay, medium to high plasticity, grey-brown, dry, sub-rounded to sub-angular gravels,	
0.5	311	A-BH05 (0.5-0.6)			CLAY: medium plasticity, brown, dry.	
0.8	0	A-BH05 (0.8-0.9)			As above but red-brown.	
1.2	212	A-BH05 (1.2-1.3)			As above but brown with pale brown mottling.	
1.5					End of Borehole 1.5 m	

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produced by ESlog.ESdat.net on 15 Dec 2022

ENVIRONMENTAL BOREHOLE LOG A-BH06

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1 Walkerville Terrace

DRILL MODEL MAI
DRILL METHOD Push Tube
TOTAL DEPTH 2.0 m
DIAMETER 25 mm
DRILLING COMPANY GEODRILL

BOREHOLE NUMBER A-BH06
DRILLING DATE 6/12/22

COMMENTS

LOGGED BY HT
CHECKED BY DM

Depth (m)	PID (ppm)	Samples	Graphic Log	Moisture	Material Description	Additional Observations
				D	BITUMEN	
0.1	0	A-BH06 (0.05-0.15)			FILL: sandy gravel, sub-rounded to sub-angular gravels to 20 mm, fine to coarse grained sands, cream brown, dry.	
0.4	174	A-BH06 (0.4-0.5) +QC04			FILL: clay, medium to high plasticity, dark brown, slightly moist.	
0.7	315	A-BH06 (0.7-0.75)			FILL: sandy gravel, sub-rounded to sub-angular gravels to 20 mm, fine to coarse grained sands, cream brown, dry.	
0.8	207	A-BH06 (0.75-0.85)			CLAY: medium plasticity, red-brown, dry.	
1	194	A-BH06 (1.0-1.1)			As above but brown with pale brown mottling, dry	
1.5	203	A-BH06 (1.5-1.6)			Sandy CLAY, medium plasticity, brown, slightly moist, fine to medium grained sands.	
1.9	213	A-BH06 (1.9-2.0)				
2					End of Borehole 2.0 m	

ENVIRONMENTAL BOREHOLE LOG A-BH07

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1 Walkerville Terrace

DRILL MODEL MAI
DRILL METHOD Push Tube
TOTAL DEPTH 1.5 m
DIAMETER 25 mm
DRILLING COMPANY GEODRILL

BOREHOLE NUMBER A-BH07
DRILLING DATE 6/12/22
EASTING
NORTHING

COMMENTS

LOGGED BY HT
CHECKED BY DM

Depth (m)	PID (ppm)	Samples	Graphic Log	Moisture	Material Description	Additional Observations
0				D	BITUMEN	
0.1	211	A-BH07 (0.05-0.15)			FILL: sandy gravel, sub-rounded to sub-angular to 20 mm, fine to coarse grained sands, cream brown, dry.	
0.2						
0.3	234	A-BH07 (0.3-0.35)			FILL: silty sand, fine grained, grey, dry, low plasticity fines.	
0.4	319	A-BH07 (0.35-0.45)			FILL: gravelly clay, low to medium plasticity, grey-brown, sub-rounded to sub-angular gravels.	Brick fragments.
0.5						
0.6						
0.7						
0.8	303	A-BH07 (0.8-0.9)			CLAY: medium plasticity, red-brown, dry.	
0.9						
1	216	A-BH07 (1.0-1.1)			As above but brown with pale brown mottling.	
1.1						
1.2						
1.3						
1.4	324	A-BH07 (1.4-1.5)				
1.5					End of Borehole 1.5 m	
1.6						
1.7						
1.8						
1.9						
2						
2.1						
2.2						
2.3						

ENVIRONMENTAL MONITORING WELL LOG A-BH08/MW01

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group Pty Ltd
ADDRESS 1-9 Walkerville Terrace, Gilberton

DRILL MODEL EZI-Probe
DRILL METHOD Solid Auger
TOTAL DEPTH 15 m
DRILLING COMPANY A & S Drilling

MONITORING WELL NUMBER MW01
DRILLING DATE 26/6/23
EASTING 281571.32
NORTHING 6135338.53
COORDINATES MGA 2020

COMMENTS

LOGGED BY HT
CHECKED BY CE

Depth (m)	PID	Samples	Material Description	Moisture	Additional Observations
0	59	BH08_0.0-0.15	BITUMEN	D	
	66	BH08_0.3-0.4	FILL, gravelly sand, fine - coarse grained, yellow - cream, dry, sub rounded - sub angular gravels to 10 mm		Brick fragments
0.5			FILL. clayey sand, fine - medium grained, pale red - brown, dry, low plasticity fines		
	64	BH08_0.7-0.8	CLAY, medium plasticity, red - brown, dry, minor sands		
1	64	BH08_0.9-1.0	Sandy CLAY, low plasticity, friable, dry, pale brown with brown calcareous mottling		
1.5					
2	62	BH08_1.9-2.0			
2.5					
	72	BH08_2.8-2.9	As above with gravel inclusions		
3					
3.5	60	BH08_3.5-3.6	As above without gravels and olive brown		
4					
4.5					
5	126	BH08_4.9-5.0			
5.5					
6					
6.5					
7	103	BH08_7.0	CLAY, medium plasticity, brown, minor sands		
7.5					
8					

Well Diagram: MW01 — concrete, cement grout

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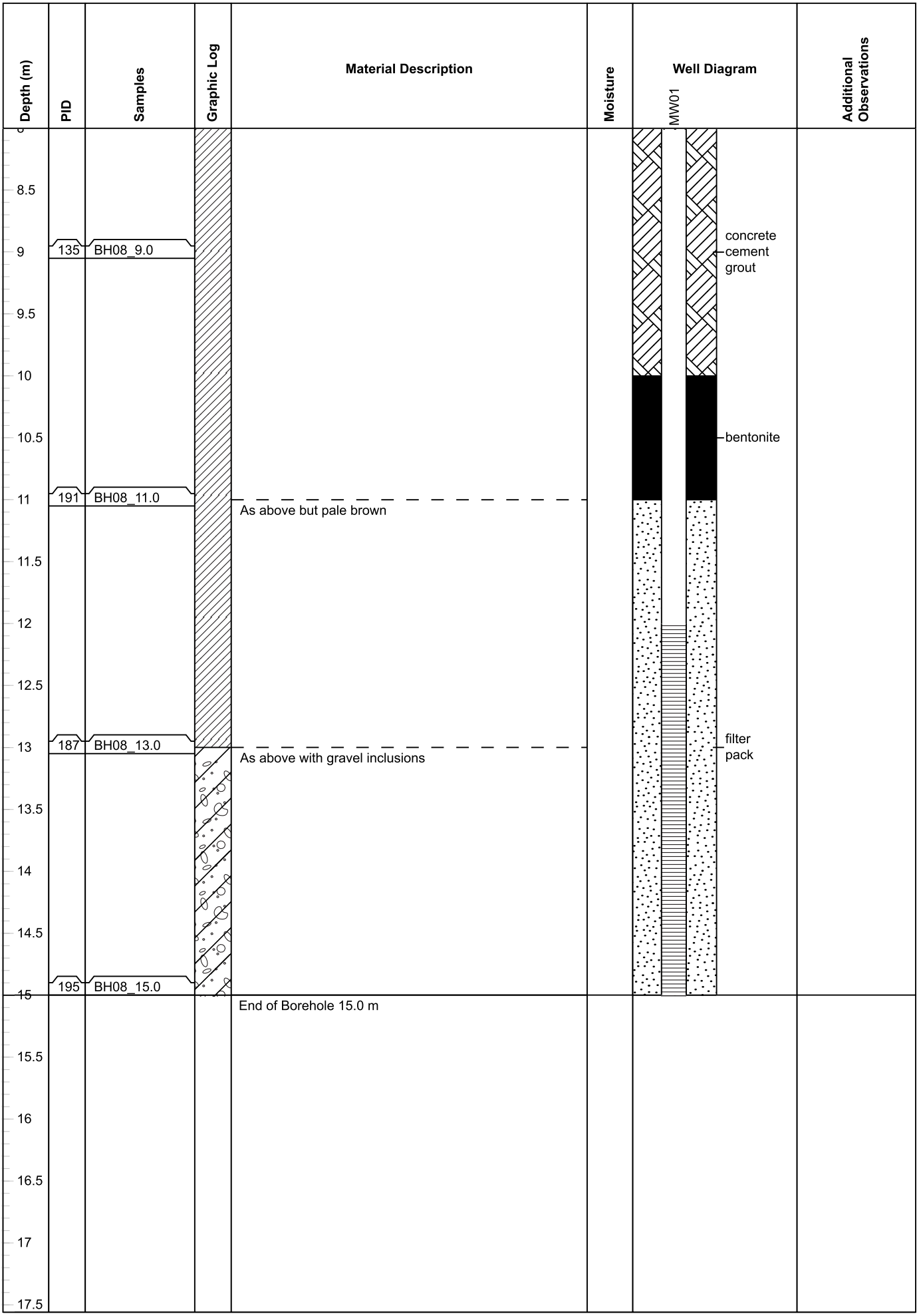
ENVIRONMENTAL MONITORING WELL LOG A-BH08/MW01



ENVIRONMENTAL MONITORING WELL LOG A-BH09/MW02

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group Pty Ltd
ADDRESS 1-9 Walkerville Terrace, Gilberton

DRILL MODEL EZI-Probe
DRILL METHOD Solid Auger
TOTAL DEPTH 15 m
DRILLING COMPANY A & S Drilling

MONITORING WELL NUMBER MW02
DRILLING DATE 26/6/23
EASTING 281599.09
NORTHING 6135394.70
COORDINATES MGA 2020

COMMENTS

LOGGED BY HT
CHECKED BY CE

Depth (m)	PID	Samples	Material Description	Moisture	Additional Observations
0	93	BH09_0.0-0.15	BITUMEN	D	
			FILL, gravelly sand, fine - coarse grained, yellow - cream, dry, sub rounded - sub angular gravels to 10 mm		
0.5	155	BH09_0.4-0.5	FILL. clayey sand, fine - coarse grained, dark brown, dry, low plasticity fines		Brick fragments Ash + Cinders
	140	BH09_0.7-0.8	CLAY, medium plasticity, red - brown, dry, minor sands		
1			Sandy CLAY, low plasticity, friable, dry, pale brown with brown calcareous mottling		
1.5	153	BH09_1.4-1.5			
2					
2.5	178	BH09_2.4-2.5	As above with gravel inclusions		
3					
3.5					
4	165	BH09_3.8-3.9	CLAY, low - medium plasticity, orange - brown		
			As above but olive brown		
4.5					
5	154	BH09_4.9-5.0			
5.5					
6					
6.5					
7	178	BH09_7.0	CLAY, medium plasticity, brown, minor sands		
7.5					
8					

Well Diagram (MW02): concrete, cement grout

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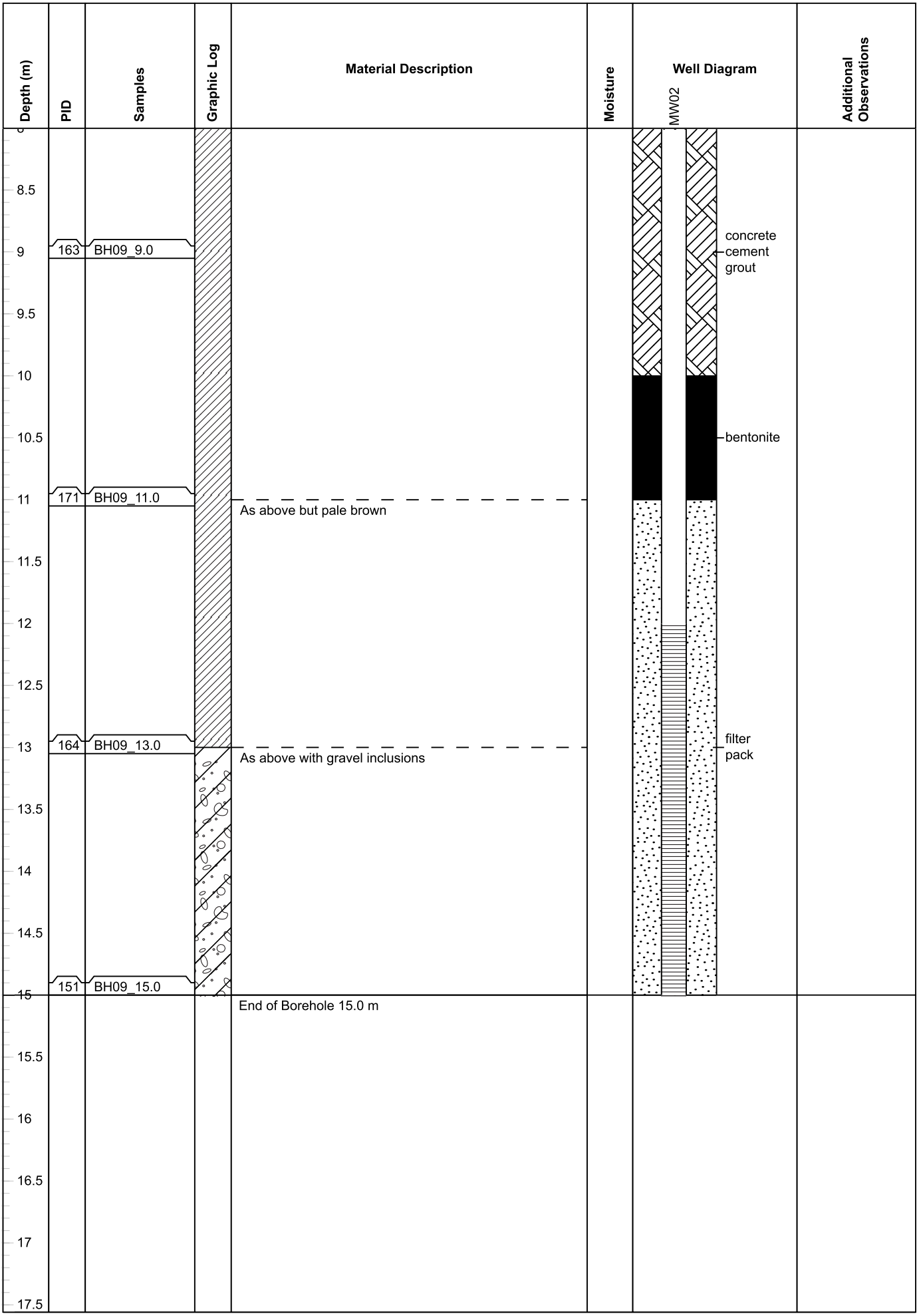
ENVIRONMENTAL MONITORING WELL LOG A-BH09/MW02



ENVIRONMENTAL MONITORING WELL LOG A-BH10/MW03

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group Pty Ltd
ADDRESS 1-9 Walkerville Terrace, Gilberton

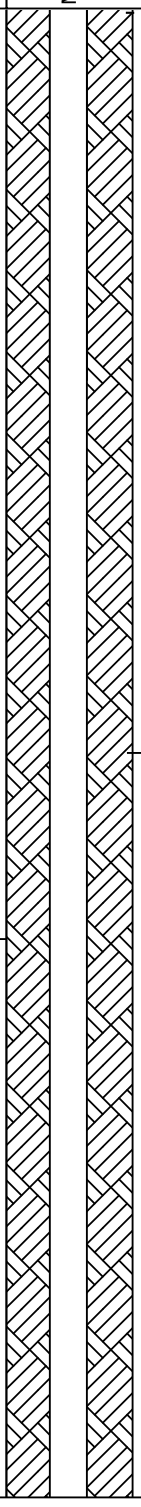
DRILL MODEL EZI-Probe
DRILL METHOD Solid Auger
TOTAL DEPTH 15 m
DRILLING COMPANY A & S Drilling

MONITORING WELL NUMBER MW03
DRILLING DATE 26/6/23
EASTING 281609.17
NORTHING 6135320.63
COORDINATES MGA 2020

COMMENTS

LOGGED BY HT
CHECKED BY CE

Depth (m)	PID	Samples	Material Description	Moisture
0	75	BH10_0.0-0.15	BITUMEN	D
	69	BH10_0.3-0.4	FILL, gravelly sand, fine - coarse grained, yellow - cream, dry, sub rounded - sub angular gravels to 10 mm	
0.5			CLAY, medium plasticity, red - brown, dry, minor sands	
	62	BH10_0.8-0.9	Gravelly CLAY, low - medium plasticity, dry, brown with pale brown calcareous mottling, sub rounded - sub angular to 15 mm	
1				
1.5	65	BH10_1.6-1.7	As above without gravel inclusions	
			As above with gravel inclusions	
2				
2.5				
3	51	BH10_2.9-3.0	CLAY, medium plasticity, brown, dry	
3.5				
4				
4.5				
5	96	BH10_4.9-5.0		
5.5				
6				
6.5				
7	87	BH10_7.0		
7.5				
8				



Additional Observations

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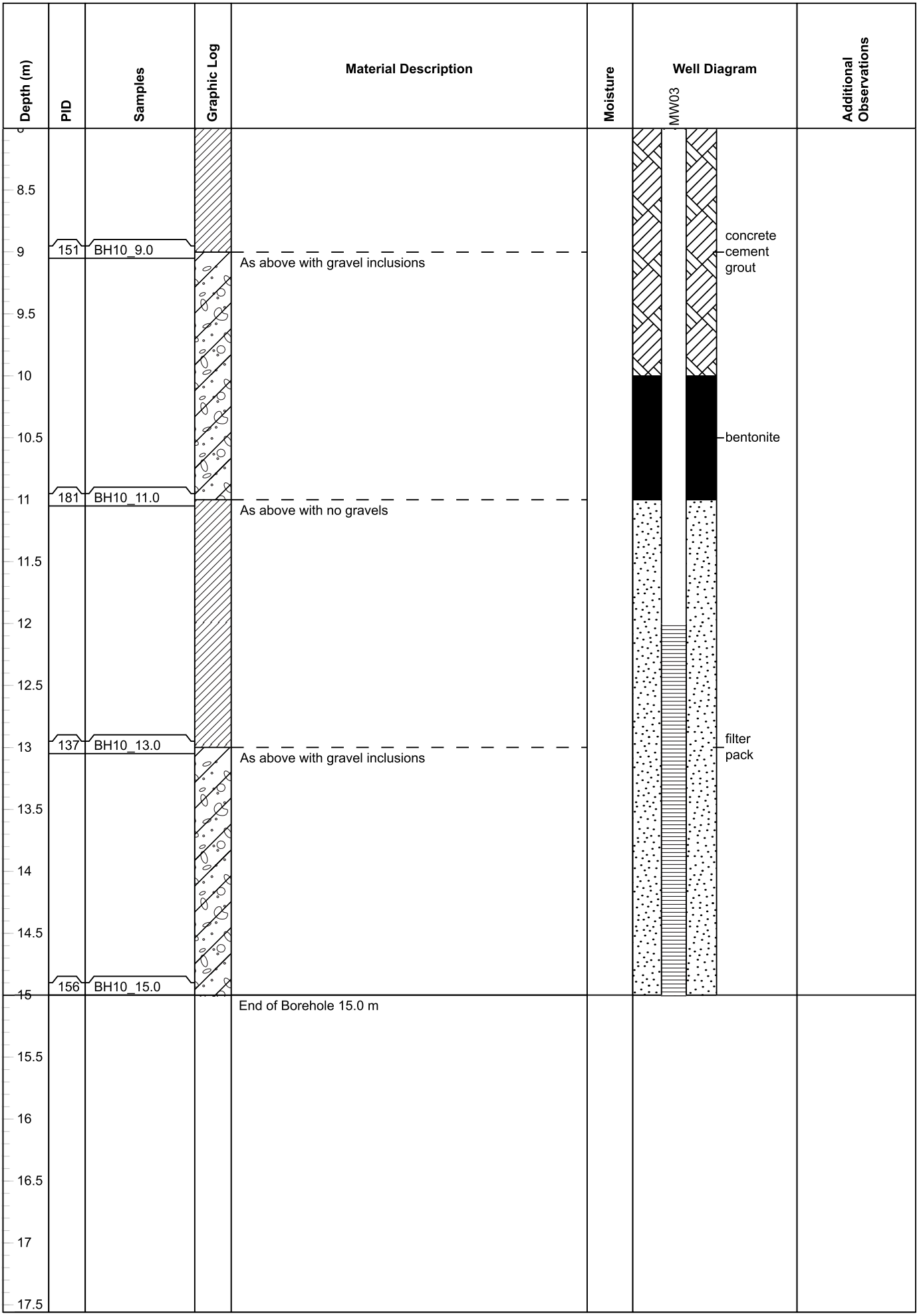
ENVIRONMENTAL MONITORING WELL LOG A-BH10/MW03



ENVIRONMENTAL SOIL VAPOUR WELL SV01

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group Pty Ltd
ADDRESS 1-9 Walkerville Terrace, Gilberton

DRILL MODEL Rockmaster
DRILL METHOD Pushtube
TOTAL DEPTH 1.5 m
DRILLING COMPANY In-depth Drilling

SOIL VAPOUR WELL NUMBER SV01
DRILLING DATE 17/10/2023
EASTING 281571.93
NORTHING 6135336.80
COORDINATES MGA 2020

COMMENTS

LOGGED BY CE
CHECKED BY CE

Depth (m)	PID	Samples	Graphic Log	Material Description	Moisture	Soil Vapour Well Diagram	Additional Observations
0.1	32	SV01_0.0-0.15		BITUMEN FILL, gravelly sand, fine - coarse grained, yellow - cream, dry, sub rounded - sub angular gravels to 10 mm	D	concrete cement grout	
0.4	36	SV01_0.4-0.5		FILL. clayey sand, fine - medium grained, pale red - brown, dry, low plasticity fines			Brick fragments
0.7				CLAY, medium plasticity, red - brown, dry, minor sands			
0.9	29	SV01_0.9-1.0		Sandy CLAY, low plasticity, friable, dry, pale brown with brown calcareous mottling		bentonite filter pack	
1.4	41	SV01_1.4-1.5					
1.5				End of Borehole 1.5			

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ENVIRONMENTAL SOIL VAPOUR WELL SV02

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group Pty Ltd
ADDRESS 1-9 Walkerville Terrace, Gilberton

DRILL MODEL Rockmaster
DRILL METHOD Pushtube
TOTAL DEPTH 1.5 m
DRILLING COMPANY Indepth Drilling

SOIL VAPOUR WELL NUMBER SV02
DRILLING DATE 17/10/2023
EASTING 281596.63
NORTHING 6135394.24
COORDINATES MGA 2020

COMMENTS

LOGGED BY CE
CHECKED BY CE

Depth (m)	PID	Samples	Graphic Log	Material Description	Moisture	Soil Vapour Well Diagram (SV02)	Additional Observations
0.1	122	SV02_0.05-0.15		BITUMEN FILL, gravelly sand, fine - coarse grained, yellow - cream, dry, sub rounded - sub angular gravels to 10 mm	D	concrete cement grout	
0.4	105	SV02_0.4-0.5		FILL. clayey sand, fine - coarse grained, dark brown, dry, low plasticity fines			Brick fragments Ash + Cinders
0.7				CLAY, medium plasticity, red - brown, dry, minor sands			
0.9	133	SV02_0.9-1.0		Sandy CLAY, low plasticity, friable, dry, pale brown with brown calcareous mottling		bentonite	
1.4	110	SV02_1.4-1.5				filter pack	
1.5				End of Borehole 1.5 m			

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produced by ESlog.ESdat.net on 06 Nov 2023

ENVIRONMENTAL SOIIL VAPOUR WELL LOG SV03

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group Pty Ltd
ADDRESS 1-9 Walkerville Terrace, Gilberton

DRILL MODEL Rockmaster
DRILL METHOD Pushtube
TOTAL DEPTH 1.5 m
DRILLING COMPANY Indepth Drilling

SOIL VAPOUR WELL NUMBER SV03
DRILLING DATE 17/10/2023
EASTING 281608.42
NORTHING 6135319.02
COORDINATES MGA 2020

COMMENTS

LOGGED BY CE
CHECKED BY CE

Depth (m)	PID	Samples	Graphic Log	Material Description	Moisture	Well Diagram (MW03)	Additional Observations
0				BITUMEN	D		
0.1	101	SV03_0.0-0.15		FILL, gravelly sand, fine - coarse grained, yellow - cream, dry, sub rounded - sub angular gravels to 10 mm			
0.2							
0.3				CLAY, medium plasticity, red - brown, dry, minor sands			
0.4	76	SV03_0.4-0.5					
0.5						concrete cement grout	
0.6							
0.7							
0.8				Gravelly CLAY, low - medium plasticity, dry, brown with pale brown calcareous mottling, sub rounded - sub angular to 15 mm			
0.9	75	SV03_0.9-1.0					
1							
1.1						bentonite	
1.2							
1.3							
1.4	98	SV03_1.4-1.5				filter pack	
1.5				End of Borehole 1.5 m			
1.6							
1.7							
1.8							
1.9							

ENVIRONMENTAL SOIL VAPOUR WELLLOG SV04

PROJECT NUMBER JC1225
PROJECT NAME Buckingham Arms Hotel
CLIENT Citify Group
ADDRESS 1-9 Walkerville Terrace

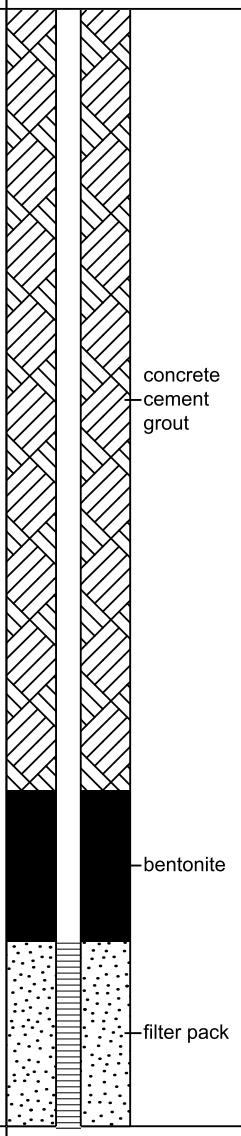
DRILL MODEL Rockmaster
DRILL METHOD Pushtube
TOTAL DEPTH 1.5 m
DRILLING COMPANY Indepth Drilling

SOIL VAPOUR WELL NUMBER SV04
DRILLING DATE 17/10/2023
EASTING 281603.51
NORTHING 6135355.02
COORDINATE MGA 2020

COMMENTS

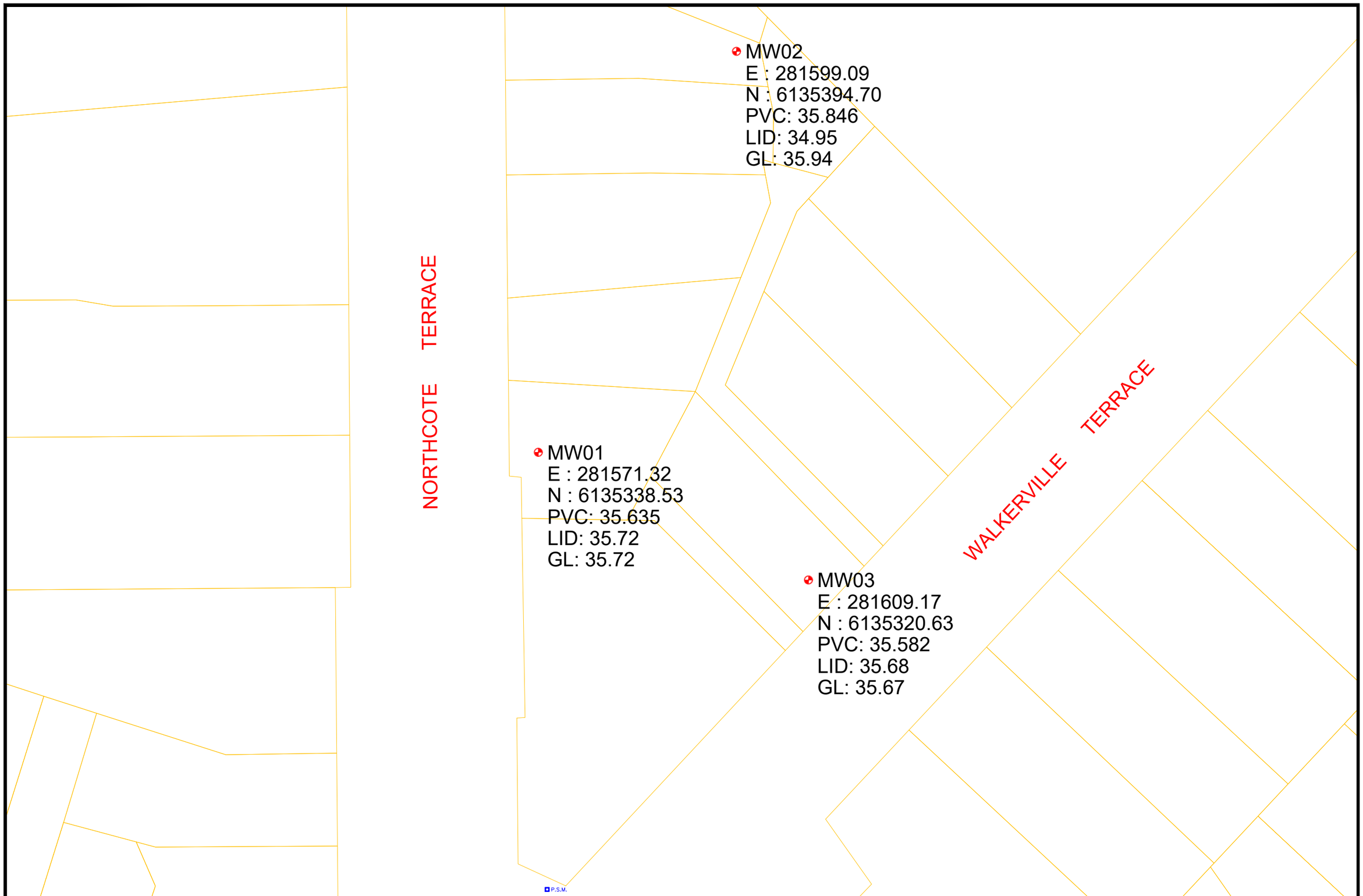
LOGGED BY CE
CHECKED BY CE

Depth (m)	PID	Samples	Graphic Log	Material Description	Moisture	Soil Vapour Well Diagram	Additional Observations
0				BITUMEN	D		
0.1	63	SV04_0.05-0.15					
0.2				FILL: sandy gravel, sub-rounded to sub-angular to 6 mm, fine to coarse grained sands, yellow, dry.			
0.3							
0.4	75	SV04_0.4-0.5					
0.5							
0.6				Sandy CLAY: medium plasticity, dark brown to red brown, dry, fine grained sands.			
0.7							
0.8							
0.9	78	SV04_0.9-1.0					
1							
1.1							
1.2							
1.3							
1.4	85	SV04_1.4-1.5					
1.5				End of Borehole 1.5 m			
1.6							
1.7							
1.8							
1.9							



produced by ESlog.ESdat.net on 06 Nov 2023

APPENDIX E: LEVEL SURVEY



ALLSURV ENGINEERING SURVEYS PTY. LTD.
8 BOWEN STREET, KENSINGTON 5068
TEL: 8364 2710 FAX: 8332 0805

BOUNDARIES PLOTTED HEREON HAVE BEEN DERIVED FROM LAND DEPARTMENT DCDB DATA AND HAVE NOT BEEN SURVEYED

	REVISIONS	BY	DATE
1			
2			
3			
4			
5			

SURVEYED BY:		SURVEY DATE:	04/07/23
DRAWN BY:		DRAWING DATE:	04/07/23
CO-ORDINATES:	MGA2020	HEIGHT DATUM:	AHD
DRAWING REF:	15123D1AS	SHEET:	1 OF 1

SITE ORIENTATION

WALKERVILLE
BUCKINGHAM ARMS HOTEL GROUNDWATER WELLS

SCALE: 1:1000 JOB REF: 15123

APPENDIX F: FIELD PURGING SHEETS

QFC-001 GROUNDWATER SAMPLING FORM

agon ENVIRONMENTAL

Sheet _ of _

PROJECT DETAILS Buckingham Arms QD

Client:	~~ER Risk~~	Date:	____/08/2023
Project:	~~Port Adelaide Distribution Centre GME~~	Job No. :	JC1403
Site Location:	~~25-91 Bedford Street~~, Gillman	Sampler:	DM/MC

WELL DETAILS

		PURGING	Bailer
Well ID:	MW01	Purge method:	~~Peristaltic Pump~~
Well Permit:	NA	Time started:	
Well Condition:	Good	Time stopped:	
Well diameter (mm):	40mm	Pump Depth:	
Screen location (mBGL):		Pre-purge SWL:	
Initial SWL (m):	~~RDL~~ 12.201		
Total Depth (m):	14.871	(2.67) WCA 6	

FIELD ANALYSES

Time	CPM	Cumulative volume removed (L)	SWL (mbTOC)	DO (ppm)	Cond (mS/cm)	pH	Redox (mV)	Temp (°C)
Stabilisation Criteria				± 10 %	± 3 %	± 0.05	± 10	± 10 %
1:31		12L	12.222	42.3	3784	7.69	123.1	20.3
1:44		20L	12.236	34.9	3914	7.73	122.2	20.0
2:16		40L	12.266	43.6	3926	7.93	119.7	20.3
4:22		60L	12.208	45.8	3919	8.26	51.7	18.6

OBSERVATIONS (odour, sheen, colour, turbidity)

No odour, No sheen, Brown to glassy brown, Very Silty

WEATHER/ CONDITIONS:

Overcast

Sampling method:	Bailer
Time sampled:	4:30
Sample Details (Primary/ QC samples):	Primary
Sample Containers Used:	
Field Filtered (Y/N)	Y

EQUIPMENT USED:			
CALIBRATED BY:		CALIB DATE:	

agon ENVIRONMENTAL

QFC-001 GROUNDWATER SAMPLING FORM

Sheet _ of _

PROJECT DETAILS Buckingham am DD

Client:	~~EP Risk~~	Date:	___/08/2023
Project:	~~Port Adelaide Distribution Centre GME~~	Job No. :	JC1403
Site Location:	~~25 - 91 Bedford Street, Gillman~~	Sampler:	DM/MC

WELL DETAILS

Well ID:	MW02
Well Permit:	NA
Well Condition:	Good
Well diameter (mm):	400mm
Screen location (mBGL):	
Initial SWL (m):	12.148
Total Depth (m):	~~14~~ 14.324

PURGING Bailer

Purge method:	~~Peristaltic Pump~~
Time started:	3:40
Time stopped:	
Pump Depth:	
Pre-purge SWL:	

2.176 x 6 = 13

13x3

FIELD ANALYSES

Time	CPM	Cumulative volume removed (L)	SWL (mbTOC)	DO (ppm)	Cond (mS/cm)	pH	Redox (mV)	Temp (°C)
Stabilisation Criteria				± 10 %	± 3 %	± 0.05	± 10	± 10 %
~~3:46~~			12.249	60.4	3927	7.94	~~78.8~~	19.0
4:51			12.138	61.0	3a04	7.96	91.1	19.0
5:27			12.248	54.3	3963	8.06	56.1	19.3

OBSERVATIONS (odour, sheen, colour, turbidity)

No odour, No sheen, Brown to glassy brown, very silty & muddy

WEATHER/ CONDITIONS:

Overcast

Sampling method:	Bailer
Time sampled:	5:40

Sample Details (Primary/ QC samples):

Primary & 2 duplicate

Sample Containers Used:

Field Filtered (Y/N)	Y

EQUIPMENT USED:			
CALIBRATED BY:		CALIB DATE:	

QFC-001 GROUNDWATER SAMPLING FORM

Sheet _ of _

PROJECT DETAILS

Client:	EP-Risk Barking Arms DD	Date:	/08/2023
Project:	~~Port Adelaide Distribution Centre GME~~	Job No. :	JC1403
Site Location:	25-91 Bedford Street, Gillman	Sampler:	DM/MC

WELL DETAILS

Well ID:	MW03
Well Permit:	NA
Well Condition:	
Well diameter (mm):	
Screen location (mBGL):	
Initial SWL (m):	12.173
Total Depth (m):	14.329

PURGING

Purge method:	Peristaltic Pump
Time started:	
Time stopped:	
Pump Depth:	
Pre-purge SWL:	

2.156 x 6 ≈ 12

FIELD ANALYSES

Time	CPM	Cumulative volume removed (L)	SWL (mbTOC)	DO (ppm)	Cond (mS/cm)	pH	Redox (mV)	Temp (°C)
Stabilisation Criteria				± 10 %	± 3 %	± 0.05	± 10	± 10 %
2:16		20L	13,184	50.9	3155	8.17	158.4	20.5
2:30		30L	12.187	51.7	3328	7.96	121.5	20.5
2:48		36	11.966	48.8	3458	7.58	115.5	19.3
Sample		37	11.966	58.7	3319	8.02		19.3

OBSERVATIONS (odour, sheen, colour, turbidity)

No odour, No sheen, Brown to glassy brown, Very Silty & muddy.

WEATHER/ CONDITIONS: Overcast

Sampling method:	Bailer
Time sampled:	2:50
Sample Details (Primary/ QC samples):	Primary
Sample Containers Used:	
Field Filtered (Y/N)	Y

EQUIPMENT USED:			
CALIBRATED BY:		CALIB DATE:	

APPENDIX G: CLEAN CANISTER CERTIFICATES

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 191 3517 p12.D
Acq On : 11 Oct 2023 09:05 pm
Operator : AIRGCMS#1
Sample : 191 3517 p12
Misc :
ALS Vial : 193 Sample Multiplier: 1

Quant Time: Oct 16 17:05:17 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Target Compounds						Qvalue
1] [IS]BROMOCHLOROMETHANE	0.000		0	0		
2] PROPYLENE	0.000		0	0	d	
3] DICHLORODIFLUOROMETHAN...	0.000		0	0		
4] CHLOROMETHANE	0.000		0	0		
5] FREON-114	0.000		0	0		
6] VINYL CHLORIDE	0.000		0	0		
7] 1,3-BUTADIENE	0.000		0	0		
8] BROMOMETHANE	0.000		0	0		
9] CHLOROETHANE	0.000		0	0		
10] ETHANOL	0.000		0	0		
11] ACROLEIN	0.000		0	0		
12] TRICHLOROFLUOROMETHANE...	0.000		0	0		
13] ACETONE	0.000		0	0		
14] ISOPROPYL ALCOHOL	0.000		0	0		
15] 1,1-DICHLOROETHENE	0.000		0	0		
16] FREON-113	0.000		0	0		
17] METHYLENE CHLORIDE (DCM)	0.000		0	0		
18] CARBON DISULFIDE	0.000		0	0		
19] TRANS-1,2-DICHLOROETHENE	0.000		0	0		
20] METHYL TERT BUTYL ETHE...	0.000		0	0		
21] 1,1-DICHLOROETHANE	0.000		0	0		
22] VINYL ACETATE	0.000		0	0		
23) METHYL ETHYL KETONE (M...	0.000		0	0		
24] HEXANE	0.000		0	0		
25] CIS-1,2-DICHLOROETHENE	0.000		0	0		
26] ETHYL ACETATE	0.000		0	0		
27] CHLOROFORM	0.000		0	0		
28] TETRAHYDROFURAN	0.000		0	0		
29] 1,1,1-TRICHLOROETHANE	0.000		0	0		
30] 1,2-DICHLOROETHANE	0.000		0	0		
31] BENZENE	0.000		0	0		
32) CARBON TETRACHLORIDE	0.000		0	0	d	
33] CYCLOHEXANE	0.000		0	0		
34] [IS]1,4-DIFLUOROBENZENE	0.000		0	0		
35] HEPTANE	0.000		0	0		
36] TRICHLOROETHENE	0.000		0	0		
37] 1,2-DICHLOROPROPANE	0.000		0	0		
38] 1,4-DIOXANE	0.000		0	0		
39] BROMODICHLOROMETHANE	0.000		0	0		
40] METHYL METHACRYLATE	0.000		0	0		
41] METHYL ISOBUTYL KETONE...	0.000		0	0		
42] CIS-1,3-DICHLOROPROPENE	0.000		0	0		
43] TRANS -1,3-DICHLOROPRO...	0.000		0	0		
44] TOLUENE	0.000		0	0		
45] 1,1,2-TRICHLOROETHANE	0.000		0	0		
46] METHYL BUTYL KETONE(MBK)	0.000		0	0		
47] DIBROMOCHLOROMETHANE	0.000		0	0		
48] TETRACHLOROETHENE	0.000		0	0		
49] 1,2-DIBROMOETHANE	0.000		0	0		
50] CHLOROBENZENE	0.000		0	0		
51] [IS]CHLOROBENZENE-D5	0.000		0	0		
52] ETHYL BENZENE	0.000		0	0		
53] M/P-XYLENE	0.000		0	0		
54] STYRENE	0.000		0	0		

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 191 3517 p12.D
Acq On : 11 Oct 2023 09:05 pm
Operator : AIRGCMS#1
Sample : 191 3517 p12
Misc :
ALS Vial : 193 Sample Multiplier: 1

Quant Time: Oct 16 17:05:17 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
55] O-XYLENE	0.000		0	0		
56] BROMOFORM	0.000		0	0		
57] 1,1,2,2-TETRACHLOROETHANE	0.000		0	0		
58] *[IS]4-BROMOFLUOROBENZENE	0.000		0	0		
59] 4-ETHYL TOLUENE	0.000		0	0		
60] 1,3,5-TRIMETHYLBENZENE	0.000		0	0		
61] 1,2,4-TRIMETHYLBENZENE	0.000		0	0		
62] 1,3-DICHLOROBENZENE	0.000		0	0		
63] BENZYL CHLORIDE	0.000		0	0		
64] 1,4-DICHLOROBENZENE	0.000		0	0		
65] 1,2-DICHLOROBENZENE	0.000		0	0		
66] 1,2,4-TRICHLORBENZENE	0.000		0	0		
67] NAPHTHALENE	0.000		0	0		
68] HEXACHLOROBUTADIENE	0.000		0	0		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 187 3292 p8.D
Acq On : 11 Oct 2023 06:16 pm
Operator : AIRGCMS#1
Sample : 187 3292 p8
Misc :
ALS Vial : 189 Sample Multiplier: 1

Quant Time: Oct 16 17:03:18 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Target Compounds						Qvalue
1] [IS]BROMOCHLOROMETHANE	0.000		0	0		
2] PROPYLENE	0.000		0	0	d	
3] DICHLORODIFLUOROMETHAN...	0.000		0	0		
4] CHLOROMETHANE	0.000		0	0		
5] FREON-114	0.000		0	0		
6] VINYL CHLORIDE	0.000		0	0		
7] 1,3-BUTADIENE	0.000		0	0		
8] BROMOMETHANE	0.000		0	0		
9] CHLOROETHANE	0.000		0	0		
10] ETHANOL	0.000		0	0		
11] ACROLEIN	0.000		0	0		
12] TRICHLOROFLUOROMETHANE...	0.000		0	0		
13] ACETONE	0.000		0	0		
14] ISOPROPYL ALCOHOL	0.000		0	0		
15] 1,1-DICHLOROETHENE	0.000		0	0		
16] FREON-113	0.000		0	0		
17] METHYLENE CHLORIDE (DCM)	0.000		0	0		
18] CARBON DISULFIDE	0.000		0	0		
19] TRANS-1,2-DICHLOROETHENE	0.000		0	0		
20] METHYL TERT BUTYL ETHE...	0.000		0	0		
21] 1,1-DICHLOROETHANE	0.000		0	0		
22] VINYL ACETATE	0.000		0	0		
23) METHYL ETHYL KETONE (M...	0.000		0	0		
24] HEXANE	0.000		0	0		
25] CIS-1,2-DICHLOROETHENE	0.000		0	0		
26] ETHYL ACETATE	0.000		0	0		
27] CHLOROFORM	0.000		0	0		
28] TETRAHYDROFURAN	0.000		0	0		
29] 1,1,1-TRICHLOROETHANE	0.000		0	0		
30] 1,2-DICHLOROETHANE	0.000		0	0		
31] BENZENE	0.000		0	0		
32) CARBON TETRACHLORIDE	0.000		0	0		
33] CYCLOHEXANE	0.000		0	0		
34] [IS]1,4-DIFLUOROBENZENE	0.000		0	0		
35] HEPTANE	0.000		0	0		
36] TRICHLOROETHENE	0.000		0	0		
37] 1,2-DICHLOROPROPANE	0.000		0	0		
38] 1,4-DIOXANE	0.000		0	0		
39] BROMODICHLOROMETHANE	0.000		0	0		
40] METHYL METHACRYLATE	0.000		0	0		
41] METHYL ISOBUTYL KETONE...	0.000		0	0		
42] CIS-1,3-DICHLOROPROPENE	0.000		0	0		
43] TRANS -1,3-DICHLOROPRO...	0.000		0	0		
44] TOLUENE	0.000		0	0		
45] 1,1,2-TRICHLOROETHANE	0.000		0	0		
46] METHYL BUTYL KETONE(MBK)	0.000		0	0		
47] DIBROMOCHLOROMETHANE	0.000		0	0		
48] TETRACHLOROETHENE	0.000		0	0		
49] 1,2-DIBROMOETHANE	0.000		0	0		
50] CHLOROBENZENE	0.000		0	0		
51] [IS]CHLOROBENZENE-D5	0.000		0	0		
52] ETHYL BENZENE	0.000		0	0		
53] M/P-XYLENE	0.000		0	0		
54] STYRENE	0.000		0	0		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 187 3292 p8.D
Acq On : 11 Oct 2023 06:16 pm
Operator : AIRGCMS#1
Sample : 187 3292 p8
Misc :
ALS Vial : 189 Sample Multiplier: 1

Quant Time: Oct 16 17:03:18 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
55] O-XYLENE	0.000		0	0		
56] BROMOFORM	0.000		0	0		
57] 1,1,2,2-TETRACHLOROETHANE	0.000		0	0		
58] *[IS]4-BROMOFLUOROBENZENE	0.000		0	0		
59] 4-ETHYL TOLUENE	0.000		0	0		
60] 1,3,5-TRIMETHYLBENZENE	0.000		0	0		
61] 1,2,4-TRIMETHYLBENZENE	0.000		0	0		
62] 1,3-DICHLOROBENZENE	0.000		0	0		
63] BENZYL CHLORIDE	0.000		0	0		
64] 1,4-DICHLOROBENZENE	0.000		0	0		
65] 1,2-DICHLOROBENZENE	0.000		0	0		
66] 1,2,4-TRICHLORBENZENE	0.000		0	0		
67] NAPHTHALENE	0.000		0	0		
68] HEXACHLOROBUTADIENE	0.000		0	0		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 188 1706 p9.D
Acq On : 11 Oct 2023 06:59 pm
Operator : AIRGCMS#1
Sample : 188 1706 p9
Misc :
ALS Vial : 190 Sample Multiplier: 1

Quant Time: Oct 16 17:03:51 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Target Compounds						Qvalue
1] [IS]BROMOCHLOROMETHANE	0.000		0	0		
2] PROPYLENE	0.000		0	0	d	
3] DICHLORODIFLUOROMETHAN...	0.000		0	0		
4] CHLOROMETHANE	0.000		0	0		
5] FREON-114	0.000		0	0		
6] VINYL CHLORIDE	0.000		0	0		
7] 1,3-BUTADIENE	0.000		0	0		
8] BROMOMETHANE	0.000		0	0		
9] CHLOROETHANE	0.000		0	0		
10] ETHANOL	0.000		0	0		
11] ACROLEIN	0.000		0	0		
12] TRICHLOROFLUOROMETHANE...	0.000		0	0		
13] ACETONE	0.000		0	0		
14] ISOPROPYL ALCOHOL	0.000		0	0		
15] 1,1-DICHLOROETHENE	0.000		0	0		
16] FREON-113	0.000		0	0		
17] METHYLENE CHLORIDE (DCM)	0.000		0	0		
18] CARBON DISULFIDE	0.000		0	0		
19] TRANS-1,2-DICHLOROETHENE	0.000		0	0		
20] METHYL TERT BUTYL ETHE...	0.000		0	0		
21] 1,1-DICHLOROETHANE	0.000		0	0		
22] VINYL ACETATE	0.000		0	0		
23) METHYL ETHYL KETONE (M...	0.000		0	0		
24] HEXANE	0.000		0	0		
25] CIS-1,2-DICHLOROETHENE	0.000		0	0		
26] ETHYL ACETATE	0.000		0	0		
27] CHLOROFORM	0.000		0	0		
28] TETRAHYDROFURAN	0.000		0	0		
29] 1,1,1-TRICHLOROETHANE	0.000		0	0		
30] 1,2-DICHLOROETHANE	0.000		0	0		
31] BENZENE	0.000		0	0		
32) CARBON TETRACHLORIDE	0.000		0	0		
33] CYCLOHEXANE	0.000		0	0		
34] [IS]1,4-DIFLUOROBENZENE	0.000		0	0		
35] HEPTANE	0.000		0	0		
36] TRICHLOROETHENE	0.000		0	0		
37] 1,2-DICHLOROPROPANE	0.000		0	0		
38] 1,4-DIOXANE	0.000		0	0		
39] BROMODICHLOROMETHANE	0.000		0	0		
40] METHYL METHACRYLATE	0.000		0	0		
41] METHYL ISOBUTYL KETONE...	0.000		0	0		
42] CIS-1,3-DICHLOROPROPENE	0.000		0	0		
43] TRANS -1,3-DICHLOROPRO...	0.000		0	0		
44] TOLUENE	0.000		0	0		
45] 1,1,2-TRICHLOROETHANE	0.000		0	0		
46] METHYL BUTYL KETONE(MBK)	0.000		0	0		
47] DIBROMOCHLOROMETHANE	0.000		0	0		
48] TETRACHLOROETHENE	0.000		0	0		
49] 1,2-DIBROMOETHANE	0.000		0	0		
50] CHLOROBENZENE	0.000		0	0		
51] [IS]CHLOROBENZENE-D5	0.000		0	0		
52] ETHYL BENZENE	0.000		0	0		
53] M/P-XYLENE	0.000		0	0		
54] STYRENE	0.000		0	0		

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 188 1706 p9.D
Acq On : 11 Oct 2023 06:59 pm
Operator : AIRGCMS#1
Sample : 188 1706 p9
Misc :
ALS Vial : 190 Sample Multiplier: 1

Quant Time: Oct 16 17:03:51 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
55] O-XYLENE	0.000		0	0		
56] BROMOFORM	0.000		0	0		
57] 1,1,2,2-TETRACHLOROETHANE	0.000		0	0		
58] *[IS]4-BROMOFLUOROBENZENE	0.000		0	0		
59] 4-ETHYL TOLUENE	0.000		0	0		
60] 1,3,5-TRIMETHYLBENZENE	0.000		0	0		
61] 1,2,4-TRIMETHYLBENZENE	0.000		0	0		
62] 1,3-DICHLOROBENZENE	0.000		0	0		
63] BENZYL CHLORIDE	0.000		0	0		
64] 1,4-DICHLOROBENZENE	0.000		0	0		
65] 1,2-DICHLOROBENZENE	0.000		0	0		
66] 1,2,4-TRICHLORBENZENE	0.000		0	0		
67] NAPHTHALENE	0.000		0	0		
68] HEXACHLOROBUTADIENE	0.000		0	0		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 192 2476 p13.D
Acq On : 11 Oct 2023 09:48 pm
Operator : AIRGCMS#1
Sample : 192 2476 p13
Misc :
ALS Vial : 194 Sample Multiplier: 1

Quant Time: Oct 16 17:05:46 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Target Compounds						Qvalue
1] [IS]BROMOCHLOROMETHANE	0.000		0	0		
2] PROPYLENE	0.000		0	0	d	
3] DICHLORODIFLUOROMETHAN...	0.000		0	0		
4] CHLOROMETHANE	0.000		0	0		
5] FREON-114	0.000		0	0		
6] VINYL CHLORIDE	0.000		0	0		
7] 1,3-BUTADIENE	0.000		0	0		
8] BROMOMETHANE	0.000		0	0		
9] CHLOROETHANE	0.000		0	0		
10] ETHANOL	0.000		0	0		
11] ACROLEIN	0.000		0	0		
12] TRICHLOROFLUOROMETHANE...	0.000		0	0		
13] ACETONE	0.000		0	0		
14] ISOPROPYL ALCOHOL	0.000		0	0		
15] 1,1-DICHLOROETHENE	0.000		0	0		
16] FREON-113	0.000		0	0		
17] METHYLENE CHLORIDE (DCM)	0.000		0	0		
18] CARBON DISULFIDE	0.000		0	0		
19] TRANS-1,2-DICHLOROETHENE	0.000		0	0		
20] METHYL TERT BUTYL ETHE...	0.000		0	0		
21] 1,1-DICHLOROETHANE	0.000		0	0		
22] VINYL ACETATE	0.000		0	0		
23) METHYL ETHYL KETONE (M...	0.000		0	0		
24] HEXANE	0.000		0	0		
25] CIS-1,2-DICHLOROETHENE	0.000		0	0		
26] ETHYL ACETATE	0.000		0	0		
27] CHLOROFORM	0.000		0	0		
28] TETRAHYDROFURAN	0.000		0	0		
29] 1,1,1-TRICHLOROETHANE	0.000		0	0		
30] 1,2-DICHLOROETHANE	0.000		0	0		
31] BENZENE	0.000		0	0		
32) CARBON TETRACHLORIDE	0.000		0	0		
33] CYCLOHEXANE	0.000		0	0		
34] [IS]1,4-DIFLUOROBENZENE	0.000		0	0		
35] HEPTANE	0.000		0	0		
36] TRICHLOROETHENE	0.000		0	0		
37] 1,2-DICHLOROPROPANE	0.000		0	0		
38] 1,4-DIOXANE	0.000		0	0		
39] BROMODICHLOROMETHANE	0.000		0	0		
40] METHYL METHACRYLATE	0.000		0	0		
41] METHYL ISOBUTYL KETONE...	0.000		0	0		
42] CIS-1,3-DICHLOROPROPENE	0.000		0	0		
43] TRANS -1,3-DICHLOROPRO...	0.000		0	0		
44] TOLUENE	0.000		0	0		
45] 1,1,2-TRICHLOROETHANE	0.000		0	0		
46] METHYL BUTYL KETONE(MBK)	0.000		0	0		
47] DIBROMOCHLOROMETHANE	0.000		0	0		
48] TETRACHLOROETHENE	0.000		0	0		
49] 1,2-DIBROMOETHANE	0.000		0	0		
50] CHLOROBENZENE	0.000		0	0		
51] [IS]CHLOROBENZENE-D5	0.000		0	0		
52] ETHYL BENZENE	0.000		0	0		
53] M/P-XYLENE	0.000		0	0		
54] STYRENE	0.000		0	0		

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 192 2476 p13.D
Acq On : 11 Oct 2023 09:48 pm
Operator : AIRGCMS#1
Sample : 192 2476 p13
Misc :
ALS Vial : 194 Sample Multiplier: 1

Quant Time: Oct 16 17:05:46 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
55] O-XYLENE	0.000		0	0		
56] BROMOFORM	0.000		0	0		
57] 1,1,2,2-TETRACHLOROETHANE	0.000		0	0		
58] *[IS]4-BROMOFLUOROBENZENE	0.000		0	0		
59] 4-ETHYL TOLUENE	0.000		0	0		
60] 1,3,5-TRIMETHYLBENZENE	0.000		0	0		
61] 1,2,4-TRIMETHYLBENZENE	0.000		0	0		
62] 1,3-DICHLOROBENZENE	0.000		0	0		
63] BENZYL CHLORIDE	0.000		0	0		
64] 1,4-DICHLOROBENZENE	0.000		0	0		
65] 1,2-DICHLOROBENZENE	0.000		0	0		
66] 1,2,4-TRICHLORBENZENE	0.000		0	0		
67] NAPHTHALENE	0.000		0	0		
68] HEXACHLOROBUTADIENE	0.000		0	0		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 194 3537 p15.D
Acq On : 11 Oct 2023 11:12 pm
Operator : AIRGCMS#1
Sample : 194 3537 p15
Misc :
ALS Vial : 196 Sample Multiplier: 1

Quant Time: Oct 27 16:46:15 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Target Compounds						Qvalue
1] [IS]BROMOCHLOROMETHANE	0.000		0	0		
2] PROPYLENE	0.000		0	0		
3] DICHLORODIFLUOROMETHAN...	0.000		0	0		
4] CHLOROMETHANE	0.000		0	0	d	
5] FREON-114	0.000		0	0		
6] VINYL CHLORIDE	0.000		0	0		
7] 1,3-BUTADIENE	0.000		0	0		
8] BROMOMETHANE	0.000		0	0		
9] CHLOROETHANE	0.000		0	0		
10] ETHANOL	0.000		0	0		
11] ACROLEIN	0.000		0	0		
12] TRICHLOROFLUOROMETHANE...	0.000		0	0		
13] ACETONE	0.000		0	0		
14] ISOPROPYL ALCOHOL	0.000		0	0		
15] 1,1-DICHLOROETHENE	0.000		0	0		
16] FREON-113	0.000		0	0		
17] METHYLENE CHLORIDE (DCM)	0.000		0	0		
18] CARBON DISULFIDE	0.000		0	0		
19] TRANS-1,2-DICHLOROETHENE	0.000		0	0		
20] METHYL TERT BUTYL ETHE...	0.000		0	0		
21] 1,1-DICHLOROETHANE	0.000		0	0		
22] VINYL ACETATE	0.000		0	0		
23) METHYL ETHYL KETONE (M...	0.000		0	0		
24] HEXANE	0.000		0	0		
25] CIS-1,2-DICHLOROETHENE	0.000		0	0		
26] ETHYL ACETATE	0.000		0	0		
27] CHLOROFORM	0.000		0	0		
28] TETRAHYDROFURAN	0.000		0	0	d	
29] 1,1,1-TRICHLOROETHANE	0.000		0	0		
30] 1,2-DICHLOROETHANE	0.000		0	0		
31] BENZENE	0.000		0	0		
32) CARBON TETRACHLORIDE	0.000		0	0		
33] CYCLOHEXANE	0.000		0	0		
34] [IS]1,4-DIFLUOROBENZENE	0.000		0	0		
35] HEPTANE	0.000		0	0		
36] TRICHLOROETHENE	0.000		0	0		
37] 1,2-DICHLOROPROPANE	0.000		0	0		
38] 1,4-DIOXANE	0.000		0	0		
39] BROMODICHLOROMETHANE	0.000		0	0		
40] METHYL METHACRYLATE	0.000		0	0		
41] METHYL ISOBUTYL KETONE...	0.000		0	0		
42] CIS-1,3-DICHLOROPROPENE	0.000		0	0		
43] TRANS -1,3-DICHLOROPRO...	0.000		0	0		
44] TOLUENE	0.000		0	0		
45] 1,1,2-TRICHLOROETHANE	0.000		0	0		
46] METHYL BUTYL KETONE(MBK)	0.000		0	0		
47] DIBROMOCHLOROMETHANE	0.000		0	0		
48] TETRACHLOROETHENE	0.000		0	0		
49] 1,2-DIBROMOETHANE	0.000		0	0		
50] CHLOROBENZENE	0.000		0	0		
51] [IS]CHLOROBENZENE-D5	0.000		0	0		
52] ETHYL BENZENE	0.000		0	0		
53] M/P-XYLENE	0.000		0	0		
54] STYRENE	0.000		0	0		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS\1\data\2023\08_2023\230831\
Data File : 194 3537 p15.D
Acq On : 11 Oct 2023 11:12 pm
Operator : AIRGCMS#1
Sample : 194 3537 p15
Misc :
ALS Vial : 196 Sample Multiplier: 1

Quant Time: Oct 27 16:46:15 2023
Quant Method : C:\GCMS\1\Quant Methods\2023\08_2023\NIS_230831_VOCFULL_DB5MS.M
Quant Title : VOC TO15
QLast Update : Fri Sep 01 16:23:07 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
55] O-XYLENE	0.000		0	0		
56] BROMOFORM	0.000		0	0		
57] 1,1,2,2-TETRACHLOROETHANE	0.000		0	0		
58] *[IS]4-BROMOFLUOROBENZENE	0.000		0	0		
59] 4-ETHYL TOLUENE	0.000		0	0		
60] 1,3,5-TRIMETHYLBENZENE	0.000		0	0		
61] 1,2,4-TRIMETHYLBENZENE	0.000		0	0		
62] 1,3-DICHLOROBENZENE	0.000		0	0		
63] BENZYL CHLORIDE	0.000		0	0		
64] 1,4-DICHLOROBENZENE	0.000		0	0		
65] 1,2-DICHLOROBENZENE	0.000		0	0		
66] 1,2,4-TRICHLORBENZENE	0.000		0	0		
67] NAPHTHALENE	0.000		0	0		
68] HEXACHLOROBUTADIENE	0.000		0	0		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

APPENDIX H: US EPA VISL CRITERIA

Resident Air Inputs

Variable	Resident Air Default Value	Site-Specific Value
AF_{gw} (Attenuation Factor Groundwater) unitless	0.001	0.001
AF_{ss} (Attenuation Factor Sub-Slab) unitless	0.03	0.03
ED_{res} (exposure duration) years	26	26
ED_{0-2} (mutagenic exposure duration first phase) years	2	2
ED_{2-6} (mutagenic exposure duration second phase) years	4	4
ED_{6-16} (mutagenic exposure duration third phase) years	10	10
ED_{16-26} (mutagenic exposure duration fourth phase) years	10	10
EF_{res} (exposure frequency) days/year	350	350
EF_{0-2} (mutagenic exposure frequency first phase) days/year	350	350
EF_{2-6} (mutagenic exposure frequency second phase) days/year	350	350
EF_{6-16} (mutagenic exposure frequency third phase) days/year	350	350
EF_{16-26} (mutagenic exposure frequency fourth phase) days/year	350	350
ET_{res} (exposure time) hours/day	24	24
ET_{0-2} (mutagenic exposure time first phase) hours/day	24	24
ET_{2-6} (mutagenic exposure time second phase) hours/day	24	24
ET_{6-16} (mutagenic exposure time third phase) hours/day	24	24
ET_{16-26} (mutagenic exposure time fourth phase) hours/day	24	24
THQ (target hazard quotient) unitless	0.1	0.1
LT (lifetime) years	70	70
TR (target risk) unitless	1.0E-06	1.0E-05

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C_{vp} > $C_{i,a}$,Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C_{hc} > $C_{i,a}$,Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=0.1) MIN($C_{ia,c}$,$C_{ia,nc}$) ($\mu g/m^3$)	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=0.1) C_{sg},Target ($\mu g/m^3$)	Target Groundwater Concentration (TCR=1E-05 or THQ=0.1) C_{gw},Target ($\mu g/L$)
Acetone	67-64-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-
Bromodichloromethane	75-27-4	Yes	Yes	Yes	Yes	7.59E-01	CA	2.53E+01	1.10E+01
Chloroform	67-66-3	Yes	Yes	Yes	Yes	1.22E+00	CA	4.07E+01	9.92E+00
Dibromochloromethane	124-48-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-
Ethanol	64-17-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-
Heptane, N-	142-82-5	Yes	Yes	Yes	Yes	4.17E+01	NC	1.39E+03	6.47E-01
Isopropanol	67-63-0	Yes	Yes	Yes	Yes	2.09E+01	NC	6.95E+02	8.48E+04
Isopropyltoluene, p-	99-87-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-
Methyl Ethyl Ketone (2-Butanone)	78-93-3	Yes	Yes	Yes	Yes	5.21E+02	NC	1.74E+04	2.80E+05
Propylene	115-07-1	Yes	Yes	Yes	Yes	3.13E+02	NC	1.04E+04	4.25E+01
Styrene-Acrylonitrile (SAN) Trimer (THNP isomer)	57964-40-6	No	No	No (not volatile)	No (not volatile)	-		-	-
Trimethylbenzene, 1,2,3-	526-73-8	Yes	Yes	Yes	Yes	6.26E+00	NC	2.09E+02	5.23E+01
Trimethylbenzene, 1,3,5-	108-67-8	Yes	Yes	Yes	Yes	6.26E+00	NC	2.09E+02	2.39E+01

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Is Target Groundwater Concentration < MCL? (C_{gw} < MCL?)	Pure Phase Vapor Concentration C_{vp} \ (20 ℃)\ (µg/m³)	Maximum Groundwater Vapor Concentration C_{hc} \ (µg/m³)	Temperature for Maximum Groundwater Vapor Concentration (℃)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m³)$^{-1}$	IUR Ref	RfC (mg/m³)	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 $C_{ia,c}$ (µg/m³)	Noncarcinogenic VISL THQ=0.1 $C_{ia,nc}$ (µg/m³)
	7.25E+08	1.17E+09	20	2.50	U	-		-		No	-	-
Yes (80)	4.41E+08	2.09E+08	20	-		3.70E-05	U	-		No	7.59E-01	-
Yes (80)	1.26E+09	9.79E+08	20	-		2.30E-05	U	9.77E-02	U	No	1.22E+00	1.02E+01
	6.21E+07	7.29E+07	20	-		-		-		No	-	-
	1.47E+08	1.54E+08	20	3.30	U	-		-		No	-	-
--	2.48E+08	2.19E+08	20	1.05	U	-		4.00E-01	U	No	-	4.17E+01
--	1.47E+08	2.46E+08	20	2.00	U	-		2.00E-01	U	No	-	2.09E+01
	1.05E+07	7.70E+06	20	0.70	U	-		-		No	-	-
--	3.51E+08	4.15E+08	20	1.40	U	-		5.00E+00	U	No	-	5.21E+02
--	1.97E+10	1.47E+09	20	2.00	U	-		3.00E+00	U	No	-	3.13E+02
	1.29E+00	-	20	-		-		-		No	-	-
--	1.09E+07	9.00E+06	20	0.80	U	-		6.00E-02	U	No	-	6.26E+00
--	1.60E+07	1.26E+07	20	1.00	U	-		6.00E-02	U	No	-	6.26E+00

Resident Vapor Intrusion Risk

Chemical	CAS Number	Site Sub-Slab and Exterior Soil Gas Concentration C_{sg} \ ($\mu g/m^3$)	Site Indoor Air Concentration $C_{i,a}$ \ ($\mu g/m^3$)	VI Carcinogenic Risk CDI ($\mu g/m^3$)
Acetone	67-64-1	10	-	-
Bromodichloromethane	75-27-4	55	1.65E+00	5.88E-01
Chloroform	67-66-3	49	1.47E+00	5.24E-01
Dibromochloromethane	124-48-1	9	-	-
Ethanol	64-17-5	30	-	-
Heptane, N-	142-82-5	22	6.60E-01	2.35E-01
Isopropanol	67-63-0	50	1.50E+00	5.34E-01
Isopropyltoluene, p-	99-87-6	9	-	-
Methyl Ethyl Ketone (2-Butanone)	78-93-3	56	1.68E+00	5.98E-01
Propylene	115-07-1	1	3.00E-02	1.07E-02
Styrene-Acrylonitrile (SAN) Trimer (THNP isomer)	57964-40-6	7	-	-
Trimethylbenzene, 1,2,3-	526-73-8	44	1.32E+00	4.70E-01
Trimethylbenzene, 1,3,5-	108-67-8	10	3.00E-01	1.07E-01
*Sum		-	-	-

Resident Vapor Intrusion Risk

VI Carcinogenic Risk CR	VI Hazard CDI (mg/m³)	VI Hazard HQ	IUR (ug/m³)⁻¹	IUR Ref	Chronic RfC (mg/m³)	RfC Ref	Temperature (℃)\ for Groundwater Vapor Concentration	Mutagen?
-	-	-	-		-		20	No
2.17E-05	1.58E-03	-	3.70E-05	U	-		20	No
1.20E-05	1.41E-03	1.44E-02	2.30E-05	U	9.77E-02	U	20	No
-	-	-	-		-		20	No
-	-	-	-		-		20	No
-	6.33E-04	1.58E-03	-		4.00E-01	U	20	No
-	1.44E-03	7.19E-03	-		2.00E-01	U	20	No
-	-	-	-		-		20	No
-	1.61E-03	3.22E-04	-		5.00E+00	U	20	No
-	2.88E-05	9.59E-06	-		3.00E+00	U	20	No
-	-	-	-		-		20	No
-	1.27E-03	2.11E-02	-		6.00E-02	U	20	No
-	2.88E-04	4.79E-03	-		6.00E-02	U	20	No
3.38E-05	-	*4.94E-02*	-		-		-	

Chemical Properties

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	MW	MW Ref	S (mg/L)	S Ref	MCL (ug/L)	HLC (atm-m³/mole)	Henry's Law Constant (unitless)	Henry's Law Constant (20 ℃) (unitless)	Henry's Law Constant Used in Calcs (unitless)
Acetone	67-64-1	Yes	No	58.08	U	1.00E+06	U	-	3.50E-05	1.43E-03	1.17E-03	1.17E-03
Bromodichloromethane	75-27-4	Yes	Yes	163.83	U	3.03E+03	U	80	2.12E-03	8.67E-02	6.89E-02	6.89E-02
Chloroform	67-66-3	Yes	Yes	119.38	U	7.95E+03	U	80	3.67E-03	1.50E-01	1.23E-01	1.23E-01
Dibromochloromethane	124-48-1	Yes	No	208.28	U	2.70E+03	U	80	7.83E-04	3.20E-02	2.70E-02	2.70E-02
Ethanol	64-17-5	Yes	No	46.07	U	1.00E+06	U	-	5.00E-06	2.04E-04	1.54E-04	1.54E-04
Heptane, N-	142-82-5	Yes	Yes	100.21	U	3.40E+00	U	-	2.00E+00	8.18E+01	6.45E+01	6.45E+01
Isopropanol	67-63-0	Yes	Yes	60.10	U	1.00E+06	U	-	8.10E-06	3.31E-04	2.46E-04	2.46E-04
Isopropyltoluene, p-	99-87-6	Yes	No	134.22	U	2.34E+01	U	-	1.10E-02	4.50E-01	3.29E-01	3.29E-01
Methyl Ethyl Ketone (2-Butanone)	78-93-3	Yes	Yes	72.11	U	2.23E+05	U	-	5.69E-05	2.33E-03	1.86E-03	1.86E-03
Propylene	115-07-1	Yes	Yes	42.08	U	2.00E+02	U	-	1.96E-01	8.01E+00	7.37E+00	7.37E+00
Styrene-Acrylonitrile (SAN) Trimer (THNP isomer)	57964-40-6	No	No	210.00	U	8.49E+01	U	-	-	-	-	-
Trimethylbenzene, 1,2,3-	526-73-8	Yes	Yes	120.20	U	7.52E+01	U	-	4.36E-03	1.78E-01	1.20E-01	1.20E-01
Trimethylbenzene, 1,3,5-	108-67-8	Yes	Yes	120.20	U	4.82E+01	U	-	8.77E-03	3.59E-01	2.61E-01	2.61E-01

Chemical Properties

H` and HLC Ref	Enthalpy of vaporization @ groundwater temperature $\Delta H_{v,gw}$ \ (cal/mol)	Enthalpy of vaporization at the normal boiling point $\Delta H_{v,b}$ \ (cal/mol)	$\Delta H_{v,b}$ \ Ref	Normal Boiling Point BP (K)	BP Ref	Exponent for $\Delta H_{v,gw}$	Vapor Pressure VP (mm Hg)	VP Ref	Vapor Pressure VP (20 ℃)\ (mm Hg)	Critical Temperature T_C \ (K)	T_C \ Ref	Lower Explosive Limit LEL (% by volume)	LEL Ref
U	7439.75	6960.00	U	329.15	U	0.36	2.32E+02	U	1.87E+02	5.08E+02	U	2.50	U
U	8565.18	7800.00	U	363.15	U	0.34	5.00E+01	U	3.91E+01	5.86E+02	U	-	
U	7452.39	6990.00	U	334.25	U	0.35	1.97E+02	U	1.59E+02	5.36E+02	U	-	
U	6482.86	5900.00	U	393.15	U	0.31	5.54E+00	U	4.60E+00	6.78E+02	U	-	
U	10378.04	9220.00	U	351.35	U	0.39	5.93E+01	U	4.40E+01	5.15E+02	U	3.30	U
U	8822.99	7590.00	U	371.65	U	0.39	4.60E+01	U	3.57E+01	5.40E+02	U	1.05	U
U	10924.24	9520.00	U	355.45	U	0.40	4.54E+01	U	3.31E+01	5.08E+02	U	2.00	U
U	11429.48	9130.00	U	450.15	U	0.39	1.46E+00	U	1.05E+00	6.54E+02	U	0.70	U
U	8295.53	7480.00	U	352.65	U	0.37	9.06E+01	U	7.14E+01	5.37E+02	U	1.40	U
U	3507.33	4400.00	U	225.15	U	0.34	8.69E+03	U	7.86E+03	3.65E+02	U	2.00	U
	-	-		705.15	U	0.30	1.14E-07	U	-	-		-	
U	14432.80	11700.00	U	449.15	U	0.38	1.69E+00	U	1.12E+00	6.64E+02	U	0.80	U
U	11558.13	9320.00	U	438.15	U	0.39	2.48E+00	U	1.78E+00	6.37E+02	U	1.00	U

APPENDIX I: ANALYTICAL TABLES

agon ENVIRONMENTAL

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

JC1225

Lab Batch ID	945395	945395	945395	947186	945395	945395	945395	945395	945395	945395	945395	945395	945395
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	BH1 (0.1-0.2)	BH1 (0.4-0.5)	BH1 (0.9-1.0)	BH1 (0.9-1.0)	BH2 (0.1-0.2)	BH2 (0.4-0.5)	BH2 (0.9-1.0)	BH3 (0.4-0.5)	BH3 (0.9-1.0)	BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Core	WGA	WGA	WGA	Soil	WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA
Sample Date	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal														
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste												
Metals																								
Arsenic	mg/kg	2	500	NE	NE	NE	NE	NE	80	20	200	750	<2	-	6.7	-	<2	-	5.0	6.6	9.7	<2	<2	<2	18
Barium	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	300	NE	NE	17	-	74	-	-	-	74	-	100	33	42	46	100
Beryllium	mg/kg	2	90	NE	NE	NE	NE	NE	NE	20	40	150	<2	-	<2	-	-	-	<2	-	2.3	<2	<2	<2	<2
Boron	mg/kg	10	40,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	<10	-	<10	-	-	-	<10	-	<10	<10	<10	<10	-
Cadmium	mg/kg	0.4	150	NE	NE	NE	NE	NE	NE	3	30	60	<0.4	-	<0.4	-	<0.4	-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Cobalt	mg/kg	5	600	NE	NE	NE	NE	NE	NE	170	170	1,000	<5	-	11	-	-	-	10	-	13	<5	<5	<5	<5
Copper	mg/kg	5	30,000	NE	NE	NE	NE	NE	250	60	2,000	7,500	8.8	-	27	-	<5	-	22	18	35	9.1	5.2	<5	20
Chromium (III+VI)	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<5	-	50	-	<5	-	43	15	68	10	7.8	<5	18
Chromium (hexavalent)	mg/kg	1	500	NE	NE	NE	NE	NE	NE	1	200	750	-	-	-	-	-	-	-	-	-	-	-	-	<1
Chromium (Trivalent)	mg/kg	5	NE	NE	NE	NE	NE	NE	490	400	120,000	300,000	-	-	-	-	-	-	-	-	-	-	-	-	18
Iron	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	13,000
Lead	mg/kg	5	1,200	NE	NE	NE	NE	NE	270	300	1,200	5,000	12	-	14	-	<5	-	13	59	24	5.1	8.2	<5	56
Manganese	mg/kg	5	14,000	NE	NE	NE	NE	NE	NE	500	6,000	10,000	77	-	210	-	-	-	220	-	240	150	70	200	190
Mercury	mg/kg	0.1	120	NE	NE	NE	NE	NE	NE	1	30	110	<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<5	-	<5	-	-	-	<5	-	<5	<5	<5	<5	-
Nickel	mg/kg	5	1,200	NE	NE	NE	NE	NE	260	60	600	3,000	<5	-	33	-	<5	-	28	7.1	39	<5	<5	<5	8.8
Selenium	mg/kg	2	1,400	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	-	<2	-	-	-	<2	-	<2	<2	<2	<2	-
Silver	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	-	<2	-	-	-	<2	-	<2	<2	<2	<2	<2
Tin	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<10	-	<10	-	-	-	<10	-	<10	<10	<10	<10	-
Zinc	mg/kg	5	60,000	NE	NE	NE	NE	NE	440	200	14,000	50,000	7.7	-	34	-	13	-	29	180	120	9.2	12	12	160
PAH																									
Acenaphthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Acenaphthylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Benz(a)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	0.8	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.7	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	2.2	-	1.2	-	1.2	-	1.2	-	-	-	-	1.2
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	2.0	-	0.6	-	0.6	-	0.6	-	-	-	-	0.6
Benzo(a) pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	1.4	NE	1	2	5	-	1.3	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Benzo(b+j)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.3	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Benzo(g,h,i)perylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.0	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.1	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Chrysene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.0	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Fluorene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	0.9	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Naphthalene	mg/kg	0.5	NE	3	NE	NE	NE	NE	170	NE	NE	NE	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Phenanthrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.7	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
PAHs (Sum of total)	mg/kg	0.5	400	NE	NE	NE	NE	NE	NE	5	40	200	-	11	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5
Phenols																									
2-Chlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
2,4-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
2,4,5-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<1
2,4,6-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<1
2,6-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
4-chloro-3-methylphenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<1
Pentachlorophenol	mg/kg	1	130	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<1
4,6-Dinitro-2-methylphenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<5
Tetrachlorophenols	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<10
Cresol Total	mg/kg	0.5	4,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<20
2,4-Dimethylphenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
2-Methylphenol	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
2-Nitrophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<1
2,4-Dinitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<5
3&4-Methylphenol (m&p-cresol)	mg/kg	0.4	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.4
4-Nitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<5
Dinoseb	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<20
Phenol	mg/kg	0.5	45,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
Phenols (Total Halogenated)	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<1
Phenols (Total Non Halogenated)	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<20
BTEX																									
Benzene	mg/kg	0.1	NE	0.5	0.5	0.5	0.5	65	NE	1	5	15	-	<0.1	-	-	<0.1	-	-	<0.1	-	<0.1	-	-	<0.1
Ethylbenzene	mg/kg	0.1	NE	55	NE	NE	NE	125	NE	3.1	100	1,000	-	<0.1	-	-	<0.1	-	-	<0.1	-	<0.1	-	-	<0.1
Toluene	mg/kg	0.1	NE	160	220	310	540	105	NE	1.4	50	500	-	<0.1	-	-	<0.1	-	-	<0.1	-	<0.1	-	-	<0.1
Xylene (o)	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.1	-	-	<0.1	-	-	<0.1	-	<0.1	-	-	<0.1
Xylene (m & p)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.2	-	-	<0.2	-	-	<0.2	-	<0.2	-	-	<0.2
Xylene Total	mg/kg	0.3	NE	40	60	95	170	45	NE	14	180	1,800	-	<0.3	-	-	<0.3	-	-	<0.3	-	<0.3	-	-	<0.3
TRH																									
C6-C10	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<20	-	-	<20	-	-	<20	-	<20	-	-	<20
C6-C10 (F1 minus BTEX)	mg/kg	20	NE	45	70	110	200	180	NE	NE	NE	NE	-	<20	-	-	<20	-	-	<20	-	<20	-	-	<20
C10-C16	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<50	-	-	<50	-	-	<50	-	<50	-	-	<50
C10-C16 (F2 minus Naphthalene)	mg/kg	50	NE	110	240	440	NE	120	NE	NE	NE	NE	-	<50	-	-	<50	-	-	<50	-	<50	-	-	<50
C16-C34	mg/kg	100	NE	NE	NE	NE	NE	1,300	NE	NE	NE	NE	-	<100	-	-	<100	-	-	<100	-	<100	-	-	<100
C34-C40	mg/kg	100	NE	NE	NE	NE	NE	5,600	NE	NE	NE	NE	-	<100	-	-	<100	-	-	<100	-	<100	-	-	<100
C10-C40 (Sum of total)	mg/kg	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<100	-	-	<100	-	-	<100	-	<100	-	-	<100
TPH																									
C6-C9	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	65	100	1,000	-	<20	-	-	<20	-	-	<20	-	<20	-	-	<20
C10-C14	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<20	-	-	<20	-	-	<20	-	<20	-	-	<20
C15-C28	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<50	-	-	<50	-	-	<50	-	<50	-	-	<50
C29-C36	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	56	-	-	<50	-	-	<50	-	<50	-	-	<50
+C10-C36 (Sum of total)	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	1,000	1,000	10,000	-	56	-	-	<50	-	-	<50	-	<50	-	-	<50

Notes:

'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESC Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	945395	945395	945395	947186	945395	945395	945395	945395	945395	945395	945395	945395	945395
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	BH1 (0.1-0.2)	BH1 (0.4-0.5)	BH1 (0.9-1.0)	BH1 (0.9-1.0)	BH2 (0.1-0.2)	BH2 (0.4-0.5)	BH2 (0.9-1.0)	BH3 (0.4-0.5)	BH3 (0.9-1.0)	BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Core	WGA	WGA	WGA	Soil	WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA
Sample Date	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal														
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste												
Organochlorine Pesticides																								
Aldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Dieldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	0.07
Aldrin + Dieldrin	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	0.07
DDD	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
DDT	mg/kg	0.05	NE	NE	NE	NE	NE	NE	180	2	2	50	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
4,4-DDE	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
DDT+DDE+DDD	mg/kg	0.05	600	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Endosulfan I	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Endosulfan II	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Endrin	mg/kg	0.05	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Endrin ketone	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Endrin aldehyde	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Endosulfan sulphate	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
chlordane	mg/kg	0.1	90	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-	<0.1
Hexachlorobenzene	mg/kg	0.05	15	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Heptachlor	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Heptachlor epoxide	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
a-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
b-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
d-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
g-BHC (Lindane)	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Methoxychlor	mg/kg	0.05	500	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.05	-	-	-	-	<0.05	-	<0.05
Toxaphene	mg/kg	0.5	30	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.5	-	-	-	-	<0.5	-	<0.5
Organochlorine pesticides EPAVic	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-	<0.1
Organophosphorous Pesticides																								
Azinophos methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Bolstar (Sulprofos)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Chlorfenvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Chlorpyrifos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Coumaphos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<2	-	-	-	-	<2	-	-
Demeton-O	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Demeton-S	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Diazinon	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Dichlorvos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Dimethoate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Disulfoton	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Merphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
EPN	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Methyl parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Ethion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Ethoprop	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Mevinphos (Phosdrin)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Fenitrothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Fensulfothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Monocrotophos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<2	-	-	-	-	<2	-	-
Fenthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Malathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Naled (Dibrom)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Omethoate	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<2	-	-	-	-	<2	-	-
Phorate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Pyrazophos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Ronnel	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Terbufos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Tetrachlorvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Tokuthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Trichloronate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Chlorpyrifos	mg/kg	0.2	340	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
NA																								
Naphthalene (VOC)	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	-	-	<0.5
PCBs																								
Arochlor 1232	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Arochlor 1242	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Arochlor 1248	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Arochlor 1254	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Arochlor 1221	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Arochlor 1260	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Arochlor 1016	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
PCBs (Sum of total)	mg/kg	0.1	1	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Inorganics																								
pH (Final)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (Initial)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	-
pH of Leaching Fluid	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<1	4.3	15	14	3.3	11	19	4.8	20	<1	5.5	3.8	9.0
Cyanide Total	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	500	1,000	3,500	-	-	-	-	-	-	-	-	-	-	-	-	<5

Notes:
'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	945395	945395	945395	947186	945395	945395	945395	945395	945395	945395	945395	945395	945395
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	BH1 (0.1-0.2)	BH1 (0.4-0.5)	BH1 (0.9-1.0)	BH1 (0.9-1.0)	BH2 (0.1-0.2)	BH2 (0.4-0.5)	BH2 (0.9-1.0)	BH3 (0.4-0.5)	BH3 (0.9-1.0)	BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Core	WGA	WGA	WGA	Soil	WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA
Sample Date	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal														
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste												
Chlorinated Hydrocarbons																								
1,1-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,1-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-trichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,2-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,2-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,3-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Dichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Chlorinated hydrocarbons EPAVic	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Chlorodibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	14	25.2	-	-	-	-	-	-	-	-	-	-	-	<0.5
Halogenated Benzenes																								
1,2-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,3-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,4-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
4-chlorotoluene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Hydrocarbons																								
Iodomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,2-dibromoethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
MAH																								
Total MAH	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Pesticides																								
Parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Pirimiphos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-	-
Solvents																								
4-Methyl-2-pentanone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Allyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	945395	RPD	945395	945395	RPD	945395	945395	945395	945395	945395	945395	945395	945395
Lab Name	Eurofins		Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	QC03	%	BH6 (0.4-0.5)	QC02	%	BH6 (0.9-1.0)	BH7 (0.1-0.2)	BH7 (0.3-0.4)	BH7 (0.9-1.0)	BH8 (0.3-0.4)	BH8 (0.4-0.5)	BH9 (0.4-0.5)	BH9 (0.9-1.0)
Sample Core	WGA		WGA	WGA		WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA
Sample Date	28 Nov 2022		28 Nov 2022	28 Nov 2022		28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal			Duplicate of BH5 (0.4-0.5)	RPD between BH5 (0.4-0.5 and QC03		Duplicate of BH6 (0.4-0.5)	RPD between BH6 (0.4-0.5) and QC02							
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste												
Metals																								
Arsenic	mg/kg	2	500	NE	NE	NE	NE	NE	80	20	200	750	6.8	45.2	9.0	9.8	4.3	6.2	<2	-	3.5	2.3	4.3	3.5	5.1
Barium	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	300	NE	NE	-	NA	110	85	12.8	95	11	-	100	48	71	110	73
Beryllium	mg/kg	2	90	NE	NE	NE	NE	NE	NE	20	40	150	-	NA	<2	<2	NA	<2	<2	-	<2	<2	<2	<2	<2
Boron	mg/kg	10	40,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<10	<10	NA	32	<10	-	<10	<10	<10	<10	<10
Cadmium	mg/kg	0.4	150	NE	NE	NE	NE	NE	NE	3	30	60	<0.4	NA	<0.4	<0.4	NA	<0.4	<0.4	-	<0.4	<0.4	<0.4	<0.4	<0.4
Cobalt	mg/kg	5	600	NE	NE	NE	NE	NE	NE	170	170	1,000	-	NA	<5	<5	NA	13	<5	-	7.2	<5	11	6.4	8.8
Copper	mg/kg	5	30,000	NE	NE	NE	NE	NE	250	60	2,000	7,500	17	8.1	19	19	0.0	24	<5	-	13	7.0	18	28	25
Chromium (III+VI)	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	19	2.7	21	22	2.3	42	<5	-	30	12	39	20	48
Chromium (hexavalent)	mg/kg	1	500	NE	NE	NE	NE	NE	NE	1	200	750	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Chromium (Trivalent)	mg/kg	5	NE	NE	NE	NE	NE	NE	490	400	120,000	300,000	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Iron	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Lead	mg/kg	5	1,200	NE	NE	NE	NE	NE	270	300	1,200	5,000	45	10.9	50	51	1.0	12	<5	-	8.5	7.5	14	200	14
Manganese	mg/kg	5	14,000	NE	NE	NE	NE	NE	NE	500	6,000	10,000	-	NA	250	260	2.0	210	50	-	120	84	300	300	180
Mercury	mg/kg	0.1	120	NE	NE	NE	NE	NE	NE	1	30	110	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<5	<5	NA	<5	<5	-	<5	<5	<5	<5	<5
Nickel	mg/kg	5	1,200	NE	NE	NE	NE	NE	260	60	600	3,000	8.8	0.0	9.3	11	8.4	27	<5	-	16	<5	21	11	28
Selenium	mg/kg	2	1,400	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<2	<2	NA	<2	<2	-	<2	<2	<2	<2	<2
Silver	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<2	<2	NA	<2	<2	-	<2	<2	<2	<2	<2
Tin	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<10	18	NA	<10	<10	-	<10	<10	<10	<10	<10
Zinc	mg/kg	5	60,000	NE	NE	NE	NE	NE	440	200	14,000	50,000	120	14.3	140	140	0.0	29	<5	-	19	9.9	24	240	31
PAH																									
Acenaphthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Acenaphthylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Benz(a)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.9	-
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	1.2	1.4	-
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	0.6	1.2	-
Benzo(a) pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	1.4	NE	1	2	5	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.7	-
Benzo(b+j)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.7	-
Benzo(g,h,i)perylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.7	-
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.6	-
Chrysene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.5	-
Dibenz(a,h)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.8	-
Fluorene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.5	-
Naphthalene	mg/kg	0.5	NE	3	NE	NE	NE	NE	170	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Phenanthrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	<0.5	-
Pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	<0.5	0.8	-
PAHs (Sum of total)	mg/kg	0.5	400	NE	NE	NE	NE	NE	NE	5	40	200	-	NA	-	-	NA	-	-	-	-	-	<0.5	5.3	-
Phenols																									
2-Chlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.5	-
2,4-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.5	-
2,4,5-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<1	-
2,4,6-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<1	-
2,6-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.5	-
4-chloro-3-methylphenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<1	-
Pentachlorophenol	mg/kg	1	130	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<1	-
4,6-Dinitro-2-methylphenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<5	-
Tetrachlorophenols	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<10	-
Cresol Total	mg/kg	0.5	4,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.5	-
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<20	-
2,4-Dimethylphenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.5	-
2-Methylphenol	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.2	-
2-Nitrophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<1	-
2,4-Dinitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<5	-
3&4-Methylphenol (m&p-cresol)	mg/kg	0.4	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.4	-
4-Nitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<5	-
Dinoseb	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<20	-
Phenol	mg/kg	0.5	45,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<0.5	-
Phenols (Total Halogenated)	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<1	-
Phenols (Total Non Halogenated)	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	<20	-
BTEX																									
Benzene	mg/kg	0.1	NE	0.5	0.5	0.5	0.5	65	NE	1	5	15	<0.1	NA	-	-	NA	-	<0.1	-	-	-	-	<0.1	-
Ethylbenzene	mg/kg	0.1	NE	55	NE	NE	NE	125	NE	3.1	100	1,000	<0.1	NA	-	-	NA	-	<0.1	-	-	-	-	<0.1	-
Toluene	mg/kg	0.1	NE	160	220	310	540	105	NE	1.4	50	500	<0.1	NA	-	-	NA	-	<0.1	-	-	-	-	<0.1	-
Xylene (o)	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.1	NA	-	-	NA	-	<0.1	-	-	-	-	<0.1	-
Xylene (m & p)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.2	NA	-	-	NA	-	<0.2	-	-	-	-	<0.2	-
Xylene Total	mg/kg	0.3	NE	40	60	95	170	45	NE	14	180	1,800	<0.3	NA	-	-	NA	-	<0.3	-	-	-	-	<0.3	-
TRH																									
C6-C10	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<20	NA	-	-	NA	-	<20	-	-	-	-	<20	-
C6-C10 (F1 minus BTEX)	mg/kg	20	NE	45	70	110	200	180	NE	NE	NE	NE	<20	NA	-	-	NA	-	<20	-	-	-	-	<20	-
C10-C16	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<50	NA	-	-	NA	-	<50	-	-	-	-	<50	-
C10-C16 (F2 minus Naphthalene)	mg/kg	50	NE	110	240	440	NE	120	NE	NE	NE	NE	<50	NA	-	-	NA	-	<50	-	-	-	-	<50	-
C16-C34	mg/kg	100	NE	NE	NE	NE	NE	1,300	NE	NE	NE	NE	<100	NA	-	-	NA	-	<100	-	-	-	-	<100	-
C34-C40	mg/kg	100	NE	NE	NE	NE	NE	5,600	NE	NE	NE	NE	<100	NA	-	-	NA	-	<100	-	-	-	-	<100	-
C10-C40 (Sum of total)	mg/kg	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<100	NA	-	-	NA	-	<100	-	-	-	-	<100	-
TPH																									
C6-C9	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	65	100	1,000	<20	NA	-	-	NA	-	<20	-	-	-	-	<20	-
C10-C14	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<20	NA	-	-	NA	-	<20	-	-	-	-	<20	-
C15-C28	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<50	NA	-	-	NA	-	<50	-	-	-	-	<50	-
C29-C36	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<50	NA	-	-	NA	-	<50	-	-	-	-	<50	-
+C10-C36 (Sum of total)	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	1,000	1,000	10,000	<50	NA	-	-	NA	-	<50	-	-	-	-	<50	-

Notes:

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m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

agon ENVIRONMENTAL

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

JC1225

Lab Batch ID	945395	RPD	945395	945395	RPD	945395	945395	945395	945395	945395	945395	945395	945395
Lab Name	Eurofins		Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	QC03	%	BH6 (0.4-0.5)	QC02	%	BH6 (0.9-1.0)	BH7 (0.1-0.2)	BH7 (0.3-0.4)	BH7 (0.9-1.0)	BH8 (0.3-0.4)	BH8 (0.4-0.5)	BH9 (0.4-0.5)	BH9 (0.9-1.0)
Sample Core	WGA		WGA	WGA		WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA
Sample Date	28 Nov 2022		28 Nov 2022	28 Nov 2022		28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal			Duplicate of BH5 (0.4-0.5)	RPD between BH5 (0.4-0.5 and QC03		Duplicate of BH6 (0.4-0.5)	RPD between BH6 (0.4-0.5) and QC02							
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste												
Organochlorine Pesticides																								
Aldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Dieldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
DDD	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
DDT	mg/kg	0.05	NE	NE	NE	NE	NE	NE	180	2	2	50	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
4,4-DDE	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05	600	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Endosulfan I	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Endosulfan II	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Endrin	mg/kg	0.05	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Endrin ketone	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Endosulfan sulphate	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
chlordane	mg/kg	0.1	90	NE	NE	NE	NE	NE	NE	2	2	50	-	NA	<0.1	-	NA	-	-	<0.1	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.05	15	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Heptachlor	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
a-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
b-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
d-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Methoxychlor	mg/kg	0.05	500	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.05	-	NA	-	-	<0.05	-	-	-	-	-
Toxaphene	mg/kg	0.5	30	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.5	-	NA	-	-	<0.5	-	-	-	-	-
Organochlorine pesticides EPAVic	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.1	-	NA	-	-	<0.1	-	-	-	-	-
Organophosphorous Pesticides																								
Azinophos methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Bolstar (Sulprofos)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Coumaphos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<2	-	NA	-	-	<2	-	-	-	-	-
Demeton-O	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Demeton-S	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Diazinon	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Dichlorvos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Dimethoate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Disulfoton	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Merphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
EPN	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Methyl parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Ethion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Ethoprop	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Mevinphos (Phosdrin)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Fenitrothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Fensulfothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Monocrotophos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<2	-	NA	-	-	<2	-	-	-	-	-
Fenthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Malathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Naled (Dibrom)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Omethoate	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<2	-	NA	-	-	<2	-	-	-	-	-
Phorate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Pyrazophos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Ronnel	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Terbufos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Tetrachlorvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Tokuthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Trichloronate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
Chlorpyrifos	mg/kg	0.2	340	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-	-
NA																								
Naphthalene (VOC)	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	NA	-	-	NA	-	<0.5	-	-	-	-	<0.5	-
PCBs																								
Arochlor 1232	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1242	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1248	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1254	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1221	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1260	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1016	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
PCBs (Sum of total)	mg/kg	0.1	1	NE	NE	NE	NE	NE	NE	2	2	50	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Inorganics																								
pH (Final)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
pH (Initial)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
pH of Leaching Fluid	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	9.0	NA	5.6	4.5	NA	11	1.2	1.7	12	8.8	13	6.3	19
Cyanide Total	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	500	1,000	3,500	-	NA	-	-	NA	-	-	-	-	-	-	-	-

Notes:

'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
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NA = Not Applicable
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Exceeds SA EPA Waste Fill Criteria
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Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	945395	RPD	945395	945395	RPD	945395	945395	945395	945395	945395	945395	945395	945395
Lab Name	Eurofins		Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	QC03	%	BH6 (0.4-0.5)	QC02	%	BH6 (0.9-1.0)	BH7 (0.1-0.2)	BH7 (0.3-0.4)	BH7 (0.9-1.0)	BH8 (0.3-0.4)	BH8 (0.4-0.5)	BH9 (0.4-0.5)	BH9 (0.9-1.0)
Sample Core	WGA		WGA	WGA		WGA	WGA	WGA	WGA	WGA	WGA	WGA	WGA
Sample Date	28 Nov 2022		28 Nov 2022	28 Nov 2022		28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022	28 Nov 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal			Duplicate of BH5 (0.4-0.5)	RPD between BH5 (0.4-0.5 and QC03		Duplicate of BH6 (0.4-0.5)	RPD between BH6 (0.4-0.5) and QC02							
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste												
Chlorinated Hydrocarbons																								
1,1-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,1-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,2,3-trichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,2-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,2-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,3-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,1,1,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,1,1-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Chloroform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,1,2,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Chloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
cis-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Dibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Dichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Trichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Chlorinated hydrocarbons EPAVic	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
cis-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,1,2-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
trans-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Bromoform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Chlorodibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
trans-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	14	25.2	-	NA	-	-	NA	-	-	-	-	-	-	-
Halogenated Benzenes																								
1,2-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,3-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,4-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Bromobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
4-chlorotoluene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Halogenated Hydrocarbons																								
Iodomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Bromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,2-dibromoethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Dichlorodifluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Trichlorofluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
MAH																								
Total MAH	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,3,5-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Styrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Isopropylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
1,2,4-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Pesticides																								
Parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-
Pirimiphos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	<0.2	-	NA	-	-	<0.2	-	-	-	-
Solvents																								
4-Methyl-2-pentanone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Acetone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Allyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-
Methyl Ethyl Ketone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	NA	-	-	NA	-	-	-	-	-	-	-

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Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	945395	947971	947971	947971	RPD	949289	947971	947971	947971	947971	947971	RPD	947971
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins
Field ID	BH9 (1.9-2.0)	A-BH01_0.2-0.3	A-BH01_0.3-0.4	QC01	%	A-BH01_0.7-0.8	A-BH01_0.05-0.15	A-BH02_0.3-0.4	A-BH02_1.1-1.2	A-BH03_0.05-0.15	QC03	%	A-BH03_0.3-0.4
Sample Core	WGA	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon	Agon		Agon
Sample Date	28 Nov 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal				Shallow soils to an approximate depth of 0.5 mbgs to address elevated PAHs within sample A-BH01_0.3-0.4		Duplicate of A-BH01_0.3-0.4	RPD between A-BH01_0.3-0.4 and QC01						Duplicate of A-BH03_0.05-0.15	RPD between A-A-BH03_0.05-0.15 and QC03	
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste													
Metals																									
Arsenic	mg/kg	2	500	NE	NE	NE	NE	NE	80	20	200	750	4.3	19	12	17	17.2	-	-	7.4	5.7	<2	<2	NA	-
Barium	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	300	NE	NE	150	100	110	110	0.0	-	-	91	110	67	62	3.9	-
Beryllium	mg/kg	2	90	NE	NE	NE	NE	NE	NE	20	40	150	<2	<2	<2	<2	NA	-	-	<2	<2	<2	<2	NA	-
Boron	mg/kg	10	40,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	30	<20	<20	<20	NA	-	-	-	28	<10	<10	NA	-
Cadmium	mg/kg	0.4	150	NE	NE	NE	NE	NE	NE	3	30	60	<0.4	<0.4	<0.4	<0.4	NA	-	-	<0.4	<0.4	<0.4	<0.4	NA	-
Cobalt	mg/kg	5	600	NE	NE	NE	NE	NE	NE	170	170	1,000	11	<5	5.1	5.1	0.0	-	-	<5	12	<5	<5	NA	-
Copper	mg/kg	5	30,000	NE	NE	NE	NE	NE	250	60	2,000	7,500	18	21	22	25	6.4	-	-	18	20	<5	<5	NA	-
Chromium (III+VI)	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	40	19	22	20	4.8	-	-	16	43	<5	<5	NA	-
Chromium (hexavalent)	mg/kg	1	500	NE	NE	NE	NE	NE	NE	1	200	750	-	-	-	-	NA	-	-	<1	-	-	-	NA	-
Chromium (Trivalent)	mg/kg	5	NE	NE	NE	NE	NE	NE	490	400	120,000	300,000	-	-	-	-	NA	-	-	16	-	-	-	NA	-
Iron	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	11,000	-	-	-	NA	-
Lead	mg/kg	5	1,200	NE	NE	NE	NE	NE	270	300	1,200	5,000	11	170	130	150	7.1	-	-	75	13	<5	<5	NA	-
Manganese	mg/kg	5	14,000	NE	NE	NE	NE	NE	NE	500	6,000	10,000	250	120	180	210	7.7	-	-	170	200	240	220	4.3	-
Mercury	mg/kg	0.1	120	NE	NE	NE	NE	NE	NE	1	30	110	<0.1	0.1	0.1	0.1	0.0	-	-	<0.1	<0.1	<0.1	<0.1	NA	-
Molybdenum	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<5	<5	<5	<5	NA	-	-	-	<5	<5	<5	NA	-
Nickel	mg/kg	5	1,200	NE	NE	NE	NE	NE	260	60	600	3,000	21	6.2	8.4	9.8	7.7	-	-	8.4	27	<5	<5	A	-
Selenium	mg/kg	2	1,400	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	<2	<2	<2	NA	-	-	-	<2	<2	<2	A	-
Silver	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	<2	<2	<2	NA	-	-	<2	<2	<2	<2	NA	-
Tin	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<10	13	<10	11	NA	-	-	-	<10	<10	<10	NA	-
Zinc	mg/kg	5	60,000	NE	NE	NE	NE	NE	440	200	14,000	50,000	31	280	190	250	13.6	-	-	130	27	10	10	0.0	-
PAH																									
Acenaphthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<0.5	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Acenaphthylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	0.8	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<0.5	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Benz(a)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	4.9	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	8.9	-	NA	0.7	-	<0.5	-	-	-	NA	<0.5
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	8.9	-	NA	1.3	-	1.2	-	-	-	NA	1.2
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	8.9	-	NA	1.0	-	0.6	-	-	-	NA	0.6
Benzo(a) pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	1.4	NE	1	2	5	-	-	6.0	-	NA	0.6	-	<0.5	-	-	-	NA	<0.5
Benzo(b+j)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	5.0	-	NA	0.6	-	<0.5	-	-	-	NA	<0.5
Benzo(g,h,i)perylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	4.3	-	NA	0.5	-	<0.5	-	-	-	NA	<0.5
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	5.0	-	NA	0.7	-	<0.5	-	-	-	NA	<0.5
Chrysene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	4.2	-	NA	0.6	-	<0.5	-	-	-	NA	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	0.7	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	5.1	-	NA	0.5	-	<0.5	-	-	-	NA	<0.5
Fluorene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<0.5	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	6.1	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Naphthalene	mg/kg	0.5	NE	3	NE	NE	NE	NE	170	NE	NE	NE	-	-	<0.5	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Phenanthrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	0.9	-	NA	<0.5	-	<0.5	-	-	-	NA	<0.5
Pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	5.7	-	NA	0.6	-	<0.5	-	-	-	NA	0.6
PAHs (Sum of total)	mg/kg	0.5	400	NE	NE	NE	NE	NE	NE	5	40	200	-	-	49	-	NA	4.1	-	<0.5	-	-	-	NA	0.6
Phenols																									
2-Chlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.5	-	-	-	NA	-
2,4-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.5	-	-	-	NA	-
2,4,5-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<1	-	-	-	NA	-
2,4,6-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<1	-	-	-	NA	-
2,6-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.5	-	-	-	NA	-
4-chloro-3-methylphenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<1	-	-	-	NA	-
Pentachlorophenol	mg/kg	1	130	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<1	-	-	-	NA	-
4,6-Dinitro-2-methylphenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<5	-	-	-	NA	-
Tetrachlorophenols	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<10	-	-	-	NA	-
Cresol Total	mg/kg	0.5	4,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.5	-	-	-	NA	-
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<20	-	-	-	NA	-
2,4-Dimethylphenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.5	-	-	-	NA	-
2-Methylphenol	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.2	-	-	-	NA	-
2-Nitrophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<1	-	-	-	NA	-
2,4-Dinitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<5	-	-	-	NA	-
3&4-Methylphenol (m&p-cresol)	mg/kg	0.4	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.4	-	-	-	NA	-
4-Nitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<5	-	-	-	NA	-
Dinoseb	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<20	-	-	-	NA	-
Phenol	mg/kg	0.5	45,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.5	-	-	-	NA	-
Phenols (Total Halogenated)	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<1	-	-	-	NA	-
Phenols (Total Non Halogenated)	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<20	-	-	-	NA	-
BTEX																									
Benzene	mg/kg	0.1	NE	0.5	0.5	0.5	0.5	65	NE	1	5	15	-	-	<0.1	-	NA	-	-	<0.1	-	-	-	NA	<0.1
Ethylbenzene	mg/kg	0.1	NE	55	NE	NE	NE	125	NE	3.1	100	1,000	-	-	<0.1	-	NA	-	-	<0.1	-	-	-	NA	<0.1
Toluene	mg/kg	0.1	NE	160	220	310	540	105	NE	1.4	50	500	-	-	<0.1	-	NA	-	-	<0.1	-	-	-	NA	<0.1
Xylene (o)	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<0.1	-	NA	-	-	<0.1	-	-	-	NA	<0.1
Xylene (m & p)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<0.2	-	NA	-	-	<0.2	-	-	-	NA	<0.2
Xylene Total	mg/kg	0.3	NE	40	60	95	170	45	NE	14	180	1,800	-	-	<0.3	-	NA	-	-	<0.3	-	-	-	NA	<0.3
TRH																									
C6-C10	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<20	-	NA	-	-	<20	-	-	-	NA	<20
C6-C10 (F1 minus BTEX)	mg/kg	20	NE	45	70	110	200	180	NE	NE	NE	NE	-	-	<20	-	NA	-	-	<20	-	-	-	NA	<20
C10-C16	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<50	-	NA	-	-	<50	-	-	-	NA	<50
C10-C16 (F2 minus Naphthalene)	mg/kg	50	NE	110	240	440	NE	120	NE	NE	NE	NE	-	-	<50	-	NA	-	-	<50	-	-	-	NA	<50
C16-C34	mg/kg	100	NE	NE	NE	NE	NE	1,300	NE	NE	NE	NE	-	-	180	-	NA	-	-	<100	-	-	-	NA	<100
C34-C40	mg/kg	100	NE	NE	NE	NE	NE	5,600	NE	NE	NE	NE	-	-	<100	-	NA	-	-	<100	-	-	-	NA	<100
C10-C40 (Sum of total)	mg/kg	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	180	-	NA	-	-	<100	-	-	-	NA	<100
TPH																									
C6-C9	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	65	100	1,000	-	-	<20	-	NA	-	-	<20	-	-	-	NA	<20
C10-C14	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<20	-	NA	-	-	<20	-	-	-	NA	<20
C15-C28	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	110	-	NA	-	-	<50	-	-	-	NA	<50
C29-C36	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	90	-	NA	-	-	<50	-	-	-	NA	<50
+C10-C36 (Sum of total)	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	1,000	1,000	10,000	-	-	200	-	NA	-	-	<50	-	-	-	NA	<50

Notes:
'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	945395	947971	947971	947971	RPD	949289	947971	947971	947971	947971	947971	RPD	947971
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins
Field ID	BH9 (1.9-2.0)	A-BH01_0.2-0.3	A-BH01_0.3-0.4	QC01	%	A-BH01_0.7-0.8	A-BH01_0.05-0.15	A-BH02_0.3-0.4	A-BH02_1.1-1.2	A-BH03_0.05-0.15	QC03	%	A-BH03_0.3-0.4
Sample Core	WGA	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon	Agon		Agon
Sample Date	28 Nov 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal														
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste		Shallow soils to an approximate depth of 0.5 mbgs to address elevated PAHs within sample A-BH01_0.3-0.4		Duplicate of A-BH01_0.3-0.4	RPD between A-BH01_0.3-0.4 and QC01						Duplicate of A-BH03_0.05-0.15	RPD between A-A-BH03_0.05-0.15 and QC03	
Organochlorine Pesticides																								
Aldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Dieldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	0.14	-	-	-	NA	0.09
Aldrin + Dieldrin	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	0.14	-	-	-	NA	0.09
DDD	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
DDT	mg/kg	0.05	NE	NE	NE	NE	NE	NE	180	2	2	50	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
4,4-DDE	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
DDT+DDE+DDD	mg/kg	0.05	600	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Endosulfan I	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Endosulfan II	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Endrin	mg/kg	0.05	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Endrin ketone	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Endrin aldehyde	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Endosulfan sulphate	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
chlordane	mg/kg	0.1	90	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	<0.1
Hexachlorobenzene	mg/kg	0.05	15	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Heptachlor	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Heptachlor epoxide	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
a-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
b-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
d-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
g-BHC (Lindane)	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Methoxychlor	mg/kg	0.05	500	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.05	-	-	-	NA	<0.05
Toxaphene	mg/kg	0.5	30	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.5	-	-	-	NA	<0.5
Organochlorine pesticides EPAVic	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	0.14	-	-	-	NA	<0.1
Organophosphorous Pesticides																								
Azinophos methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Bolstar (Sulprofos)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Chlorfenvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Chlorpyrifos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Coumaphos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Demeton-O	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Demeton-S	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Diazinon	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Dichlorvos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Dimethoate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Disulfoton	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Merphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
EPN	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Methyl parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Ethion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Ethoprop	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Mevinphos (Phosdrin)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Fenitrothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Fensulfothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Monocrotophos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Fenthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Malathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Naled (Dibrom)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Omethoate	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Phorate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Pyrazophos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Ronnel	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Terbufos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Tetrachlorvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Tokuthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Trichloronate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Chlorpyrifos	mg/kg	0.2	340	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
NA																								
Naphthalene (VOC)	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	<0.5	-	NA	-	-	<0.5	-	-	-	NA	<0.5
PCBs																								
Arochlor 1232	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
Arochlor 1242	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
Arochlor 1248	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
Arochlor 1254	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
Arochlor 1221	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
Arochlor 1260	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
Arochlor 1016	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
PCBs (Sum of total)	mg/kg	0.1	1	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	<0.1	-	-	-	NA	-
Inorganics																								
pH (Final)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
pH (Initial)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
pH of Leaching Fluid	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Moisture Content (dried @ 103°C)	%	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	11	2.4	3.5	2.6	NA	3.5	<1	6.6	12	3.0	2.6	NA	7.3
Cyanide Total	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	500	1,000	3,500	-	-	-	-	NA	-	-	<5	-	-	-	NA	-

Notes:
'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
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Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	945395	947971	947971	947971	RPD	949289	947971	947971	947971	947971	947971	RPD	947971
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins
Field ID	BH9 (1.9-2.0)	A-BH01_0.2-0.3	A-BH01_0.3-0.4	QC01	%	A-BH01_0.7-0.8	A-BH01_0.05-0.15	A-BH02_0.3-0.4	A-BH02_1.1-1.2	A-BH03_0.05-0.15	QC03	%	A-BH03_0.3-0.4
Sample Core	WGA	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon	Agon		Agon
Sample Date	28 Nov 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil	Preliminary EILs	SA EPA Disposal				Shallow soils to an approximate depth of 0.5 mbgs to address elevated PAHs within sample A-BH01_0.3-0.4			Duplicate of A-BH01_0.3-0.4	RPD between A-BH01_0.3-0.4 and QC01						Duplicate of A-BH03_0.05-0.15	RPD between A-A-BH03_0.05-0.15 and QC03	
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m	>=0m, <2m		Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste														
Chlorinated Hydrocarbons																										
1,1-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,1-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,2,3-trichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,2-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,2-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,3-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Bromochloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
1,1,1,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Bromodichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,1,1-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Chloroform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,1,2,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Chloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
cis-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Dibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Dichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Trichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Chlorinated hydrocarbons EPAVic	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
cis-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,1,2-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
trans-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Vinyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Bromoform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Carbon tetrachloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Chlorodibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Chloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
trans-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Tetrachloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	14	25.2	-	-	-	-	NA	-	<0.5	<0.5	-	-	-	NA	-
Halogenated Benzenes																										
1,2-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,3-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,4-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Bromobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
4-chlorotoluene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Chlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Halogenated Hydrocarbons																										
Iodomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Bromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
1,2-dibromoethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
Dichlorodifluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Trichlorofluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	<0.5	-	-	-	-	NA	-
MAH																										
Total MAH	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
1,3,5-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Styrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Isopropylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
1,2,4-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Pesticides																										
Parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Pirimiphos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Solvents																										
4-Methyl-2-pentanone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Acetone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Allyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Carbon disulfide	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-
Methyl Ethyl Ketone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	NA	-

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Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	947971	947971	947971	947971	947971	947971	947971	RPD	947971	947971	947971	947971	947971
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	A-BH03_0.5-0.6	A-BH04_0.4-0.5	A-BH05_0.4-0.5	A-BH05_0.5-0.6	A-BH05_0.8-0.9	A-BH06_0.4-0.5	QC04	%	A-BH06_0.75-0.85	A-BH06_1.9-2.0	A-BH07_0.05-0.15	A-BH07_0.35-0.45	A-BH07_1.4-1.5
Sample Core	Agon	Agon	Agon	Agon	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon
Sample Date	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal								Duplicate of A-BH06_0.4-0.5	RPD between A-BH06_0.4-0.5 and QC04					
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste												
Metals																								
Arsenic	mg/kg	2	500	NE	NE	NE	NE	NE	80	20	200	750	8.3	-	6.6	2.8	7.8	4.3	5.7	14.0	6.3	3.8	<2	7.2	5.5
Barium	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	300	NE	NE	90	-	98	46	92	68	-	NA	93	160	26	100	110
Beryllium	mg/kg	2	90	NE	NE	NE	NE	NE	NE	20	40	150	<2	-	<2	<2	<2	<2	-	NA	<2	<2	<2	<2	<2
Boron	mg/kg	10	40,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	<20	-	<20	<20	-	<10	-	NA	<20	<20	<20	<20	24
Cadmium	mg/kg	0.4	150	NE	NE	NE	NE	NE	NE	3	30	60	<0.4	-	<0.4	<0.4	<0.4	<0.4	<0.4	NA	<0.4	<0.4	<0.4	<0.4	<0.4
Cobalt	mg/kg	5	600	NE	NE	NE	NE	NE	NE	170	170	1,000	10	-	<5	11	11	9.8	-	NA	12	10	<5	6.4	15
Copper	mg/kg	5	30,000	NE	NE	NE	NE	NE	250	60	2,000	7,500	33	-	18	12	30	19	27	17.4	27	16	<5	21	23
Chromium (III+VI)	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	60	-	20	26	60	27	50	29.9	48	31	5.5	25	48
Chromium (hexavalent)	mg/kg	1	500	NE	NE	NE	NE	NE	NE	1	200	750	-	-	-	-	<1	-	-	NA	-	-	-	-	-
Chromium (Trivalent)	mg/kg	5	NE	NE	NE	NE	NE	NE	490	400	120,000	300,000	-	-	-	-	60	-	-	NA	-	-	-	-	-
Iron	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	47,000	-	-	NA	-	-	-	-	-
Lead	mg/kg	5	1,200	NE	NE	NE	NE	NE	270	300	1,200	5,000	19	-	92	16	17	64	24	45.5	17	11	<5	100	14
Manganese	mg/kg	5	14,000	NE	NE	NE	NE	NE	NE	500	6,000	10,000	190	-	200	280	170	260	-	NA	210	320	110	250	310
Mercury	mg/kg	0.1	120	NE	NE	NE	NE	NE	NE	1	30	110	<0.1	-	0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<5	-	<5	<5	-	<5	-	NA	<5	<5	<5	<5	<5
Nickel	mg/kg	5	1,200	NE	NE	NE	NE	NE	260	60	600	3,000	32	-	6.0	11	33	12	25	35.1	31	17	<5	12	27
Selenium	mg/kg	2	1,400	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	-	<2	<2	-	<2	-	NA	<2	<2	<2	<2	<2
Silver	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	-	<2	<2	<2	<2	-	NA	<2	<2	<2	<2	<2
Tin	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<10	-	<10	<10	-	<10	-	NA	<10	<10	<10	<10	<10
Zinc	mg/kg	5	60,000	NE	NE	NE	NE	NE	440	200	14,000	50,000	44	-	150	22	36	110	62	27.9	62	25	7.9	180	33
PAH																									
Acenaphthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Acenaphthylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Benz(a)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	0.6	-	<0.5	-	-	NA	-	-	-	<0.5	-
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	1.4	-	<0.5	-	-	NA	-	-	-	0.6	-
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	1.2	1.9	-	1.2	-	-	NA	-	-	-	1.3	-
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	0.6	1.7	-	0.6	-	-	NA	-	-	-	1.0	-
Benzo(a) pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	1.4	NE	1	2	5	-	<0.5	1.2	-	<0.5	-	-	NA	-	-	-	0.6	-
Benzo(b+j)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	0.6	-	<0.5	-	-	NA	-	-	-	<0.5	-
Benzo(g,h,i)perylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Chrysene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	1.0	-	<0.5	-	-	NA	-	-	-	0.6	-
Dibenz(a,h)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	0.9	-	<0.5	-	-	NA	-	-	-	0.6	-
Fluorene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Naphthalene	mg/kg	0.5	NE	3	NE	NE	NE	NE	170	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Phenanthrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	<0.5	-	-	NA	-	-	-	<0.5	-
Pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	1.6	-	<0.5	-	-	NA	-	-	-	0.6	-
PAHs (Sum of total)	mg/kg	0.5	400	NE	NE	NE	NE	NE	NE	5	40	200	-	<0.5	6.4	-	<0.5	-	-	NA	-	-	-	2.4	-
Phenols																									
2-Chlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.5	-	-	NA	-	-	-	<0.5	-
2,4-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.5	-	-	NA	-	-	-	<0.5	-
2,4,5-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<1	-	-	NA	-	-	-	<1	-
2,4,6-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<1	-	-	NA	-	-	-	<1	-
2,6-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.5	-	-	NA	-	-	-	<0.5	-
4-chloro-3-methylphenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<1	-	-	NA	-	-	-	<1	-
Pentachlorophenol	mg/kg	1	130	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<1	-	-	NA	-	-	-	<1	-
4,6-Dinitro-2-methylphenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<5	-	-	NA	-	-	-	<5	-
Tetrachlorophenols	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<10	-	-	NA	-	-	-	<10	-
Cresol Total	mg/kg	0.5	4,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.5	-	-	NA	-	-	-	<0.5	-
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<20	-	-	NA	-	-	-	<20	-
2,4-Dimethylphenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.5	-	-	NA	-	-	-	<0.5	-
2-Methylphenol	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.2	-	-	NA	-	-	-	<0.2	-
2-Nitrophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<1	-	-	NA	-	-	-	<1	-
2,4-Dinitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<5	-	-	NA	-	-	-	<5	-
3&4-Methylphenol (m&p-cresol)	mg/kg	0.4	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.4	-	-	NA	-	-	-	<0.4	-
4-Nitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<5	-	-	NA	-	-	-	<5	-
Dinoseb	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<20	-	-	NA	-	-	-	<20	-
Phenol	mg/kg	0.5	45,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.5	-	-	NA	-	-	-	<0.5	-
Phenols (Total Halogenated)	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<1	-	-	NA	-	-	-	<1	-
Phenols (Total Non Halogenated)	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<20	-	-	NA	-	-	-	<20	-
BTEX																									
Benzene	mg/kg	0.1	NE	0.5	0.5	0.5	0.5	65	NE	1	5	15	-	-	-	-	<0.1	<0.1	<0.1	NA	-	-	-	<0.1	-
Ethylbenzene	mg/kg	0.1	NE	55	NE	NE	NE	125	NE	3.1	100	1,000	-	-	-	-	<0.1	<0.1	<0.1	NA	-	-	-	<0.1	-
Toluene	mg/kg	0.1	NE	160	220	310	540	105	NE	1.4	50	500	-	-	-	-	<0.1	<0.1	<0.1	NA	-	-	-	<0.1	-
Xylene (o)	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	<0.1	<0.1	NA	-	-	-	<0.1	-
Xylene (m & p)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.2	<0.2	<0.2	NA	-	-	-	<0.2	-
Xylene Total	mg/kg	0.3	NE	40	60	95	170	45	NE	14	180	1,800	-	-	-	-	<0.3	<0.3	<0.3	NA	-	-	-	<0.3	-
TRH																									
C6-C10	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<20	<20	<20	NA	-	-	-	<20	-
C6-C10 (F1 minus BTEX)	mg/kg	20	NE	45	70	110	200	180	NE	NE	NE	NE	-	-	-	-	<20	<20	<20	NA	-	-	-	<20	-
C10-C16	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<50	<50	<50	NA	-	-	-	<50	-
C10-C16 (F2 minus Naphthalene)	mg/kg	50	NE	110	240	440	NE	120	NE	NE	NE	NE	-	-	-	-	<50	<50	<50	NA	-	-	-	<50	-
C16-C34	mg/kg	100	NE	NE	NE	NE	NE	1,300	NE	NE	NE	NE	-	-	-	-	<100	<100	<100	NA	-	-	-	<100	-
C34-C40	mg/kg	100	NE	NE	NE	NE	NE	5,600	NE	NE	NE	NE	-	-	-	-	<100	<100	<100	NA	-	-	-	<100	-
C10-C40 (Sum of total)	mg/kg	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<100	<100	<100	NA	-	-	-	<100	-
TPH																									
C6-C9	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	65	100	1,000	-	-	-	-	<20	<20	<20	NA	-	-	-	<20	-
C10-C14	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<20	<20	<20	NA	-	-	-	<20	-
C15-C28	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<50	<50	<50	NA	-	-	-	<50	-
C29-C36	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<50	<50	<50	NA	-	-	-	<50	-
+C10-C36 (Sum of total)	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	1,000	1,000	10,000	-	-	-	-	<50	<50	<50	NA	-	-	-	<50	-

Notes:

'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	947971	947971	947971	947971	947971	947971	947971	RPD	947971	947971	947971	947971	947971
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	A-BH03_0.5-0.6	A-BH04_0.4-0.5	A-BH05_0.4-0.5	A-BH05_0.5-0.6	A-BH05_0.8-0.9	A-BH06_0.4-0.5	QC04	%	A-BH06_0.75-0.85	A-BH06_1.9-2.0	A-BH07_0.05-0.15	A-BH07_0.35-0.45	A-BH07_1.4-1.5
Sample Core	Agon	Agon	Agon	Agon	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon
Sample Date	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal												
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste					Duplicate of A-BH06_0.4-0.5	RPD between A-BH06_0.4-0.5 and QC04				
Organochlorine Pesticides																						
Aldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Dieldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
DDD	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
DDT	mg/kg	0.05	NE	NE	NE	NE	NE	NE	180	2	2	50	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
4,4-DDE	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05	600	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Endosulfan I	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Endosulfan II	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Endrin	mg/kg	0.05	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Endrin ketone	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Endosulfan sulphate	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
chlordane	mg/kg	0.1	90	NE	NE	NE	NE	NE	NE	2	2	50	-	<0.1	-	-	<0.1	<0.1	-	NA	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.05	15	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Heptachlor	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
a-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
b-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
d-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Methoxychlor	mg/kg	0.05	500	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.05	-	-	<0.05	<0.05	-	NA	-	-	-	-	-
Toxaphene	mg/kg	0.5	30	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	-	<0.5	<0.5	-	NA	-	-	-	-	-
Organochlorine pesticides EPAVic	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.1	-	-	<0.1	<0.1	-	NA	-	-	-	-	-
Organophosphorous Pesticides																						
Azinophos methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Bolstar (Sulprofos)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Coumaphos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Demeton-O	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Demeton-S	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Diazinon	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Dichlorvos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Dimethoate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Disulfoton	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Merphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
EPN	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Methyl parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Ethion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Ethoprop	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Mevinphos (Phosdrin)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Fenitrothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Fensulfothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Monocrotophos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Fenthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Malathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Naled (Dibrom)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Omethoate	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Phorate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Pyrazophos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Ronnel	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Terbufos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Tetrachlorvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Tokuthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Trichloronate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chlorpyrifos	mg/kg	0.2	340	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
NA																						
Naphthalene (VOC)	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.5	<0.5	<0.5	NA	-	-	-	<0.5	-
PCBs																						
Arochlor 1232	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
Arochlor 1242	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
Arochlor 1248	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
Arochlor 1254	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
Arochlor 1221	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
Arochlor 1260	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
Arochlor 1016	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
PCBs (Sum of total)	mg/kg	0.1	1	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	<0.1	-	-	NA	-	-	-	-	-
Inorganics																						
pH (Final)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
pH (Initial)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
pH of Leaching Fluid	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	23	21	3.1	4.9	19	16	21	NA	22	17	1.1	4.4	9.2
Cyanide Total	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	500	1,000	3,500	-	-	-	-	<5	-	-	NA	-	-	-	-	-

Notes:
'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	947971	947971	947971	947971	947971	947971	947971	RPD	947971	947971	947971	947971	947971
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	A-BH03_0.5-0.6	A-BH04_0.4-0.5	A-BH05_0.4-0.5	A-BH05_0.5-0.6	A-BH05_0.8-0.9	A-BH06_0.4-0.5	QC04	%	A-BH06_0.75-0.85	A-BH06_1.9-2.0	A-BH07_0.05-0.15	A-BH07_0.35-0.45	A-BH07_1.4-1.5
Sample Core	Agon	Agon	Agon	Agon	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon
Sample Date	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022		06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal												
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste						Duplicate of A-BH06_0.4-0.5	RPD between A-BH06_0.4-0.5 and QC04					
Chlorinated Hydrocarbons																								
1,1-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,1-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,2,3-trichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,2-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,2-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,3-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Bromochloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,1,1,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Bromodichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,1,1-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chloroform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,1,2,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
cis-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Dibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Dichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Trichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chlorinated hydrocarbons EPAVic	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
cis-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,1,2-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
trans-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Vinyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Bromoform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Carbon tetrachloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chlorodibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
trans-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Tetrachloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	14	25.2	-	-	-	-	<0.5	-	-	NA	-	-	-	-	-
Halogenated Benzenes																								
1,2-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,3-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,4-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Bromobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
4-chlorotoluene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Chlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Halogenated Hydrocarbons																								
Iodomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Bromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,2-dibromoethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Dichlorodifluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Trichlorofluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
MAH																								
Total MAH	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,3,5-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Styrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Isopropylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
1,2,4-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Pesticides																								
Parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Pirimiphos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Solvents																								
4-Methyl-2-pentanone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Acetone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Allyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Carbon disulfide	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-
Methyl Ethyl Ketone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	-	-	-	NA	-	-	-	-	-

Notes:
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Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	1003399	1003399	1003399	1003399	RPD	1003399	1003399	1003399	1003399	1003399	1003399	1003399	1003399
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	A-BH08_0.3-0.4	A-BH08_13.0	A-BH09_0.4-0.5	QC06	%	A-BH09_11.0	A-BH09_13.0	A-BH10_0.3-0.4	A-BH10_11.0	A-BH10_13.0	SV01_1.4-1..5	SV02_1.4-1..5	SV03_1.4-1..5
Sample Core	Agon	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon	Agon	Agon	Agon
Sample Date	26 Jun 2023	26 Jun 2023	26 Jun 2023	26 Jun 2023		26 Jun 2023		27 Jun 2023	27 Jun 2023	27 Jun 2023	17-Oct-23	17 Oct 2023	17 Oct 2023

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal						RPD between A-BH09_0.4-0.5 and QC06								
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste				Duplicate of A-BH09_0.4-0.5								
Metals																								
Arsenic	mg/kg	2	500	NE	NE	NE	NE	NE	80	20	200	750	3.0	-	5.6	5.2	3.7	-	-	9.0	-	4.6	-	-	-
Barium	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	300	NE	NE	82	-	120	170	17.2	-	-	110	-	87	-	-	-
Beryllium	mg/kg	2	90	NE	NE	NE	NE	NE	NE	20	40	150	<2	-	<2	<2	NA	-	-	2.0	-	<2	-	-	-
Boron	mg/kg	10	40,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	13	-	18	21	7.7	-	-	19	-	15	-	-	-
Cadmium	mg/kg	0.4	150	NE	NE	NE	NE	NE	NE	3	30	60	<0.4	-	<0.4	<0.4	NA	-	-	<0.4	-	<0.4	-	-	-
Cobalt	mg/kg	5	600	NE	NE	NE	NE	NE	NE	170	170	1,000	<5	-	8.4	8.0	2.4	-	-	12	-	12	-	-	-
Copper	mg/kg	5	30,000	NE	NE	NE	NE	NE	250	60	2,000	7,500	14	-	32	39	9.9	-	-	40	-	29	-	-	-
Chromium (III+VI)	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	15	-	27	35	12.9	-	-	81	-	48	-	-	-
Chromium (hexavalent)	mg/kg	1	500	NE	NE	NE	NE	NE	NE	1	200	750	-	-	-	-	NA	-	-	-	-	-	-	-	-
Chromium (Trivalent)	mg/kg	5	NE	NE	NE	NE	NE	NE	490	400	120,000	300,000	-	-	-	-	NA	-	-	-	-	-	-	-	-
Iron	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Lead	mg/kg	5	1,200	NE	NE	NE	NE	NE	270	300	1,200	5,000	87	-	220	290	13.7	-	-	22	-	16	-	-	-
Manganese	mg/kg	5	14,000	NE	NE	NE	NE	NE	NE	500	6,000	10,000	120	-	280	320	6.7	-	-	200	-	170	-	-	-
Mercury	mg/kg	0.1	120	NE	NE	NE	NE	NE	NE	1	30	110	<0.1	-	0.2	0.3	20.0	-	-	<0.1	-	<0.1	-	-	-
Molybdenum	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<5	-	<5	<5	NA	-	-	<5	-	<5	-	-	-
Nickel	mg/kg	5	1,200	NE	NE	NE	NE	NE	260	60	600	3,000	7.1	-	15	16	3.2	-	-	44	-	18	-	-	-
Selenium	mg/kg	2	1,400	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	-	<2	<2	NA	-	-	<2	-	<2	-	-	-
Silver	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<2	-	<2	<2	NA	-	-	<2	-	<2	-	-	-
Tin	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<10	-	17	22	12.8	-	-	<10	-	<10	-	-	-
Zinc	mg/kg	5	60,000	NE	NE	NE	NE	NE	440	200	14,000	50,000	120	-	200	260	13.0	-	-	46	-	53	-	-	-
PAH																									
Acenaphthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Acenaphthylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Benz(a)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	1.2	-	-	-	NA	-	-	1.2	-	1.2	-	-	-
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.6	-	-	-	NA	-	-	0.6	-	0.6	-	-	-
Benzo(a) pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	1.4	NE	1	2	5	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Benzo(b+j)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Chrysene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Fluorene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Naphthalene	mg/kg	0.5	NE	3	NE	NE	NE	NE	170	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Phenanthrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
PAHs (Sum of total)	mg/kg	0.5	400	NE	NE	NE	NE	NE	NE	5	40	200	<0.5	-	-	-	NA	-	-	<0.5	-	<0.5	-	-	-
Phenols																									
2-Chlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2,6-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
4-chloro-3-methylphenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	1	130	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Tetrachlorophenols	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Cresol Total	mg/kg	0.5	4,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
3&4-Methylphenol (m&p-cresol)	mg/kg	0.4	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Dinoseb	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Phenol	mg/kg	0.5	45,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Phenols (Total Halogenated)	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Phenols (Total Non Halogenated)	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
BTEX																									
Benzene	mg/kg	0.1	NE	0.5	0.5	0.5	0.5	65	NE	1	5	15	-	<0.1	<0.1	-	NA	<0.1	<0.1	-	<0.1	-	-	-	-
Ethylbenzene	mg/kg	0.1	NE	55	NE	NE	NE	125	NE	3.1	100	1,000	-	<0.1	<0.1	-	NA	<0.1	<0.1	-	<0.1	-	-	-	-
Toluene	mg/kg	0.1	NE	160	220	310	540	105	NE	1.4	50	500	-	<0.1	<0.1	-	NA	<0.1	<0.1	-	<0.1	-	-	-	-
Xylene (o)	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.1	<0.1	-	NA	<0.1	<0.1	-	<0.1	-	-	-	-
Xylene (m & p)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.2	<0.2	-	NA	<0.2	<0.2	-	<0.2	-	-	-	-
Xylene Total	mg/kg	0.3	NE	40	60	95	170	45	NE	14	180	1,800	-	<0.3	<0.3	-	NA	<0.3	<0.3	-	<0.3	-	-	-	-
TRH																									
C6-C10	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<20	-	-	NA	-	<20	-	-	-	-	-	-
C6-C10 (F1 minus BTEX)	mg/kg	20	NE	45	70	110	200	180	NE	NE	NE	NE	-	<20	-	-	NA	-	<20	-	-	-	-	-	-
C10-C16	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<50	-	-	NA	-	<50	-	-	-	-	-	-
C10-C16 (F2 minus Naphthalene)	mg/kg	50	NE	110	240	440	NE	120	NE	NE	NE	NE	-	<50	-	-	NA	-	<50	-	-	-	-	-	-
C16-C34	mg/kg	100	NE	NE	NE	NE	NE	1,300	NE	NE	NE	NE	-	<100	-	-	NA	-	<100	-	-	-	-	-	-
C34-C40	mg/kg	100	NE	NE	NE	NE	NE	5,600	NE	NE	NE	NE	-	<100	-	-	NA	-	<100	-	-	-	-	-	-
C10-C40 (Sum of total)	mg/kg	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<100	-	-	NA	-	<100	-	-	-	-	-	-
TPH																									
C6-C9	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	65	100	1,000	-	<20	-	-	NA	-	<20	-	-	-	-	-	-
C10-C14	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<20	-	-	NA	-	<20	-	-	-	-	-	-
C15-C28	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<50	-	-	NA	-	<50	-	-	-	-	-	-
C29-C36	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<50	-	-	NA	-	<50	-	-	-	-	-	-
+C10-C36 (Sum of total)	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	1,000	1,000	10,000	-	<50	-	-	NA	-	<50	-	-	-	-	-	-

Notes:

'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	1003399	1003399	1003399	1003399	RPD	1003399	1003399	1003399	1003399	1003399	1003399	1003399	1003399
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	A-BH08_0.3-0.4	A-BH08_13.0	A-BH09_0.4-0.5	QC06	%	A-BH09_11.0	A-BH09_13.0	A-BH10_0.3-0.4	A-BH10_11.0	A-BH10_13.0	SV01_1.4-1..5	SV02_1.4-1..5	SV03_1.4-1..5
Sample Core	Agon	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon	Agon	Agon	Agon
Sample Date	26 Jun 2023	26 Jun 2023	26 Jun 2023	26 Jun 2023		26 Jun 2023		27 Jun 2023	27 Jun 2023	27 Jun 2023	17-Oct-23	17 Oct 2023	17 Oct 2023

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal													
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste				Duplicate of A-BH09_0.4-0.5	RPD between A-BH09_0.4-0.5 and QC06							
Organochlorine Pesticides																							
Aldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	-	-	-	-	-	-
DDD	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
DDT	mg/kg	0.05	NE	NE	NE	NE	NE	NE	180	2	2	50	-	-	-	-	NA	-	-	-	-	-	-	-	-
4,4-DDE	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05	600	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Endrin	mg/kg	0.05	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Endosulfan sulphate	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
chlordane	mg/kg	0.1	90	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.05	15	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
a-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
b-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.05	500	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Toxaphene	mg/kg	0.5	30	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Organochlorine pesticides EPAVic	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Organophosphorous Pesticides																							
Azinophos methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Bolstar (Sulprofos)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Coumaphos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Demeton-O	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Demeton-S	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Diazinon	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Disulfoton	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Merphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
EPN	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Methyl parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Ethion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Ethoprop	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Mevinphos (Phosdrin)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Fenitrothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Fensulfothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Fenthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Malathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Naled (Dibrom)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Omethoate	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Phorate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Pyrazophos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Ronnel	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Terbufos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Tetrachlorvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Tokuthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Trichloronate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	0.2	340	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
NA																							
Naphthalene (VOC)	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	-	-	NA	-	<0.5	-	-	-	-	-	-
PCBs																							
Arochlor 1232	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1242	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1248	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1254	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1221	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1260	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Arochlor 1016	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
PCBs (Sum of total)	mg/kg	0.1	1	NE	NE	NE	NE	NE	NE	2	2	50	-	-	-	-	NA	-	-	-	-	-	-	-	-
Inorganics																							
pH (Final)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
pH (Initial)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
pH of Leaching Fluid	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	3.5	23	13	13	NA	26	25	23	28	27	7.4	9.3	9.3
Cyanide Total	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	500	1,000	3,500	-	-	-	-	NA	-	-	-	-	-	-	-	-

Notes:
'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	1003399	1003399	1003399	1003399	RPD	1003399	1003399	1003399	1003399	1003399	1003399	1003399	1003399
Lab Name	Eurofins	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Field ID	A-BH08_0.3-0.4	A-BH08_13.0	A-BH09_0.4-0.5	QC06	%	A-BH09_11.0	A-BH09_13.0	A-BH10_0.3-0.4	A-BH10_11.0	A-BH10_13.0	SV01_1.4-1..5	SV02_1.4-1..5	SV03_1.4-1..5
Sample Core	Agon	Agon	Agon	Agon		Agon	Agon	Agon	Agon	Agon	Agon	Agon	Agon
Sample Date	26 Jun 2023	26 Jun 2023	26 Jun 2023	26 Jun 2023		26 Jun 2023		27 Jun 2023	27 Jun 2023	27 Jun 2023	17-Oct-23	17 Oct 2023	17 Oct 2023

				NEPM 2013 HSL-A/B, Sand						SA EPA Disposal												
	Unit	LOR	NEPM HIL-B	>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m	NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste				Duplicate of A-BH09_0.4-0.5	RPD between A-BH09_0.4-0.5 and QC06						
Chlorinated Hydrocarbons																						
1,1-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.0005	<0.0005
1,1-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,2,3-trichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,2-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,2-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Bromochloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,1,1,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Bromodichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,1,1-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Chloroform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,1,2,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Chloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
cis-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Dibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Dichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Trichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Chlorinated hydrocarbons EPAVic	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
cis-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.0005	<0.0005
1,1,2-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
trans-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Vinyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.0025	<0.0025
Bromoform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Carbon tetrachloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Chlorodibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Chloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
trans-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Tetrachloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	14	25.2	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.0005	<0.0005
Halogenated Benzenes																						
1,2-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,3-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,4-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.0005	<0.0005
Bromobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
4-chlorotoluene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Chlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.0005	<0.0005
Halogenated Hydrocarbons																						
Iodomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Bromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,2-dibromoethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Dichlorodifluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Trichlorofluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
MAH																						
Total MAH	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,3,5-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Styrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Isopropylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
1,2,4-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Pesticides																						
Parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Pirimiphos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	-	-	NA	-	-	-	-	-	-	-	-
Solvents																						
4-Methyl-2-pentanone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Acetone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Allyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Carbon disulfide	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
Methyl Ethyl Ketone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	<0.5	<0.5	-	NA	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5

Notes:
'-' = Analysis not requested
m = metres
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds SA EPA Waste Fill Criteria
Exceeds SA EPA Intermediate Criteria
Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	1003399	1003399	RPD
Lab Name	Eurofins	Eurofins	
Field ID	SV04_1.4-1..5	SV_QC02	%
Sample Core	Agon	Agon	
Sample Date	17 Oct 2023	17 Oct 2023	

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal				Duplicate of SV04_1.4-1..5	RPD betweenSV04_1.4-1..5 and SV_QC02
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste			
Metals															
Arsenic	mg/kg	2	500	NE	NE	NE	NE	NE	80	20	200	750	-	-	NA
Barium	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	300	NE	NE	-	-	NA
Beryllium	mg/kg	2	90	NE	NE	NE	NE	NE	NE	20	40	150	-	-	NA
Boron	mg/kg	10	40,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Cadmium	mg/kg	0.4	150	NE	NE	NE	NE	NE	NE	3	30	60	-	-	NA
Cobalt	mg/kg	5	600	NE	NE	NE	NE	NE	NE	170	170	1,000	-	-	NA
Copper	mg/kg	5	30,000	NE	NE	NE	NE	NE	250	60	2,000	7,500	-	-	NA
Chromium (III+VI)	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Chromium (hexavalent)	mg/kg	1	500	NE	NE	NE	NE	NE	NE	1	200	750	-	-	NA
Chromium (Trivalent)	mg/kg	5	NE	NE	NE	NE	NE	NE	490	400	120,000	300,000	-	-	NA
Iron	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Lead	mg/kg	5	1,200	NE	NE	NE	NE	NE	270	300	1,200	5,000	-	-	NA
Manganese	mg/kg	5	14,000	NE	NE	NE	NE	NE	NE	500	6,000	10,000	-	-	NA
Mercury	mg/kg	0.1	120	NE	NE	NE	NE	NE	NE	1	30	110	-	-	NA
Molybdenum	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Nickel	mg/kg	5	1,200	NE	NE	NE	NE	NE	260	60	600	3,000	-	-	NA
Selenium	mg/kg	2	1,400	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Silver	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Tin	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Zinc	mg/kg	5	60,000	NE	NE	NE	NE	NE	440	200	14,000	50,000	-	-	NA
PAH															
Acenaphthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Acenaphthylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Benz(a)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	4	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Benzo(a) pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	1.4	NE	1	2	5	-	-	NA
Benzo(b+j)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Benzo(g,h,i)perylene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Benzo(k)fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Chrysene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Dibenz(a,h)anthracene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Fluoranthene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Fluorene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Naphthalene	mg/kg	0.5	NE	3	NE	NE	NE	NE	170	NE	NE	NE	-	-	NA
Phenanthrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Pyrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
PAHs (Sum of total)	mg/kg	0.5	400	NE	NE	NE	NE	NE	NE	5	40	200	-	-	NA
Phenols															
2-Chlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2,4-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2,4,5-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2,4,6-Trichlorophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2,6-Dichlorophenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
4-chloro-3-methylphenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Pentachlorophenol	mg/kg	1	130	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
4,6-Dinitro-2-methylphenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Tetrachlorophenols	mg/kg	10	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Cresol Total	mg/kg	0.5	4,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2,4-Dimethylphenol	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2-Methylphenol	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2-Nitrophenol	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
2,4-Dinitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
3&4-Methylphenol (m&p-cresol)	mg/kg	0.4	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
4-Nitrophenol	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Dinoseb	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Phenol	mg/kg	0.5	45,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Phenols (Total Halogenated)	mg/kg	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Phenols (Total Non Halogenated)	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
BTEX															
Benzene	mg/kg	0.1	NE	0.5	0.5	0.5	0.5	65	NE	1	5	15	-	-	NA
Ethylbenzene	mg/kg	0.1	NE	55	NE	NE	NE	125	NE	3.1	100	1,000	-	-	NA
Toluene	mg/kg	0.1	NE	160	220	310	540	105	NE	1.4	50	500	-	-	NA
Xylene (o)	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Xylene (m & p)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Xylene Total	mg/kg	0.3	NE	40	60	95	170	45	NE	14	180	1,800	-	-	NA
TRH															
C6-C10	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
C6-C10 (F1 minus BTEX)	mg/kg	20	NE	45	70	110	200	180	NE	NE	NE	NE	-	-	NA
C10-C16	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
C10-C16 (F2 minus Naphthalene)	mg/kg	50	NE	110	240	440	NE	120	NE	NE	NE	NE	-	-	NA
C16-C34	mg/kg	100	NE	NE	NE	NE	NE	1,300	NE	NE	NE	NE	-	-	NA
C34-C40	mg/kg	100	NE	NE	NE	NE	NE	5,600	NE	NE	NE	NE	-	-	NA
C10-C40 (Sum of total)	mg/kg	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
TPH															
C6-C9	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	65	100	1,000	-	-	NA
C10-C14	mg/kg	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
C15-C28	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
C29-C36	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
+C10-C36 (Sum of total)	mg/kg	50	NE	NE	NE	NE	NE	NE	NE	1,000	1,000	10,000	-	-	NA

Notes:
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Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	1003399	1003399	RPD	
Lab Name	Eurofins	Eurofins		
Field ID	SV04_1.4-1..5	SV_QC02	%	
Sample Core	Agon	Agon		
Sample Date	17 Oct 2023	17 Oct 2023		

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal				Duplicate of SV04_1.4-1..5	RPD betweenSV04_1.4-1..5 and SV_QC02
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste			
Organochlorine Pesticides															
Aldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Dieldrin	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Aldrin + Dieldrin	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	NA
DDD	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
DDT	mg/kg	0.05	NE	NE	NE	NE	NE	NE	180	2	2	50	-	-	NA
4,4-DDE	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
DDT+DDE+DDD	mg/kg	0.05	600	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Endosulfan I	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Endosulfan II	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Endrin	mg/kg	0.05	20	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Endrin ketone	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Endrin aldehyde	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Endosulfan sulphate	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
chlordane	mg/kg	0.1	90	NE	NE	NE	NE	NE	NE	2	2	50	-	-	NA
Hexachlorobenzene	mg/kg	0.05	15	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Heptachlor	mg/kg	0.05	10	NE	NE	NE	NE	NE	NE	2	2	50	-	-	NA
Heptachlor epoxide	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
a-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
b-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
d-BHC	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
g-BHC (Lindane)	mg/kg	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Methoxychlor	mg/kg	0.05	500	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Toxaphene	mg/kg	0.5	30	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Organochlorine pesticides EPAVic	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Organophosphorous Pesticides															
Azinophos methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Bolstar (Sulprofos)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Chlorfenvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Chlorpyrifos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Coumaphos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Demeton-O	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Demeton-S	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Diazinon	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Dichlorvos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Dimethoate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Disulfoton	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Merphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
EPN	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Methyl parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Ethion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Ethoprop	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Mevinphos (Phosdrin)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Fenitrothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Fensulfothion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Monocrotophos	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Fenthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Malathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Naled (Dibrom)	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Omethoate	mg/kg	2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Phorate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Pyrazophos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Ronnel	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Terbufos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Tetrachlorvinphos	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Tokuthion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Trichloronate	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Chlorpyrifos	mg/kg	0.2	340	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
NA															
Naphthalene (VOC)	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
PCBs															
Arochlor 1232	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Arochlor 1242	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Arochlor 1248	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Arochlor 1254	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Arochlor 1221	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Arochlor 1260	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Arochlor 1016	mg/kg	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
PCBs (Sum of total)	mg/kg	0.1	1	NE	NE	NE	NE	NE	NE	2	2	50	-	-	NA
Inorganics															
pH (Final)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
pH (Initial)	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
pH of Leaching Fluid	-	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Moisture Content (dried @ 103°C)	%	1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	13	14	NA
Cyanide Total	mg/kg	5	NE	NE	NE	NE	NE	NE	NE	500	1,000	3,500	-	-	NA

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Exceeds SA EPA Low Level and ESL Criteria
Exceeds NEPM HIL-B Criteria

Table I1
Soil Analytical Resuls
Buckingham Arms DDEA

Lab Batch ID	1003399	1003399	RPD
Lab Name	Eurofins	Eurofins	
Field ID	SV04_1.4-1..5	SV_QC02	%
Sample Core	Agon	Agon	
Sample Date	17 Oct 2023	17 Oct 2023	

	Unit	LOR	NEPM HIL-B	NEPM 2013 HSL-A/B, Sand				NEPM 2013 ESLs for Urban Res, Fine Soil >=0m, <2m	Preliminary EILs	SA EPA Disposal				Duplicate of SV04_1.4-1..5	RPD betweenSV04_1.4-1..5 and SV_QC02
				>=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m			Waste Fill	Intermediate Waste Soil	Low-level Contaminated Waste			
Chlorinated Hydrocarbons															
1,1-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.0005	<0.0005	NA
1,1-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.0005	<0.0005	NA
1,2,3-trichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,2-dichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,2-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,3-dichloropropane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Bromochloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,1,1,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Bromodichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,1,1-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Chloroform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,1,2,2-tetrachloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Chloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
cis-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Dibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Dichloromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Trichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Chlorinated hydrocarbons EPAVic	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
cis-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.0005	<0.0005	NA
1,1,2-trichloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
trans-1,3-dichloropropene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Vinyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.0025	<0.0025	NA
Bromoform	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Carbon tetrachloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Chlorodibromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Chloroethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
trans-1,2-dichloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Tetrachloroethene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	14	25.2	<0.0005	<0.0005	NA
Halogenated Benzenes															
1,2-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,3-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,4-dichlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.0005	<0.0005	NA
Bromobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
4-chlorotoluene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Chlorobenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.0005	<0.0005	NA
Halogenated Hydrocarbons															
Iodomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Bromomethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,2-dibromoethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Dichlorodifluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Trichlorofluoromethane	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
MAH															
Total MAH	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,3,5-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Styrene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Isopropylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
1,2,4-trimethylbenzene	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Pesticides															
Parathion	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Pirimiphos-methyl	mg/kg	0.2	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-	-	NA
Solvents															
4-Methyl-2-pentanone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Acetone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Allyl chloride	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Carbon disulfide	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA
Methyl Ethyl Ketone	mg/kg	0.5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	<0.5	<0.5	NA

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Lab Report Number	1007484	1006805	1006805	RPD	1006805	1019370	1019370	1019370	RPD	1019370
Lab Name	Eurofins	Eurofins	Eurofins		Eurofins	Eurofins	Eurofins	Eurofins		Eurofins
Field ID	MW01	MW02	QC09		MW03	MW01	MW02	QC10		MW03
Matrix Type	Water	Water	Water	%	Water	Water	Water	Water	%	Water
Date	13 Jul 2023	07 Jul 2023	07 Jul 2023		07 Jul 2023	21 Aug 2023	21 Aug 2023	21 Aug 2023		21 Aug 2023

	Unit	EQL	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	NEPM 2013 HSL-A/ B GW for Vapour Intrusion, Sand >=8m	Recreational water quality and aesthetics			Duplicate of MW02	RPD between MW02 and QC09				Duplicate of MW02	RPD between MW02 and QC10	
Metals															
Arsenic (filtered)	mg/L	0.001	NE	NE	0.01	-	0.012	-	-	0.015	<0.001	0.001	-	-	0.002
Barium (filtered)	mg/L	0.02	NE	NE	2	-	0.05	-	-	<0.02	0.22	0.20	-	-	0.17
Beryllium (filtered)	mg/L	0.001	NE	NE	0.06	-	<0.001	-	-	<0.001	<0.001	<0.001	-	-	<0.001
Boron (filtered)	mg/L	0.05	0.37	NE	4	-	0.64	-	-	<0.5	1.2	1.5	-	-	0.92
Cadmium (filtered)	mg/L	0.0002	0.0002	NE	0.002	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002
Cobalt (filtered)	mg/L	0.001	NE	NE	NE	-	<0.001	-	-	<0.001	0.002	0.003	-	-	<0.001
Copper (filtered)	mg/L	0.001	0.0014	NE	2	-	0.004	-	-	0.007	<0.001	<0.001	-	-	<0.001
Chromium (III+VI) (filtered)	mg/L	0.001	NE	NE	NE	-	0.036	-	-	0.073	<0.001	<0.001	-	-	<0.001
Lead (filtered)	mg/L	0.001	0.0034	NE	0.01	-	<0.001	-	-	<0.001	<0.001	<0.001	-	-	<0.001
Manganese (filtered)	mg/L	0.005	1.9	NE	0.1	-	<0.005	-	-	<0.005	0.28	0.50	-	-	0.090
Mercury (filtered)	mg/L	0.0001	0.0006	NE	0.001	-	<0.0001	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001
Molybdenum (filtered)	mg/L	0.005	NE	NE	0.05	-	0.024	-	-	0.017	<0.005	0.009	-	-	<0.005
Nickel (filtered)	mg/L	0.001	0.011	NE	0.2	-	<0.001	-	-	<0.001	<0.001	0.001	-	-	<0.001
Selenium (filtered)	mg/L	0.001	0.011	NE	0.01	-	0.004	-	-	0.002	0.008	0.007	-	-	0.006
Silver (filtered)	mg/L	0.005	0.00005	NE	NE	-	<0.005	-	-	<0.005	<0.005	<0.005	-	-	<0.005
Tin (filtered)	mg/L	0.005	NE	NE	NE	-	<0.005	-	-	<0.005	<0.005	<0.005	-	-	<0.005
Zinc (filtered)	mg/L	0.005	0.008	NE	3	-	<0.005	-	-	<0.005	<0.005	<0.005	-	-	<0.005
BTEX															
Benzene	mg/L	0.001	0.95	0.9	10	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	-	<0.001
Ethylbenzene	mg/L	0.001	0.08	NE	NE	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	NA	<0.001
Toluene	mg/L	0.001	0.18	NE	NE	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	NA	<0.001
Xylene (o)	mg/L	0.001	0.35	NE	NE	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	NA	<0.001
Xylene (m & p)	mg/L	0.002	NE	NE	NE	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	NA	<0.002
Xylene Total	mg/L	0.003	NE	NE	NE	<0.003	<0.003	<0.003	-	<0.003	<0.003	<0.003	<0.003	NA	<0.003
TRH															
C6-C10	mg/L	0.02	NE	NE	NE	<0.02	0.02	<0.02	NA	0.03	<0.02	<0.02	<0.02	NA	<0.02
C6-C10 (F1 minus BTEX)	mg/L	0.02	NE	1	NE	<0.02	0.02	<0.02	NA	0.03	<0.02	<0.02	<0.02	NA	<0.02
C10-C16	mg/L	0.05	NE	NE	NE	<0.05	0.32	0.35	4.5	<0.05	<0.05	<0.05	<0.05	NA	<0.05
C10-C16 (F2 minus Naphthalene)	mg/L	0.05	NE	1	NE	<0.05	0.32	0.35	4.5	<0.05	<0.05	<0.05	<0.05	NA	<0.05
C16-C34	mg/L	0.1	NE	NE	NE	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	NA	<0.1
C34-C40	mg/L	0.1	NE	NE	NE	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	NA	<0.1
C10-C40 (Sum of total)	mg/L	0.1	NE	NE	NE	<0.1	0.32	0.35	4.5	<0.1	<0.1	<0.1	<0.1	NA	<0.1
TPH															
C6-C9	mg/L	0.02	NE	NE	NE	<0.02	0.02	<0.02	NA	0.03	<0.02	<0.02	<0.02	NA	<0.02
C10-C14	mg/L	0.05	NE	NE	NE	<0.05	0.23	0.23	0.0	<0.05	<0.05	<0.05	<0.05	NA	<0.05
C15-C28	mg/L	0.1	NE	NE	NE	<0.1	<0.1	0.2	NA	<0.1	<0.1	<0.1	<0.1	NA	<0.1
C29-C36	mg/L	0.1	NE	NE	NE	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	NA	<0.1
+C10-C36 (Sum of total)	mg/L	0.1	NE	NE	NE	<0.1	0.23	0.43	30.3	<0.1	<0.1	<0.1	<0.1	NA	<0.1
Chlorinated Hydrocarbons															
1,1-dichloroethane	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,1-dichloroethene	µg/L	1	700	NE	0.3	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,2,3-trichloropropane	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,2-dichloroethane	µg/L	1	1,900	NE	10	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,2-dichloropropane	µg/L	1	900	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,3-dichloropropane	µg/L	1	1,100	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Bromochloromethane	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,1,1,2-tetrachloroethane	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Bromodichloromethane	µg/L	1	NE	NE	NE	<1	<1	-	-	6	<1	<1	<1	-	<1
1,1,1-trichloroethane	µg/L	1	270	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Chloroform	µg/L	5	770	NE	NE	<5	10	-	-	32	<5	<5	<5	-	<5
1,1,2,2-tetrachloroethane	µg/L	1	400	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Chloromethane	µg/L	5	NE	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
cis-1,3-dichloropropene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Dibromomethane	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Dichloromethane	µg/L	5	4,000	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
Trichloroethene	µg/L	1	330	NE	30	<1	<1	-	-	<1	<1	<1	<1	-	<1
Chlorinated hydrocarbons EPAVic	µg/L	5	NE	NE	NE	<5	10	-	-	32	<5	<5	<5	-	<5
cis-1,2-dichloroethene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,1,2-trichloroethane	µg/L	1	6,500	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
trans-1,3-dichloropropene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Vinyl chloride	µg/L	5	100	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
Bromoform	µg/L	1	NE	NE	NE	<1	<1	-	-	2	<1	<1	<1	-	<1
Carbon tetrachloride	µg/L	1	240	NE	3	<1	<1	-	-	<1	<1	<1	<1	-	<1
Chlorodibromomethane	µg/L	1	NE	NE	NE	<1	<1	-	-	7	<1	<1	<1	-	<1
Chloroethane	µg/L	5	NE	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
trans-1,2-dichloroethene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Tetrachloroethene	µg/L	1	70	NE	10	<1	<1	-	-	<1	<1	<1	<1	-	<1
NA															
Naphthalene (VOC)	mg/kg	0.01	NE	NE	NE	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	<0.01
Halogenated Benzenes															
1,2-dichlorobenzene	µg/L	1	160	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,3-dichlorobenzene	µg/L	1	260	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,4-dichlorobenzene	µg/L	1	60	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Bromobenzene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
4-chlorotoluene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Chlorobenzene	µg/L	1	55	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Halogenated Hydrocarbons															
Iodomethane	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Bromomethane	µg/L	5	NE	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
1,2-dibromoethane	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Dichlorodifluoromethane	µg/L	5	NE	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
Trichlorofluoromethane	µg/L	5	NE	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
MAH															
Total MAH	mg/L	0.003	NE	NE	NE	<0.003	<0.003	-	-	<0.003	<0.003	<0.003	<0.003	-	<0.003
1,3,5-trimethylbenzene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Styrene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Isopropylbenzene	µg/L	1	30	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
1,2,4-trimethylbenzene	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Solvents															
4-Methyl-2-pentanone	µg/L	5	NE	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5
Acetone	mg/L	0.005	NE	NE	NE	0.059	0.023	-	-	0.20	<0.005	<0.005	<0.005	-	<0.005
Allyl chloride	mg/L	0.001	NE	NE	NE	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	-	<0.001
Carbon disulfide	µg/L	1	NE	NE	NE	<1	<1	-	-	<1	<1	<1	<1	-	<1
Methyl Ethyl Ketone	µg/L	5	NE	NE	NE	<5	<5	-	-	<5	<5	<5	<5	-	<5

Notes:

'-' = Analysis not requested
µg/L = micrograms per litre
mg/L= milligrams per litre
LOR = Limit of Reporting
NA = Not Applicable
NE = Not established

Exceeds Recreational Water Quality and aesthetics
Exceeds Freshwater Criteria

agon ENVIRONMENTAL

Table I3
Soil Vapour Analytical Results

JC1225

Lab Report Number	335961	335961	335961	335961	335961	335961	RPD
Lab Name	ENVIROLAB	ENVIROLAB	ENVIROLAB	ENVIROLAB	ENVIROLAB	ENVIROLAB	
Field ID	SV01	SV_QC04	SV02	SV03	SV04	SV_QV03	%
Date	20 Jan 2023	20 Jan 2023	20 Jan 2023	20 Jan 2023	20 Jan 2023	20 Jan 2023	

	Unit	LOR	NEPM 2013 Table 1A(2) Res B Soil Vap VOCC HILs	NEPM 2013 Table 1A(5) Res Soil Vapour HSL B for Vapour Intrusion, Sand >=1m, <2m	US EPA Vapour Intrision Screening Levels - Residential		Leak Test at SV01				Duplicate sample of SV04	
PAH												
Naphthalene	µg/m3	2.6	NE	3,000	NE	<2.6	-	<2.6	<2.6	4	4	0.0
BTEX												
Benzene	µg/m3	1.6	NE	3,000	NA	<1.6	-	<1.6	<1.6	<1.6	<1.6	NA
Ethylbenzene	µg/m3	2.2	NE	1,100,000	NA	<2.2	-	<2.2	4	20	20	0.0
Toluene	µg/m3	1.9	NE	3,800,000	NA	<1.9	-	<1.9	<1.9	6	6	0.0
Xylene (m&p)	µg/m3	4.3	NE	NE	NE	<4.3	-	<4.3	5	20	20	0.0
Xylene (ortho)	µg/m3	2.2	NE	NE	NE	<2.2	-	<2.2	<2.2	10	10	0.0
Total xylenes	µg/m3	-	NE	750,000	NA	<6.5	-	<6.5	5	30	30	0.0
Acrylates												
Methyl Methacrylate	µg/m3	2	NE	NE	NE	<2	-	<2	<2	<2	<2	
NA												
Freon 113	µg/m3	3.8	NE	NE	NE	<3.8	-	<3.8	<3.8	<3.8	<3.8	NA
Freon 114	µg/m3	2.5	NE	NE	NE	<2.5	-	<2.5	<2.5	<2.5	<2.5	NA
Propene	µg/m3	0.9	NE	NE	1,040	1	-	<0.9	<0.9	1	1	0.0
Chlorinated Hydrocarbons												
Benzyl chloride	µg/m3	2.6	NE	NE	NE	<2.6	-	<2.6	<2.6	<2.6	<2.6	NA
1,1,1-trichloroethane	µg/m3	2.7	60,000	NE	NE	<2.7	-	<2.7	<2.7	<2.7	<2.7	NA
1,1,2-trichloroethane	µg/m3	2.7	NE	NE	NE	<2.7	-	<2.7	<2.7	<2.7	<2.7	NA
1,1,2,2-tetrachloroethane	µg/m3	3.4	NE	NE	NE	<3.4	-	<3.4	<3.4	<3.4	<3.4	NA
1,1-dichloroethane	µg/m3	2	NE	NE	NE	<2	-	<2	<2	<2	<2	NA
1,1-dichloroethene	µg/m3	2	NE	NE	NE	<2	-	<2	<2	<2	<2	NA
1,2-dichloroethane	µg/m3	2	NE	NE	NE	<2	-	<2	<2	<2	<2	NA
1,2-dichloropropane	µg/m3	2.3	NE	NE	NE	<2.3	-	<2.3	<2.3	<2.3	<2.3	NA
Bromodichloromethane	µg/m3	3.4	NE	NE	25.3	4	-	5	8	55	55	0.0
Bromoform	µg/m3	5.2	NE	NE	NE	<5.2	-	<5.2	<5.2	<5.2	<5.2	NA
Carbon tetrachloride	µg/m3	3.1	NE	NE	NE	<3.1	-	<3.1	<3.1	<3.1	<3.1	NA
Chlorodibromomethane	µg/m3	1.6	NE	NE	NE	<1.6	-	<1.6	<1.6	9	9	0.0
Chloroethane	µg/m3	1.3	NE	NE	NE	<1.3	-	<1.3	<1.3	<1.3	<1.3	NA
Chloroform	µg/m3	2.4	NE	NE	41	8	-	10	9	49	49	0.0
Chloromethane	µg/m3	1	NE	NE	NE	<1	-	<1	<1	<1	<1	NA
cis-1,3-dichloropropene	µg/m3	2.3	NE	NE	NE	<2.3	-	<2.3	<2.3	<2.3	<2.3	NA
cis-1,2-dichloroethene	µg/m3	2	80	NE	NE	<2	-	<2	<2	<2	<2	NA
Dichloromethane	µg/m3	17	NE	NE	NE	<17	-	<17	<17	<17	<17	NA
	ppbv	5	NE	NE	NE	<5	-	<5	<5	<5	<5	NA
Hexachlorobutadiene	µg/m3	5.3	NE	NE	NE	<5.3	-	<5.3	<5.3	<5.3	<5.3	NA
Tetrachloroethene	µg/m3	3.4	2,000	NE	NE	<3.4	-	<3.4	<3.4	10	10	0.0
trans-1,2-dichloroethene	µg/m3	2	NE	NE	NE	<2	-	<2	<2	<2	<2	NA
trans-1,3-dichloropropene	µg/m3	2.3	NE	NE	NE	<2.3	-	<2.3	<2.3	<2.3	<2.3	NA
Trichloroethene	µg/m3	2.7	20	NE	NE	<2.7	-	<2.7	<2.7	<2.7	<2.7	NA
Vinyl chloride	µg/m3	1.3	30	NE	NE	<1.3	-	<1.3	<1.3	<1.3	<1.3	NA
Halogenated Benzenes												
1,2,4-trichlorobenzene	µg/m3	3.7	NE	NE	NE	<3.7	-	<3.7	<3.7	<3.7	<3.7	NA
1,2-dichlorobenzene	µg/m3	3	NE	NE	NE	<3	-	<3	<3	<3	<3	NA
1,3-dichlorobenzene	µg/m3	3	NE	NE	NE	<3	-	<3	<3	<3	<3	NA
1,4-dichlorobenzene	µg/m3	3	NE	NE	NE	<3	-	<3	<3	<3	<3	NA
Chlorobenzene	µg/m3	2.3	NE	NE	NE	<2.3	-	<2.3	<2.3	<2.3	<2.3	NA
Halogenated Hydrocarbons												
1,2-dibromoethane	µg/m3	3.8	NE	NE	NE	<3.8	-	<3.8	<3.8	<3.8	<3.8	NA
Bromomethane	µg/m3	1.9	NE	NE	NE	<1.9	-	<1.9	<1.9	<1.9	<1.9	NA
Dichlorodifluoromethane	µg/m3	2.5	NE	NE	NE	<2.5	-	<2.5	<2.5	<2.5	<2.5	NA
Trichlorofluoromethane	µg/m3	2.8	NE	NE	NE	<2.8	-	<2.8	<2.8	<2.8	<2.8	NA
MAH												
1-methyl-4 ethyl benzene	µg/m3	2.5	NE	NE	NE	<2.5	-	<2.5	<2.5	9	9	0.0
1,2,4-trimethylbenzene	µg/m3	2.5	NE	NE	209	<2.5	-	<2.5	7	44	43	1.1
1,3,5-trimethylbenzene	µg/m3	2.5	NE	NE	209	<2.5	-	<2.5	<2.5	10	10	0.0
Styrene	µg/m3	2.1	NE	NE	5,000	<2.1	-	<2.1	<2.1	7	6	7.7
Solvents												
1,4-Dioxane	µg/m3	1.8	NE	NE	NE	<1.8	-	<1.8	<1.8	<1.8	<1.8	NA
2-hexanone (MBK)	µg/m3	2	NE	NE	NE	<2	-	<2	<2	<2	<2	NA
2-Propanol	µg/m3	12	NE	NE	695	50	<58,140	20	<12	<12	<12	NA
Ethanol	µg/m3	9	NE	NE	NE	20	-	10	30	<9	<9	NA
Ethyl acetate	µg/m3	1.8	NE	NE	NE	<1.8	-	<1.8	<1.8	30	25	9.1
Heptane	µg/m3	2	NE	NE	1,390	<2	-	4	3	21	22	2.3
Hexane	µg/m3	1.8	NE	NE	NE	5	-	<1.8	<1.8	<1.8	<1.8	NA
MTBE	µg/m3	1.8	NE	NE	NE	<1.8	-	<1.8	<1.8	<1.8	<1.8	NA
Tetrahydrofuran	µg/m3	1.5	NE	NE	NE	<1.5	-	<1.5	<1.5	<1.5	<1.5	NA
Vinyl acetate	µg/m3	1.8	NE	NE	NE	<1.8	-	<1.8	<1.8	<1.8	<1.8	NA
4-Methyl-2-pentanone	µg/m3	20	NE	NE	NE	<20	-	<20	<20	<20	<20	NA
Acetone	µg/m3	11.9	NE	NE	NE	<11.9	-	<11.9	10	<11.9	<11.9	NA
Carbon disulfide	µg/m3	16	NE	NE	NE	<16	-	<16	<16	<16	<16	NA
Cyclohexane	µg/m3	1.7	NE	NE	NE	<1.7	-	<1.7	<1.7	<1.7	<1.7	NA
Methyl Ethyl Ketone	µg/m3	15	NE	NE	1,740	<15	-	<15	<15	48	56	7.7
VOCs												
1,3-Butadiene	µg/m3	1.1	NE	NE	NE	<1.1	-	<1.1	<1.1	<1.1	<1.1	NA
Acrolein	µg/m3	11	NE	NE	NE	<11	-	<11	<11	<11	<11	NA

Notes:

'-" = Analysis not requested

µg/m3 = micrograms per metre cubed

LOR = Limit of Reporting

NA = Not Applicable

NE = Not established

APPENDIX J: CERTIFICATES OF ANALYSIS

Agon Environmental Pty Ltd
3/224 Glen Osmond Road
Fullarton
SA 5063

Attention: **Sophie Hambour**

Report **945395-S**
Project name Walkerville Tce
Project ID JC1225
Received Date Nov 29, 2022

Client Sample ID			**BH1 (0.1-0.2)**	**BH1 (0.4-0.5)**	**BH1 (0.9-1.0)**	**BH2 (0.1-0.2)**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M22-No0068954**	**M22-No0068955**	**M22-No0068956**	**M22-No0068957**
Date Sampled			**Nov 28, 2022**	**Nov 28, 2022**	**Nov 28, 2022**	**Nov 28, 2022**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	6.7	< 2
Barium	10	mg/kg	17	-	74	-
Beryllium	2	mg/kg	< 2	-	< 2	-
Boron	10	mg/kg	< 10	-	< 10	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	-	50	< 5
Cobalt	5	mg/kg	< 5	-	11	-
Copper	5	mg/kg	8.8	-	27	< 5
Lead	5	mg/kg	12	-	14	< 5
Manganese	5	mg/kg	77	-	210	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Molybdenum	5	mg/kg	< 5	-	< 5	-
Nickel	5	mg/kg	< 5	-	33	< 5
Selenium	2	mg/kg	< 2	-	< 2	-
Silver	2	mg/kg	< 2	-	< 2	-
Tin	10	mg/kg	< 10	-	< 10	-
Zinc	5	mg/kg	7.7	-	34	13
% Moisture	1	%	< 1	4.3	15	3.3
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	< 50
TRH C29-C36	50	mg/kg	-	56	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	56	-	< 50
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100

Client Sample ID			BH1 (0.1-0.2)	BH1 (0.4-0.5)	BH1 (0.9-1.0)	BH2 (0.1-0.2)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068954	M22-No0068955	M22-No0068956	M22-No0068957
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	71	-	81
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	1.7	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	2.0	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	2.2	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	0.8	-	-
Benzo(a)pyrene	0.5	mg/kg	-	1.3	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	1.3	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	1.0	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	1.1	-	-
Chrysene	0.5	mg/kg	-	1.0	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	1.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	0.9	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	1.7	-	-
Total PAH*	0.5	mg/kg	-	11	-	-
2-Fluorobiphenyl (surr.)	1	%	-	62	-	-
p-Terphenyl-d14 (surr.)	1	%	-	57	-	-

Client Sample ID			BH2 (0.4-0.5)	BH2 (0.9-1.0)	BH3 (0.4-0.5)	BH3 (0.9-1.0)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068958	M22-No0068959	M22-No0068960	M22-No0068961
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	-	5.0	6.6	9.7
Barium	10	mg/kg	-	74	-	100
Beryllium	2	mg/kg	-	< 2	-	2.3
Boron	10	mg/kg	-	< 10	-	< 10
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	43	15	68
Cobalt	5	mg/kg	-	10	-	13
Copper	5	mg/kg	-	22	18	35
Lead	5	mg/kg	-	13	59	24
Manganese	5	mg/kg	-	220	-	240

Client Sample ID			BH2 (0.4-0.5)	BH2 (0.9-1.0)	BH3 (0.4-0.5)	BH3 (0.9-1.0)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068958	M22-No0068959	M22-No0068960	M22-No0068961
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Molybdenum	5	mg/kg	-	< 5	-	< 5
Nickel	5	mg/kg	-	28	7.1	39
Selenium	2	mg/kg	-	< 2	-	< 2
Silver	2	mg/kg	-	< 2	-	< 2
Tin	10	mg/kg	-	< 10	-	< 10
Zinc	5	mg/kg	-	29	180	120
% Moisture	1	%	11	19	4.8	20
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	-
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	74	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-

Client Sample ID			BH2 (0.4-0.5)	BH2 (0.9-1.0)	BH3 (0.4-0.5)	BH3 (0.9-1.0)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068958	M22-No0068959	M22-No0068960	M22-No0068961
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	59	-	66	-
p-Terphenyl-d14 (surr.)	1	%	50	-	62	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-HCH	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-HCH	0.05	mg/kg	< 0.05	-	-	-
d-HCH	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	0.5	mg/kg	< 0.5	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	81	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	53	-	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Bolstar	0.2	mg/kg	< 0.2	-	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	-
Coumaphos	2	mg/kg	< 2	-	-	-
Demeton-S	0.2	mg/kg	< 0.2	-	-	-
Demeton-O	0.2	mg/kg	< 0.2	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Dichlorvos	0.2	mg/kg	< 0.2	-	-	-
Dimethoate	0.2	mg/kg	< 0.2	-	-	-
Disulfoton	0.2	mg/kg	< 0.2	-	-	-
EPN	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.2	mg/kg	< 0.2	-	-	-

Client Sample ID			BH2 (0.4-0.5)	BH2 (0.9-1.0)	BH3 (0.4-0.5)	BH3 (0.9-1.0)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068958	M22-No0068959	M22-No0068960	M22-No0068961
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethoprop	0.2	mg/kg	< 0.2	-	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	-
Fenitrothion	0.2	mg/kg	< 0.2	-	-	-
Fensulfothion	0.2	mg/kg	< 0.2	-	-	-
Fenthion	0.2	mg/kg	< 0.2	-	-	-
Malathion	0.2	mg/kg	< 0.2	-	-	-
Merphos	0.2	mg/kg	< 0.2	-	-	-
Methyl parathion	0.2	mg/kg	< 0.2	-	-	-
Mevinphos	0.2	mg/kg	< 0.2	-	-	-
Monocrotophos	2	mg/kg	< 2	-	-	-
Naled	0.2	mg/kg	< 0.2	-	-	-
Omethoate	2	mg/kg	< 2	-	-	-
Phorate	0.2	mg/kg	< 0.2	-	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Pyrazophos	0.2	mg/kg	< 0.2	-	-	-
Ronnel	0.2	mg/kg	< 0.2	-	-	-
Terbufos	0.2	mg/kg	< 0.2	-	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	-
Tokuthion	0.2	mg/kg	< 0.2	-	-	-
Trichloronate	0.2	mg/kg	< 0.2	-	-	-
Triphenylphosphate (surr.)	1	%	69	-	-	-

Client Sample ID			BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068962	M22-No0068963	M22-No0068964	M22-No0068965
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	18
Barium	10	mg/kg	33	42	46	100
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	10	7.8	< 5	18
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	9.1	5.2	< 5	20
Iron	20	mg/kg	-	-	-	13000
Lead	5	mg/kg	5.1	8.2	< 5	56
Manganese	5	mg/kg	150	70	200	190
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Molybdenum	5	mg/kg	< 5	< 5	< 5	-
Nickel	5	mg/kg	< 5	< 5	< 5	8.8
Selenium	2	mg/kg	< 2	< 2	< 2	-
Silver	2	mg/kg	< 2	< 2	< 2	< 2
Tin	10	mg/kg	< 10	< 10	< 10	-
Zinc	5	mg/kg	9.2	12	12	160

Client Sample ID			BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068962	M22-No0068963	M22-No0068964	M22-No0068965
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	< 1	5.5	3.8	9.0
Chromium (hexavalent)	1	mg/kg	-	-	-	< 1
Chromium (trivalent)	5	mg/kg	-	-	-	18
Cyanide (total)	5	mg/kg	-	-	-	< 5
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	-	< 50
TRH C29-C36	50	mg/kg	< 50	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	< 20
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	70	-	-	74
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	82
p-Terphenyl-d14 (surr.)	1	%	-	-	-	72

Client Sample ID			BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068962	M22-No0068963	M22-No0068964	M22-No0068965
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	< 0.05
a-HCH	0.05	mg/kg	-	< 0.05	-	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
b-HCH	0.05	mg/kg	-	< 0.05	-	< 0.05
d-HCH	0.05	mg/kg	-	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	-	0.07
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.05
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.05
Methoxychlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Toxaphene	0.5	mg/kg	-	< 0.5	-	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	0.07
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	82	-	55
Tetrachloro-m-xylene (surr.)	1	%	-	56	-	73
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Bolstar	0.2	mg/kg	-	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	-
Coumaphos	2	mg/kg	-	< 2	-	-
Demeton-S	0.2	mg/kg	-	< 0.2	-	-
Demeton-O	0.2	mg/kg	-	< 0.2	-	-
Diazinon	0.2	mg/kg	-	< 0.2	-	-
Dichlorvos	0.2	mg/kg	-	< 0.2	-	-
Dimethoate	0.2	mg/kg	-	< 0.2	-	-
Disulfoton	0.2	mg/kg	-	< 0.2	-	-
EPN	0.2	mg/kg	-	< 0.2	-	-
Ethion	0.2	mg/kg	-	< 0.2	-	-
Ethoprop	0.2	mg/kg	-	< 0.2	-	-
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	-
Fenitrothion	0.2	mg/kg	-	< 0.2	-	-
Fensulfothion	0.2	mg/kg	-	< 0.2	-	-
Fenthion	0.2	mg/kg	-	< 0.2	-	-
Malathion	0.2	mg/kg	-	< 0.2	-	-
Merphos	0.2	mg/kg	-	< 0.2	-	-

Client Sample ID			BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068962	M22-No0068963	M22-No0068964	M22-No0068965
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	-	< 0.2	-	-
Mevinphos	0.2	mg/kg	-	< 0.2	-	-
Monocrotophos	2	mg/kg	-	< 2	-	-
Naled	0.2	mg/kg	-	< 0.2	-	-
Omethoate	2	mg/kg	-	< 2	-	-
Phorate	0.2	mg/kg	-	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Pyrazophos	0.2	mg/kg	-	< 0.2	-	-
Ronnel	0.2	mg/kg	-	< 0.2	-	-
Terbufos	0.2	mg/kg	-	< 0.2	-	-
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	-
Tokuthion	0.2	mg/kg	-	< 0.2	-	-
Trichloronate	0.2	mg/kg	-	< 0.2	-	-
Triphenylphosphate (surr.)	1	%	-	70	-	-
Volatile Organics						
Tetrachloroethene	0.5	mg/kg	-	-	-	< 0.5
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	55
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	73
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	10	mg/kg	-	-	-	< 10
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
Total cresols*	0.5	mg/kg	-	-	-	< 0.5
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20

Client Sample ID			BH4 (0.1-0.2)	BH4 (0.3-0.4)	BH5 (0.1-0.2)	BH5 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068962	M22-No0068963	M22-No0068964	M22-No0068965
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Phenol	0.5	mg/kg	-	-	-	< 0.5
Phenol-d6 (surr.)	1	%	-	-	-	73
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20

Client Sample ID			BH6 (0.4-0.5)	BH6 (0.9-1.0)	BH7 (0.1-0.2)	BH7 (0.3-0.4)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068966	M22-No0068967	M22-No0068968	M22-No0068969
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	9.0	6.2	< 2	-
Barium	10	mg/kg	110	95	11	-
Beryllium	2	mg/kg	< 2	< 2	< 2	-
Boron	10	mg/kg	< 10	32	< 10	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	21	42	< 5	-
Cobalt	5	mg/kg	< 5	13	< 5	-
Copper	5	mg/kg	19	24	< 5	-
Lead	5	mg/kg	50	12	< 5	-
Manganese	5	mg/kg	250	210	50	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Molybdenum	5	mg/kg	< 5	< 5	< 5	-
Nickel	5	mg/kg	9.3	27	< 5	-
Selenium	2	mg/kg	< 2	< 2	< 2	-
Silver	2	mg/kg	< 2	< 2	< 2	-
Tin	10	mg/kg	< 10	< 10	< 10	-
Zinc	5	mg/kg	140	29	< 5	-
% Moisture	1	%	5.6	11	1.2	1.7
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	-
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-

Client Sample ID			BH6 (0.4-0.5)	BH6 (0.9-1.0)	BH7 (0.1-0.2)	BH7 (0.3-0.4)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068966	M22-No0068967	M22-No0068968	M22-No0068969
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	70	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	< 0.05
a-HCH	0.05	mg/kg	< 0.05	-	-	< 0.05
Aldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
b-HCH	0.05	mg/kg	< 0.05	-	-	< 0.05
d-HCH	0.05	mg/kg	< 0.05	-	-	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	-	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	-	-	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	-	-	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	130	-	-	145
Tetrachloro-m-xylene (surr.)	1	%	67	-	-	76
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Bolstar	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Coumaphos	2	mg/kg	< 2	-	-	< 2
Demeton-S	0.2	mg/kg	< 0.2	-	-	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	-	-	< 0.2
Diazinon	0.2	mg/kg	< 0.2	-	-	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	-	-	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	-	-	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	-	-	< 0.2
EPN	0.2	mg/kg	< 0.2	-	-	< 0.2

Client Sample ID			BH6 (0.4-0.5)	BH6 (0.9-1.0)	BH7 (0.1-0.2)	BH7 (0.3-0.4)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068966	M22-No0068967	M22-No0068968	M22-No0068969
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	-	-	< 0.2
Fenthion	0.2	mg/kg	< 0.2	-	-	< 0.2
Malathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Merphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	-	-	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Monocrotophos	2	mg/kg	< 2	-	-	< 2
Naled	0.2	mg/kg	< 0.2	-	-	< 0.2
Omethoate	2	mg/kg	< 2	-	-	< 2
Phorate	0.2	mg/kg	< 0.2	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	-	-	< 0.2
Ronnel	0.2	mg/kg	< 0.2	-	-	< 0.2
Terbufos	0.2	mg/kg	< 0.2	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	-	-	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	79	-	-	115

Client Sample ID			BH7 (0.9-1.0)	BH8 (0.3-0.4)	BH8 (0.4-0.5)	BH9 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068970	M22-No0068971	M22-No0068972	M22-No0068973
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	3.5	2.3	4.3	3.5
Barium	10	mg/kg	100	48	71	110
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	30	12	39	20
Cobalt	5	mg/kg	7.2	< 5	11	6.4
Copper	5	mg/kg	13	7.0	18	28
Lead	5	mg/kg	8.5	7.5	14	200
Manganese	5	mg/kg	120	84	300	300
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Molybdenum	5	mg/kg	< 5	< 5	< 5	< 5
Nickel	5	mg/kg	16	< 5	21	11
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Silver	2	mg/kg	< 2	< 2	< 2	< 2
Tin	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	19	9.9	24	240
% Moisture	1	%	12	8.8	13	6.3

Client Sample ID			BH7 (0.9-1.0)	BH8 (0.3-0.4)	BH8 (0.4-0.5)	BH9 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068970	M22-No0068971	M22-No0068972	M22-No0068973
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	74
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	0.9
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	1.2
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	1.4
Acenaphthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	0.7
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	0.7
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	0.7
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	0.6
Chrysene	0.5	mg/kg	-	-	< 0.5	0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5	0.8
Fluorene	0.5	mg/kg	-	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5	0.8
Total PAH*	0.5	mg/kg	-	-	< 0.5	5.3
2-Fluorobiphenyl (surr.)	1	%	-	-	58	61
p-Terphenyl-d14 (surr.)	1	%	-	-	53	56
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1

Client Sample ID			BH7 (0.9-1.0)	BH8 (0.3-0.4)	BH8 (0.4-0.5)	BH9 (0.4-0.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068970	M22-No0068971	M22-No0068972	M22-No0068973
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	10	mg/kg	-	-	-	< 10
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
Total cresols*	0.5	mg/kg	-	-	-	< 0.5
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20
Phenol	0.5	mg/kg	-	-	-	< 0.5
Phenol-d6 (surr.)	1	%	-	-	-	91
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20

Client Sample ID			BH9 (0.9-1.0)	BH9 (1.9-2.0)	QC02	QC03
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068974	M22-No0068975	M22-No0068976	M22-No0068977
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	5.1	4.3	9.8	6.8
Barium	10	mg/kg	73	150	85	-
Beryllium	2	mg/kg	< 2	< 2	< 2	-
Boron	10	mg/kg	< 10	30	< 10	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	48	40	22	19
Cobalt	5	mg/kg	8.8	11	< 5	-
Copper	5	mg/kg	25	18	19	17
Lead	5	mg/kg	14	11	51	45
Manganese	5	mg/kg	180	250	260	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Molybdenum	5	mg/kg	< 5	< 5	< 5	-
Nickel	5	mg/kg	28	21	11	8.8
Selenium	2	mg/kg	< 2	< 2	< 2	-
Silver	2	mg/kg	< 2	< 2	< 2	-
Tin	10	mg/kg	< 10	< 10	18	-
Zinc	5	mg/kg	31	31	140	120
% Moisture	1	%	19	11	4.5	9.0

Client Sample ID			BH9 (0.9-1.0)	BH9 (1.9-2.0)	QC02	QC03
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-No0068974	M22-No0068975	M22-No0068976	M22-No0068977
Date Sampled			Nov 28, 2022	Nov 28, 2022	Nov 28, 2022	Nov 28, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	81

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
VIC EPA Metals : Metals M17	Melbourne	Nov 29, 2022	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B6			
Metals M8	Melbourne	Nov 29, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
SA Waste Screen			
SA Waste Metals : Metals M14SA	Melbourne	Nov 29, 2022	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
Chromium (hexavalent)	Melbourne	Nov 29, 2022	28 Days
- Method: LTM-INO-4100 Hexavalent Chromium by Spectrometric detection			
Cyanide (total)	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Organochlorine Pesticides	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Volatile Organics	Melbourne	Nov 29, 2022	7 Days
- Method: USEPA 8260 - MGT 350A Volatile Organics by GCMS			
Polychlorinated Biphenyls	Melbourne	Nov 29, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
% Moisture	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			
Eurofins Suite B4A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Suite B14: OCP/OPP			
Organophosphorus Pesticides	Melbourne	Nov 29, 2022	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)			

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Company Name: Agon Environmental Pty Ltd - SA
Address: 3/224 Glen Osmond Road
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SA 5063

Project Name: Walkerville Tce
Project ID: JC1225

Order No.:
Report #: 945395
Phone: 08 8338 1009
Fax:

Received: Nov 29, 2022 1:24 PM
Due: Dec 2, 2022
Priority: 3 Day
Contact Name: Sophie Hambour

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	VIC EPA Metals : Metals M17	Moisture Set	SA Waste Screen	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B4	Eurofins Suite B6	Eurofins Suite B4A
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	BH1 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068954				X	X						
2	BH1 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068955					X				X		
3	BH1 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068956				X	X						
4	BH2 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068957					X					X	
5	BH2 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068958		X	X		X						
6	BH2 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068959				X	X						
7	BH3 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068960					X		X				
8	BH3 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068961				X	X						
9	BH4 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068962				X	X			X			
10	BH4 (0.3-0.4)	Nov 28, 2022		Soil	M22-No0068963			X	X	X						
11	BH5 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068964				X	X						
12	BH5 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068965					X	X					
13	BH6 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068966			X	X	X						

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
14	BH6 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068967				X	X						
15	BH7 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068968				X	X			X			
16	BH7 (0.3-0.4)	Nov 28, 2022		Soil	M22-No0068969			X		X						
17	BH7 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068970				X	X						
18	BH8 (0.3-0.4)	Nov 28, 2022		Soil	M22-No0068971				X	X						
19	BH8 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068972		X		X	X						
20	BH9 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068973				X	X						X
21	BH9 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068974				X	X						
22	BH9 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068975				X	X						
23	QC02	Nov 28, 2022		Soil	M22-No0068976				X	X						
24	QC03	Nov 28, 2022		Soil	M22-No0068977					X					X	
25	BH1 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068978	X										
26	BH2 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068979	X										
27	BH3 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068980	X										
28	BH3 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068981	X										
29	BH4 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068982	X										

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Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	VIC EPA Metals : Metals M17	Moisture Set	SA Waste Screen	Eurofins Suite B7	Eurofins Suite B1	Eurofins Suite B4	Eurofins Suite B6	Eurofins Suite B4A
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X
30	BH4 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068983	X										
31	BH4 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068984	X										
32	BH5 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068985	X										
33	BH5 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068986	X										
34	BH6 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068987	X										
35	BH6 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068988	X										
36	BH7 (0.4-0.5)	Nov 28, 2022		Soil	M22-No0068989	X										
37	BH7 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068990	X										
38	BH8 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068991	X										
39	BH8 (0.9-1.0)	Nov 28, 2022		Soil	M22-No0068992	X										
40	BH8 (1.9-2.0)	Nov 28, 2022		Soil	M22-No0068993	X										
41	BH9 (0.1-0.2)	Nov 28, 2022		Soil	M22-No0068994	X										
42	BH9 (1.4-1.5)	Nov 28, 2022		Soil	M22-No0068995	X										
43	QC01	Nov 28, 2022		Soil	M22-No0068996	X										
44	QC04	Nov 28, 2022		Soil	M22-No0068997	X										
Test Counts						20	2	4	17	24	1	1	2	1	2	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Iron	mg/kg	< 20			20	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 2			2	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Volatile Organics							
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Barium	%	111			80-120	Pass	
Beryllium	%	118			80-120	Pass	
Boron	%	108			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	%	102			80-120	Pass	
Chromium	%	109			80-120	Pass	
Cobalt	%	109			80-120	Pass	
Copper	%	107			80-120	Pass	
Iron	%	113			80-120	Pass	
Lead	%	109			80-120	Pass	
Manganese	%	109			80-120	Pass	
Mercury	%	101			80-120	Pass	
Molybdenum	%	108			80-120	Pass	
Nickel	%	106			80-120	Pass	
Selenium	%	107			80-120	Pass	
Silver	%	103			80-120	Pass	
Tin	%	107			80-120	Pass	
Zinc	%	106			80-120	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	110			70-130	Pass	
Cyanide (total)	%	87			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	104			70-130	Pass	
TRH C10-C14	%	85			70-130	Pass	
Naphthalene	%	84			70-130	Pass	
TRH C6-C10	%	103			70-130	Pass	
TRH >C10-C16	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	86			70-130	Pass	
Toluene	%	89			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	90			70-130	Pass	
Xylenes - Total*	%	91			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	113			70-130	Pass	
Acenaphthylene	%	116			70-130	Pass	
Anthracene	%	113			70-130	Pass	
Benz(a)anthracene	%	107			70-130	Pass	
Benzo(a)pyrene	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	%	101			70-130	Pass	
Benzo(g.h.i)perylene	%	121			70-130	Pass	
Benzo(k)fluoranthene	%	95			70-130	Pass	
Chrysene	%	86			70-130	Pass	
Dibenz(a.h)anthracene	%	107			70-130	Pass	
Fluoranthene	%	99			70-130	Pass	
Fluorene	%	129			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	107			70-130	Pass	
Naphthalene	%	85			70-130	Pass	
Phenanthrene	%	99			70-130	Pass	
Pyrene	%	97			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	93			70-130	Pass	
4.4'-DDD	%	96			70-130	Pass	
4.4'-DDE	%	86			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDT	%	80			70-130	Pass	
a-HCH	%	86			70-130	Pass	
Aldrin	%	82			70-130	Pass	
b-HCH	%	97			70-130	Pass	
d-HCH	%	92			70-130	Pass	
Dieldrin	%	75			70-130	Pass	
Endosulfan I	%	86			70-130	Pass	
Endosulfan II	%	90			70-130	Pass	
Endosulfan sulphate	%	78			70-130	Pass	
Endrin	%	88			70-130	Pass	
Endrin aldehyde	%	72			70-130	Pass	
Endrin ketone	%	104			70-130	Pass	
g-HCH (Lindane)	%	84			70-130	Pass	
Heptachlor	%	96			70-130	Pass	
Heptachlor epoxide	%	92			70-130	Pass	
Hexachlorobenzene	%	84			70-130	Pass	
Methoxychlor	%	96			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	122			70-130	Pass	
Dimethoate	%	99			70-130	Pass	
Ethion	%	107			70-130	Pass	
Fenitrothion	%	109			70-130	Pass	
Methyl parathion	%	111			70-130	Pass	
Mevinphos	%	130			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	70			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	130			25-140	Pass	
2.4-Dichlorophenol	%	103			25-140	Pass	
2.4.5-Trichlorophenol	%	95			25-140	Pass	
2.4.6-Trichlorophenol	%	99			25-140	Pass	
2.6-Dichlorophenol	%	110			25-140	Pass	
4-Chloro-3-methylphenol	%	115			25-140	Pass	
Pentachlorophenol	%	39			25-140	Pass	
Tetrachlorophenols - Total	%	55			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	112			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	81			25-140	Pass	
2-Nitrophenol	%	104			25-140	Pass	
2.4-Dimethylphenol	%	107			25-140	Pass	
2.4-Dinitrophenol	%	97			25-140	Pass	
2-Methylphenol (o-Cresol)	%	121			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	121			25-140	Pass	
4-Nitrophenol	%	106			25-140	Pass	
Dinoseb	%	95			25-140	Pass	
Phenol	%	50			25-140	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M22-No0065662	NCP	%	78			75-125	Pass	
Barium	M22-No0065662	NCP	%	83			75-125	Pass	
Beryllium	M22-No0065662	NCP	%	88			75-125	Pass	
Boron	M22-No0065662	NCP	%	89			75-125	Pass	
Cadmium	M22-No0065662	NCP	%	107			75-125	Pass	
Chromium	M22-No0065662	NCP	%	79			75-125	Pass	
Cobalt	M22-No0065662	NCP	%	79			75-125	Pass	
Copper	M22-No0065662	NCP	%	79			75-125	Pass	
Lead	M22-No0065662	NCP	%	81			75-125	Pass	
Manganese	M22-No0071616	NCP	%	118			75-125	Pass	
Mercury	M22-No0065662	NCP	%	108			75-125	Pass	
Molybdenum	M22-No0065662	NCP	%	83			75-125	Pass	
Nickel	M22-No0065662	NCP	%	79			75-125	Pass	
Selenium	M22-No0065662	NCP	%	75			75-125	Pass	
Silver	M22-No0065662	NCP	%	110			75-125	Pass	
Tin	M22-No0065662	NCP	%	81			75-125	Pass	
Zinc	M22-No0065662	NCP	%	77			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M22-No0069031	NCP	%	83			70-130	Pass	
Naphthalene	M22-No0069031	NCP	%	79			70-130	Pass	
TRH C6-C10	M22-No0069031	NCP	%	80			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M22-No0069031	NCP	%	76			70-130	Pass	
Toluene	M22-No0069031	NCP	%	80			70-130	Pass	
Ethylbenzene	M22-No0069031	NCP	%	81			70-130	Pass	
m&p-Xylenes	M22-No0069031	NCP	%	82			70-130	Pass	
o-Xylene	M22-No0069031	NCP	%	79			70-130	Pass	
Xylenes - Total*	M22-No0069031	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M22-No0072080	NCP	%	108			70-130	Pass	
Acenaphthylene	M22-No0072080	NCP	%	113			70-130	Pass	
Anthracene	M22-No0072080	NCP	%	107			70-130	Pass	
Benz(a)anthracene	M22-No0072080	NCP	%	98			70-130	Pass	
Benzo(a)pyrene	M22-No0072080	NCP	%	70			70-130	Pass	
Benzo(b&j)fluoranthene	M22-No0072080	NCP	%	124			70-130	Pass	
Benzo(g.h.i)perylene	M22-No0072080	NCP	%	102			70-130	Pass	
Benzo(k)fluoranthene	M22-No0072080	NCP	%	88			70-130	Pass	
Chrysene	M22-No0072080	NCP	%	71			70-130	Pass	
Dibenz(a.h)anthracene	M22-No0072080	NCP	%	104			70-130	Pass	
Fluoranthene	M22-No0072080	NCP	%	101			70-130	Pass	
Fluorene	M22-No0072080	NCP	%	113			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M22-No0072080	NCP	%	110			70-130	Pass	
Naphthalene	M22-No0072080	NCP	%	84			70-130	Pass	
Phenanthrene	M22-No0072080	NCP	%	79			70-130	Pass	
Pyrene	M22-No0072080	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	M22-No0068960	CP	%	94			70-130	Pass	
TRH >C10-C16	M22-No0068960	CP	%	98			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Iron	M22-No0062320	NCP	%	119			75-125	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M22-No0069877	NCP	%	110			70-130	Pass	
Cyanide (total)	M22-No0069878	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M22-No0069706	NCP	%	67			30-130	Pass	
2.4-Dichlorophenol	M22-No0069706	NCP	%	56			30-130	Pass	
2.4.5-Trichlorophenol	M22-No0069706	NCP	%	53			30-130	Pass	
2.4.6-Trichlorophenol	M22-No0069706	NCP	%	53			30-130	Pass	
2.6-Dichlorophenol	M22-No0069706	NCP	%	59			30-130	Pass	
4-Chloro-3-methylphenol	M22-No0069706	NCP	%	62			30-130	Pass	
Pentachlorophenol	M22-No0069706	NCP	%	39			30-130	Pass	
Tetrachlorophenols - Total	M22-No0069706	NCP	%	35			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Nitrophenol	M22-No0069706	NCP	%	61			30-130	Pass	
2.4-Dimethylphenol	M22-No0069706	NCP	%	79			30-130	Pass	
2-Methylphenol (o-Cresol)	M22-No0069706	NCP	%	61			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M22-No0069706	NCP	%	64			30-130	Pass	
4-Nitrophenol	M22-No0069706	NCP	%	56			30-130	Pass	
Dinoseb	M22-No0069706	NCP	%	33			30-130	Pass	
Phenol	M22-No0069706	NCP	%	73			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M22-No0072080	NCP	%	61			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M22-No0063396	NCP	%	78			30-130	Pass	
2.4-Dinitrophenol	M22-No0063396	NCP	%	62			30-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M22-No0068954	CP	%	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M22-No0069442	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M22-No0066939	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M22-No0066939	NCP	mg/kg	< 50	170	110	30%	Fail	Q15
TRH C29-C36	M22-No0066939	NCP	mg/kg	61	68	12	30%	Pass	
Naphthalene	M22-No0069442	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M22-No0069442	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M22-No0066939	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M22-No0066939	NCP	mg/kg	< 100	210	92	30%	Fail	Q15
TRH >C34-C40	M22-No0066939	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M22-No0069442	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M22-No0069442	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M22-No0069442	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M22-No0069442	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M22-No0069442	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	M22-No0069442	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M22-No0067541	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M22-No0066939	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M22-No0066939	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M22-No0066939	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M22-No0066939	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M22-No0066939	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M22-No0066939	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M22-No0068959	CP	mg/kg	5.0	6.6	27	30%	Pass	
Barium	M22-No0068959	CP	mg/kg	74	80	7.9	30%	Pass	
Beryllium	M22-No0068959	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M22-No0068959	CP	mg/kg	< 10	< 25	<1	30%	Pass	
Cadmium	M22-No0068959	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M22-No0068959	CP	mg/kg	43	50	14	30%	Pass	
Cobalt	M22-No0068959	CP	mg/kg	10	12	17	30%	Pass	
Copper	M22-No0068959	CP	mg/kg	22	25	11	30%	Pass	
Iron	M22-No0068959	CP	mg/kg	33000	39000	15	30%	Pass	
Lead	M22-No0068959	CP	mg/kg	13	15	8.5	30%	Pass	
Manganese	M22-No0068959	CP	mg/kg	220	230	8.2	30%	Pass	
Mercury	M22-No0068959	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M22-No0068959	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M22-No0068959	CP	mg/kg	28	32	12	30%	Pass	
Selenium	M22-No0068959	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M22-No0068959	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Tin	M22-No0068959	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M22-No0068959	CP	mg/kg	29	34	17	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Iron	M22-No0065684	NCP	mg/kg	32000	35000	11	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M22-No0068965	CP	%	9.0	8.9	1.7	30%	Pass	
Chromium (hexavalent)	B22-No0066373	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	B22-No0063046	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Tetrachloroethene	M22-No0069791	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M22-No0066939	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M22-No0066939	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M22-No0066939	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M22-No0066939	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M22-No0066939	NCP	mg/kg	< 0.1	0.2	49	30%	Fail	Q15
Aroclor-1254	M22-No0066939	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M22-No0066939	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M22-No0066939	NCP	mg/kg	< 0.1	0.2	49	30%	Fail	Q15
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M22-No0066939	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M22-No0066939	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M22-No0066939	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M22-No0066939	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M22-No0066939	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M22-No0066939	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M22-No0066939	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M22-No0066939	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M22-No0066939	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M22-No0066939	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	M22-No0066939	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M22-No0066939	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M22-No0066939	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M22-No0066939	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M22-No0066939	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M22-No0066939	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M22-No0066939	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M22-No0066939	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M22-No0068975	CP	%	11	9.7	17	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Catherine Wilson	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Emily Rosenberg	Senior Analyst-Metal
Joseph Edouard	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Volatile
Linda Chouman	Senior Analyst-Sample Properties
Mary Makarios	Senior Analyst-Inorganic
Vivian Wang	Senior Analyst-Volatile

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Agon Environmental Pty Ltd
3/224 Glen Osmond Road
Fullarton
SA 5063

NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Attention: **Sophie Hambour**

Report **947186-S**
Project name Walkerville Tce
Project ID JC1225
Received Date Dec 05, 2022

Client Sample ID			**BH1 (0.9-1.0)**	**BH9 (0.9-1.0)**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M22-De0008712**	**M22-De0008713**
Date Sampled			**Nov 28, 2022**	**Nov 28, 2022**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	55	66
p-Terphenyl-d14 (surr.)	1	%	58	63
% Moisture	1	%	14	20

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	Dec 05, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Melbourne	Dec 05, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

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Project Name: Walkerville Tce
Project ID: JC1225

Order No.:
Report #: 947186
Phone: 08 8338 1009
Fax:

Received: Dec 5, 2022 11:08 AM
Due: Dec 12, 2022
Priority: 5 Day
Contact Name: Sophie Hambour

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Polycyclic Aromatic Hydrocarbons	Moisture Set
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH1 (0.9-1.0)	Nov 28, 2022		Soil	M22-De0008712	X	X
2	BH9 (0.9-1.0)	Nov 28, 2022		Soil	M22-De0008713	X	X
Test Counts						2	2

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	122			70-130	Pass	
Acenaphthylene	%	119			70-130	Pass	
Anthracene	%	124			70-130	Pass	
Benz(a)anthracene	%	104			70-130	Pass	
Benzo(a)pyrene	%	120			70-130	Pass	
Benzo(b&j)fluoranthene	%	114			70-130	Pass	
Benzo(g.h.i)perylene	%	84			70-130	Pass	
Benzo(k)fluoranthene	%	94			70-130	Pass	
Chrysene	%	81			70-130	Pass	
Dibenz(a.h)anthracene	%	116			70-130	Pass	
Fluoranthene	%	117			70-130	Pass	
Fluorene	%	120			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	110			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
Phenanthrene	%	94			70-130	Pass	
Pyrene	%	120			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M22-De0008638	NCP	%	78			70-130	Pass	
Acenaphthylene	M22-De0008638	NCP	%	73			70-130	Pass	
Anthracene	M22-De0008638	NCP	%	90			70-130	Pass	
Benz(a)anthracene	M22-De0008638	NCP	%	78			70-130	Pass	
Benzo(a)pyrene	M22-De0008638	NCP	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	M22-De0008638	NCP	%	96			70-130	Pass	
Benzo(g.h.i)perylene	M22-De0008638	NCP	%	96			70-130	Pass	
Benzo(k)fluoranthene	M22-De0008638	NCP	%	112			70-130	Pass	
Chrysene	M22-De0008638	NCP	%	121			70-130	Pass	
Dibenz(a.h)anthracene	M22-De0008638	NCP	%	72			70-130	Pass	
Fluoranthene	M22-De0008638	NCP	%	71			70-130	Pass	
Fluorene	M22-De0008638	NCP	%	78			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Indeno(1.2.3-cd)pyrene	M22-De0008638	NCP	%	70			70-130	Pass	
Naphthalene	M22-De0008638	NCP	%	88			70-130	Pass	
Phenanthrene	M22-De0008638	NCP	%	88			70-130	Pass	
Pyrene	M22-De0008638	NCP	%	73			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M22-De0006343	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M22-De0009031	NCP	%	25	24	4.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Harry Bacalis	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic
Linda Chouman	Senior Analyst-Sample Properties

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Agon Environmental Pty Ltd
3/224 Glen Osmond Road
Fullarton
SA 5063

Attention: **Sophie Hambour**

Report **947971-W**
Project name Walkerville Tce
Project ID JC1225
Received Date Dec 07, 2022

Client Sample ID			**RB01**	**TP01**
Sample Matrix			**Water**	**Water**
Eurofins Sample No.			**M22-De0014456**	**M22-De0014457**
Date Sampled			**Dec 06, 2022**	**Dec 06, 2022**
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	0.001	mg/L	< 0.001	-
Barium	0.02	mg/L	< 0.02	-
Beryllium	0.001	mg/L	< 0.001	-
Boron	0.05	mg/L	< 0.05	-
Cadmium	0.0002	mg/L	< 0.0002	-
Chromium	0.001	mg/L	< 0.001	-
Cobalt	0.001	mg/L	< 0.001	-
Copper	0.001	mg/L	< 0.001	-
Lead	0.001	mg/L	< 0.001	-
Manganese	0.005	mg/L	< 0.005	-
Mercury	0.0001	mg/L	< 0.0001	-
Molybdenum	0.005	mg/L	< 0.005	-
Nickel	0.001	mg/L	< 0.001	-
Selenium	0.001	mg/L	< 0.001	-
Silver	0.005	mg/L	< 0.005	-
Tin	0.005	mg/L	< 0.005	-
Zinc	0.005	mg/L	< 0.005	-
Total Recoverable Hydrocarbons				
TRH C6-C9	0.02	mg/L	-	< 0.02
TRH C6-C10	0.02	mg/L	-	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	-	< 0.02
BTEX				
Benzene	0.001	mg/L	-	< 0.001
Toluene	0.001	mg/L	-	< 0.001
Ethylbenzene	0.001	mg/L	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002
o-Xylene	0.001	mg/L	-	< 0.001
Xylenes - Total*	0.003	mg/L	-	< 0.003
4-Bromofluorobenzene (surr.)	1	%	-	134
Volatile Organics				
Naphthalene[N02]	0.01	mg/L	-	< 0.01

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
VIC EPA Metals : Metals M17	Melbourne	Dec 07, 2022	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Dec 07, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Dec 07, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Dec 07, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			

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Company Name: Agon Environmental Pty Ltd - SA
Address: 3/224 Glen Osmond Road
Fullarton
SA 5063

Project Name: Walkerville Tce
Project ID: JC1225

Order No.:
Report #: 947971
Phone: 08 8338 1009
Fax:

Received: Dec 7, 2022 1:45 PM
Due: Dec 9, 2022
Priority: 2 Day
Contact Name: Sophie Hambour

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	VIC EPA Metals : Metals M17	Halogenated Volatile Organics	Moisture Set	SA Waste Screen	Eurofins Suite B1	Eurofins Suite B4	Eurofins Suite B6	Eurofins Suite B4A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																	
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**												
1	A-BH01_0.05-0.15	Dec 06, 2022		Soil	M22-De0014435					X	X						
2	A-BH01_0.2-0.3	Dec 06, 2022		Soil	M22-De0014436				X		X						
3	A-BH01_0.3-0.4	Dec 06, 2022		Soil	M22-De0014437				X		X			X			
4	A-BH02_0.3-0.4	Dec 06, 2022		Soil	M22-De0014438						X	X					
5	A-BH02_1.1-1.2	Dec 06, 2022		Soil	M22-De0014439				X		X						
6	A-BH03_0.05-0.15	Dec 06, 2022		Soil	M22-De0014440				X		X						
7	A-BH03_0.3-0.4	Dec 06, 2022		Soil	M22-De0014441			X			X			X			
8	A-BH03_0.5-0.6	Dec 06, 2022		Soil	M22-De0014442				X		X						

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X
9	A-BH04_0.4-0.5	Dec 06, 2022		Soil	M22-De0014443		X	X			X						
10	A-BH05_0.4-0.5	Dec 06, 2022		Soil	M22-De0014444		X		X		X						
11	A-BH05_0.5-0.6	Dec 06, 2022		Soil	M22-De0014445				X		X						
12	A-BH05_0.8-0.9	Dec 06, 2022		Soil	M22-De0014446						X	X					
13	A-BH06_0.4-0.5	Dec 06, 2022		Soil	M22-De0014447			X	X		X		X				
14	A-BH06_0.75-0.85	Dec 06, 2022		Soil	M22-De0014448				X		X						
15	A-BH06_1.9-2.0	Dec 06, 2022		Soil	M22-De0014449				X		X						
16	A-BH07_0.05-0.15	Dec 06, 2022		Soil	M22-De0014450				X		X						
17	A-BH07_0.35-0.45	Dec 06, 2022		Soil	M22-De0014451				X		X					X	
18	A-BH07_1.4-	Dec 06, 2022		Soil	M22-De0014452				X		X						

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X
18	A-BH07_1.4-1.5	Dec 06, 2022		Soil	M22-De0014452												
19	QC01	Dec 06, 2022		Soil	M22-De0014453				X		X						
20	QC03	Dec 06, 2022		Soil	M22-De0014454				X		X						
21	QC04	Dec 06, 2022		Soil	M22-De0014455						X				X		
22	RB01	Dec 06, 2022		Water	M22-De0014456				X								
23	TP01	Dec 06, 2022		Water	M22-De0014457												X
24	A-BH01_0.7-0.8	Dec 06, 2022		Soil	M22-De0014458	X											
25	A-BH01_1.3-1.4	Dec 06, 2022		Soil	M22-De0014459	X											
26	A-BH02_0.05-0.15	Dec 06, 2022		Soil	M22-De0014460	X											
27	A-BH02_0.4-0.5	Dec 06, 2022		Soil	M22-De0014461	X											
28	A-BH02_1.4-1.5	Dec 06, 2022		Soil	M22-De0014462	X											
29	A-BH03_1.1-	Dec 06, 2022		Soil	M22-De0014463	X											

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Christchurch 7675
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IANZ# 1290

Company Name: Agon Environmental Pty Ltd - SA
Address: 3/224 Glen Osmond Road
Fullarton
SA 5063

Project Name: Walkerville Tce
Project ID: JC1225

Order No.:
Report #: 947971
Phone: 08 8338 1009
Fax:

Received: Dec 7, 2022 1:45 PM
Due: Dec 9, 2022
Priority: 2 Day
Contact Name: Sophie Hambour

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	VIC EPA Metals : Metals M17	Halogenated Volatile Organics	Moisture Set	SA Waste Screen	Eurofins Suite B1	Eurofins Suite B4	Eurofins Suite B6	Eurofins Suite B4A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X
	1.2																
30	A-BH03_1.9-2.0	Dec 06, 2022		Soil	M22-De0014464	X											
31	A-BH04_0.05-0.15	Dec 06, 2022		Soil	M22-De0014465	X											
32	A-BH04_0.9-1.0	Dec 06, 2022		Soil	M22-De0014466	X											
33	A-BH04_1.4-1.5	Dec 06, 2022		Soil	M22-De0014467	X											
34	A-BH05_0.05-0.15	Dec 06, 2022		Soil	M22-De0014468	X											
35	A-BH05_1.2-1.3	Dec 06, 2022		Soil	M22-De0014469	X											
36	A-BH06_0.05-0.15	Dec 06, 2022		Soil	M22-De0014470	X											
37	A-BH06_0.7-0.75	Dec 06, 2022		Soil	M22-De0014471	X											
38	A-BH06_1.0-1.1	Dec 06, 2022		Soil	M22-De0014472	X											

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Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	VIC EPA Metals : Metals M17	Halogenated Volatile Organics	Moisture Set	SA Waste Screen	Eurofins Suite B1	Eurofins Suite B4	Eurofins Suite B6	Eurofins Suite B4A	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X
39	A-BH06_1.5-1.6	Dec 06, 2022		Soil	M22-De0014473	X											
40	A-BH07_0.3-0.35	Dec 06, 2022		Soil	M22-De0014474	X											
41	A-BH07_0.8-0.9	Dec 06, 2022		Soil	M22-De0014475	X											
42	A-BH07_1.0-1.1	Dec 06, 2022		Soil	M22-De0014476	X											
43	QC02	Dec 06, 2022		Soil	M22-De0014477	X											
Test Counts						20	2	3	16	1	21	2	1	2	1	1	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Barium	mg/L	< 0.02			0.02	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	
Boron	mg/L	< 0.05			0.05	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Cobalt	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Molybdenum	mg/L	< 0.005			0.005	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Silver	mg/L	< 0.005			0.005	Pass	
Tin	mg/L	< 0.005			0.005	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Volatile Organics							
Naphthalene	mg/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	92			80-120	Pass	
Barium	%	93			80-120	Pass	
Beryllium	%	90			80-120	Pass	
Boron	%	90			80-120	Pass	
Cadmium	%	96			80-120	Pass	
Chromium	%	94			80-120	Pass	
Cobalt	%	94			80-120	Pass	
Copper	%	94			80-120	Pass	
Lead	%	94			80-120	Pass	
Manganese	%	93			80-120	Pass	
Mercury	%	89			80-120	Pass	
Molybdenum	%	87			80-120	Pass	
Nickel	%	94			80-120	Pass	
Selenium	%	87			80-120	Pass	
Silver	%	93			80-120	Pass	
Tin	%	92			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	%	94			80-120	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	103			70-130	Pass	
TRH C6-C10	%	106			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	96			70-130	Pass	
Toluene	%	103			70-130	Pass	
Ethylbenzene	%	121			70-130	Pass	
m&p-Xylenes	%	108			70-130	Pass	
Xylenes - Total*	%	108			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
Naphthalene	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M22-De0012575	NCP	%	95			75-125	Pass	
Barium	M22-De0012575	NCP	%	87			75-125	Pass	
Beryllium	M22-De0012575	NCP	%	93			75-125	Pass	
Boron	M22-De0012575	NCP	%	99			75-125	Pass	
Cadmium	M22-De0012575	NCP	%	93			75-125	Pass	
Chromium	M22-De0012575	NCP	%	95			75-125	Pass	
Cobalt	M22-De0012575	NCP	%	93			75-125	Pass	
Copper	M22-De0012575	NCP	%	90			75-125	Pass	
Lead	M22-De0012575	NCP	%	91			75-125	Pass	
Manganese	M22-De0012575	NCP	%	83			75-125	Pass	
Mercury	M22-De0012575	NCP	%	95			75-125	Pass	
Molybdenum	M22-De0012575	NCP	%	94			75-125	Pass	
Nickel	M22-De0012575	NCP	%	91			75-125	Pass	
Selenium	M22-De0012575	NCP	%	94			75-125	Pass	
Silver	M22-De0012575	NCP	%	95			75-125	Pass	
Tin	M22-De0012575	NCP	%	97			75-125	Pass	
Zinc	M22-De0012575	NCP	%	85			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M22-De0012575	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Barium	M22-De0012575	NCP	mg/L	0.11	0.11	1.2	30%	Pass	
Beryllium	M22-De0012575	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron	M22-De0012575	NCP	mg/L	0.08	0.08	3.0	30%	Pass	
Cadmium	M22-De0012575	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M22-De0012575	NCP	mg/L	0.002	0.002	3.6	30%	Pass	
Cobalt	M22-De0012575	NCP	mg/L	0.006	0.006	<1	30%	Pass	
Copper	M22-De0012575	NCP	mg/L	0.009	0.009	3.4	30%	Pass	
Lead	M22-De0012575	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese	M22-De0012575	NCP	mg/L	0.13	0.13	1.5	30%	Pass	
Mercury	M22-De0012575	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Molybdenum	M22-De0012575	NCP	mg/L	0.005	0.005	2.3	30%	Pass	
Nickel	M22-De0012575	NCP	mg/L	0.009	0.010	2.5	30%	Pass	
Selenium	M22-De0012575	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Silver	M22-De0012575	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Tin	M22-De0012575	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc	M22-De0012575	NCP	mg/L	0.11	0.11	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised by:

Savini Suduweli	Analytical Services Manager
Mary Makarios	Senior Analyst-Metal
Vivian Wang	Senior Analyst-Volatile

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Agon Environmental Pty Ltd
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SA 5063

NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Attention: **Sophie Hambour**

Report **949289-S-V2**
Project name Walkerville Tce
Project ID JC1225
Received Date Dec 12, 2022

Client Sample ID			**A-BH01_0.3-0.4**	**A-BH01_0.7-0.8**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M22-De0025353**	**M22-De0025354**
Date Sampled			**Dec 06, 2022**	**Dec 06, 2022**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	8.8	0.7
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	8.8	1.0
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	8.8	1.3
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	0.8	< 0.5
Anthracene	0.5	mg/kg	0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	4.2	< 0.5
Benzo(a)pyrene	0.5	mg/kg	5.7	0.6
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	3.7	0.6
Benzo(g.h.i)perylene	0.5	mg/kg	3.7	0.5
Benzo(k)fluoranthene	0.5	mg/kg	4.6	0.7
Chrysene	0.5	mg/kg	4.7	0.6
Dibenz(a.h)anthracene	0.5	mg/kg	1.3	< 0.5
Fluoranthene	0.5	mg/kg	5.0	0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	4.6	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.2	< 0.5
Pyrene	0.5	mg/kg	5.1	0.6
Total PAH*	0.5	mg/kg	45	4.1
2-Fluorobiphenyl (surr.)	1	%	85	89
p-Terphenyl-d14 (surr.)	1	%	76	80
% Moisture	1	%	3.3	3.5

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	Dec 12, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Melbourne	Dec 12, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

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Project ID: JC1225

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Phone: 08 8338 1009
Fax:

Received: Dec 12, 2022 8:34 AM
Due: Dec 13, 2022
Priority: 1 Day
Contact Name: Sophie Hambour

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						Polycyclic Aromatic Hydrocarbons	Moisture Set
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	A-BH01_0.3-0.4	Dec 06, 2022		Soil	M22-De0025353	X	X
2	A-BH01_0.7-0.8	Dec 06, 2022		Soil	M22-De0025354	X	X
Test Counts						2	2

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5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	117			70-130	Pass	
Acenaphthylene	%	112			70-130	Pass	
Anthracene	%	87			70-130	Pass	
Benz(a)anthracene	%	125			70-130	Pass	
Benzo(a)pyrene	%	96			70-130	Pass	
Benzo(b&j)fluoranthene	%	121			70-130	Pass	
Benzo(g.h.i)perylene	%	118			70-130	Pass	
Benzo(k)fluoranthene	%	129			70-130	Pass	
Chrysene	%	101			70-130	Pass	
Dibenz(a.h)anthracene	%	130			70-130	Pass	
Fluoranthene	%	105			70-130	Pass	
Fluorene	%	106			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	105			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	95			70-130	Pass	
Pyrene	%	101			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M22-De0023372	NCP	%	94			70-130	Pass	
Acenaphthylene	M22-De0023372	NCP	%	91			70-130	Pass	
Anthracene	M22-De0023372	NCP	%	75			70-130	Pass	
Benz(a)anthracene	M22-De0023372	NCP	%	105			70-130	Pass	
Benzo(a)pyrene	M22-De0023372	NCP	%	109			70-130	Pass	
Benzo(b&j)fluoranthene	M22-De0023372	NCP	%	100			70-130	Pass	
Benzo(g.h.i)perylene	M22-De0023372	NCP	%	102			70-130	Pass	
Benzo(k)fluoranthene	M22-De0023372	NCP	%	127			70-130	Pass	
Chrysene	M22-De0023372	NCP	%	113			70-130	Pass	
Dibenz(a.h)anthracene	M22-De0023372	NCP	%	105			70-130	Pass	
Fluoranthene	M22-De0023372	NCP	%	80			70-130	Pass	
Fluorene	M22-De0023372	NCP	%	87			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Indeno(1.2.3-cd)pyrene	M22-De0023372	NCP	%	107			70-130	Pass	
Naphthalene	M22-De0023372	NCP	%	80			70-130	Pass	
Phenanthrene	M22-De0023372	NCP	%	72			70-130	Pass	
Pyrene	M22-De0023372	NCP	%	80			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M22-De0025186	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M22-De0025195	NCP	%	11	11	1.9	30%	Pass	

Comments

V2: Report amended to correct the sample IDs.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Savini Suduweli	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Linda Chouman	Senior Analyst-Sample Properties

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Agon Environmental Pty Ltd
3/224 Glen Osmond Road
Fullarton
SA 5063

Attention: **Carlo Echevarria**

Report **1003399-S**
Project name Buckingham Arms Gilberton
Project ID JC1225
Received Date Jun 29, 2023

Client Sample ID			**BH08_0.3-0.4**	**BH08_13.0**	**BH09_0.4-0.5**	**BH09_11.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M23-Jn0067636**	**M23-Jn0067637**	**M23-Jn0067638**	**M23-Jn0067639**
Date Sampled			**Jun 26, 2023**	**Jun 26, 2023**	**Jun 26, 2023**	**Jun 26, 2023**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	60	-	-	-
p-Terphenyl-d14 (surr.)	1	%	52	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	3.0	-	5.6	-
Barium	10	mg/kg	82	-	120	-
Beryllium	2	mg/kg	< 2	-	< 2	-
Boron	10	mg/kg	13	-	18	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	15	-	27	-
Cobalt	5	mg/kg	< 5	-	8.4	-
Copper	5	mg/kg	14	-	32	-
Lead	5	mg/kg	87	-	220	-
Manganese	5	mg/kg	120	-	280	-
Mercury	0.1	mg/kg	< 0.1	-	0.2	-
Molybdenum	5	mg/kg	< 5	-	< 5	-

Client Sample ID			BH08_0.3-0.4	BH08_13.0	BH09_0.4-0.5	BH09_11.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Jn0067636	M23-Jn0067637	M23-Jn0067638	M23-Jn0067639
Date Sampled			Jun 26, 2023	Jun 26, 2023	Jun 26, 2023	Jun 26, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	5	mg/kg	7.1	-	15	-
Selenium	2	mg/kg	< 2	-	< 2	-
Silver	2	mg/kg	< 2	-	< 2	-
Tin	10	mg/kg	< 10	-	17	-
Zinc	5	mg/kg	120	-	200	-
Sample Properties						
% Moisture	1	%	3.5	23	13	26
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	< 20	-	-
TRH C10-C14	20	mg/kg	-	< 20	-	-
TRH C15-C28	50	mg/kg	-	< 50	-	-
TRH C29-C36	50	mg/kg	-	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	-
TRH C6-C10	20	mg/kg	-	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	-
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	< 100	-	-
TRH >C34-C40	100	mg/kg	-	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	-
Toluene	0.1	mg/kg	-	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	-
o-Xylene	0.1	mg/kg	-	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	-	65	-	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5

Client Sample ID			BH08_0.3-0.4	BH08_13.0	BH09_0.4-0.5	BH09_11.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Jn0067636	M23-Jn0067637	M23-Jn0067638	M23-Jn0067639
Date Sampled			Jun 26, 2023	Jun 26, 2023	Jun 26, 2023	Jun 26, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Bromoform	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chloroform	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Styrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	-	65	77	73
Toluene-d8 (surr.)	1	%	-	63	80	75
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	-

Client Sample ID			BH09_13.0	BH10_0.3-0.4	BH10_11.0	BH10_13.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Jn0067640	M23-Jn0067641	M23-Jn0067642	M23-Jn0067643
Date Sampled			Not Provided[I12]	Jun 27, 2023	Jun 27, 2023	Jun 27, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	52	-	62
p-Terphenyl-d14 (surr.)	1	%	-	92	-	55
Heavy Metals						
Arsenic	2	mg/kg	-	9.0	-	4.6
Barium	10	mg/kg	-	110	-	87
Beryllium	2	mg/kg	-	2.0	-	< 2
Boron	10	mg/kg	-	19	-	15
Cadmium	0.4	mg/kg	-	< 0.4	-	< 0.4
Chromium	5	mg/kg	-	81	-	48
Cobalt	5	mg/kg	-	12	-	12
Copper	5	mg/kg	-	40	-	29
Lead	5	mg/kg	-	22	-	16
Manganese	5	mg/kg	-	200	-	170
Mercury	0.1	mg/kg	-	< 0.1	-	< 0.1
Molybdenum	5	mg/kg	-	< 5	-	< 5
Nickel	5	mg/kg	-	44	-	18
Selenium	2	mg/kg	-	< 2	-	< 2
Silver	2	mg/kg	-	< 2	-	< 2
Tin	10	mg/kg	-	< 10	-	< 10
Zinc	5	mg/kg	-	46	-	53
Sample Properties						
% Moisture	1	%	25	23	28	27
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-

Client Sample ID			BH09_13.0	BH10_0.3-0.4	BH10_11.0	BH10_13.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Jn0067640	M23-Jn0067641	M23-Jn0067642	M23-Jn0067643
Date Sampled			Not Provided[I12]	Jun 27, 2023	Jun 27, 2023	Jun 27, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	79	-	-	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	< 0.5	-
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	< 0.5	-
Allyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Bromobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromodichloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromoform	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromomethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Carbon disulfide	0.5	mg/kg	< 0.5	-	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	< 0.5	-
Chlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
Chloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Chloroform	0.5	mg/kg	< 0.5	-	< 0.5	-
Chloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-

Client Sample ID			BH09_13.0	BH10_0.3-0.4	BH10_11.0	BH10_13.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Jn0067640	M23-Jn0067641	M23-Jn0067642	M23-Jn0067643
Date Sampled			Not Provided[I12]	Jun 27, 2023	Jun 27, 2023	Jun 27, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibromomethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Iodomethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	< 0.5	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
Methylene Chloride	0.5	mg/kg	< 0.5	-	< 0.5	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Styrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Tetrachloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	-
Trichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Vinyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
Total MAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	-
4-Bromofluorobenzene (surr.)	1	%	79	-	56	-
Toluene-d8 (surr.)	1	%	85	-	61	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			QC06
Sample Matrix			Soil
Eurofins Sample No.			M23-Jn0067644
Date Sampled			Jun 26, 2023
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	5.2
Barium	10	mg/kg	170
Beryllium	2	mg/kg	< 2
Boron	10	mg/kg	21
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	35
Cobalt	5	mg/kg	8.0
Copper	5	mg/kg	39
Lead	5	mg/kg	290
Manganese	5	mg/kg	320
Mercury	0.1	mg/kg	0.3
Molybdenum	5	mg/kg	< 5
Nickel	5	mg/kg	16
Selenium	2	mg/kg	< 2

Client Sample ID			QC06
Sample Matrix			Soil
Eurofins Sample No.			M23-Jn0067644
Date Sampled			Jun 26, 2023
Test/Reference	LOR	Unit	
Heavy Metals			
Silver	2	mg/kg	< 2
Tin	10	mg/kg	22
Zinc	5	mg/kg	260
Sample Properties			
% Moisture	1	%	13

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	Jun 29, 2023	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
VIC EPA Metals : Metals M17	Melbourne	Jun 29, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Volatile Organics	Melbourne	Jun 29, 2023	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
% Moisture	Melbourne	Jun 29, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 29, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 29, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Jun 29, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 29, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			

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Project Name: Buckingham Arms Gilberton
Project ID: JC1225

Order No.:
Report #: 1003399
Phone: 08 8338 1009
Fax:

Received: Jun 29, 2023 5:52 AM
Due: Jul 6, 2023
Priority: 5 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	BH08_0.3-0.4	Jun 26, 2023		Soil	M23-Jn0067636		X	X		X		
2	BH08_13.0	Jun 26, 2023		Soil	M23-Jn0067637				X	X	X	
3	BH09_0.4-0.5	Jun 26, 2023		Soil	M23-Jn0067638			X	X	X		
4	BH09_11.0	Jun 26, 2023		Soil	M23-Jn0067639				X	X		
5	BH09_13.0	Not Provided		Soil	M23-Jn0067640				X	X	X	
6	BH10_0.3-0.4	Jun 27, 2023		Soil	M23-Jn0067641		X	X		X		
7	BH10_11.0	Jun 27, 2023		Soil	M23-Jn0067642				X	X		
8	BH10_13.0	Jun 27, 2023		Soil	M23-Jn0067643		X	X		X		
9	QC06	Jun 26, 2023		Soil	M23-Jn0067644			X		X		
10	RB02	Jun 26, 2023		Water	M23-Jn0067645						X	
11	RB03	Jun 27, 2023		Water	M23-Jn0067646						X	
12	TB02	Jun 26, 2023		Water	M23-Jn0067647							X
13	TB03	Jun 27, 2023		Water	M23-Jn0067648							X

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Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
14	BH08_0.05-0.15	Jun 26, 2023		Soil	M23-Jn0067649	X						
15	BH08_0.7-0.8	Jun 26, 2023		Soil	M23-Jn0067650	X						
16	BH08_0.9-1.0	Jun 26, 2023		Soil	M23-Jn0067651	X						
17	BH08_1.9-2.0	Jun 26, 2023		Soil	M23-Jn0067652	X						
18	BH08_2.8-2.9	Jun 26, 2023		Soil	M23-Jn0067653	X						
19	BH08_3.5-3.6	Jun 26, 2023		Soil	M23-Jn0067654	X						
20	BH08_4.9-5.0	Jun 26, 2023		Soil	M23-Jn0067655	X						
21	BH08_7.0	Jun 26, 2023		Soil	M23-Jn0067656	X						
22	BH08_9.0	Jun 26, 2023		Soil	M23-Jn0067657	X						
23	BH08_11.0	Jun 26, 2023		Soil	M23-Jn0067658	X						
24	BH08_15.0	Jun 26, 2023		Soil	M23-Jn0067659	X						
25	BH09_0.05-0.15	Jun 26, 2023		Soil	M23-Jn0067660	X						
26	BH09_0.7-0.8	Jun 26, 2023		Soil	M23-Jn0067661	X						
27	BH09_1.4-1.5	Jun 26, 2023		Soil	M23-Jn0067662	X						

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Priority: 5 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
28	BH09_2.4-2.5	Jun 26, 2023		Soil	M23-Jn0067663	X						
29	BH09_3.8-3.9	Jun 25, 2023		Soil	M23-Jn0067664	X						
30	BH09_4.9-5.0	Jun 26, 2023		Soil	M23-Jn0067665	X						
31	BH09_7.0	Jun 26, 2023		Soil	M23-Jn0067666	X						
32	BH09_9.0	Jun 26, 2023		Soil	M23-Jn0067667	X						
33	BH09_15.0	Jun 26, 2023		Soil	M23-Jn0067668	X						
34	BH10_0.05-0.15	Jun 27, 2023		Soil	M23-Jn0067669	X						
35	BH10_0.8-0.9	Jun 27, 2023		Soil	M23-Jn0067670	X						
36	BH10_1.6-1.7	Jun 27, 2023		Soil	M23-Jn0067671	X						
37	BH10_2.9-3.0	Jun 27, 2023		Soil	M23-Jn0067672	X						
38	BH10_5.0	Jun 27, 2023		Soil	M23-Jn0067673	X						
39	BH10_7.0	Jun 27, 2023		Soil	M23-Jn0067674	X						
40	BH10_9.0	Jun 27, 2023		Soil	M23-Jn0067675	X						
41	BH10_15.0	Jun 27, 2023		Soil	M23-Jn0067676	X						
42	QC05	Jun 26, 2023		Soil	M23-Jn0067677	X						

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Project Name: Buckingham Arms Gilberton
Project ID: JC1225

Order No.:
Report #: 1003399
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Received: Jun 29, 2023 5:52 AM
Due: Jul 6, 2023
Priority: 5 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
43	QC07	Jun 27, 2023		Soil	M23-Jn0067678	X						
44	QC08	Jun 27, 2023		Soil	M23-Jn0067679	X						
Test Counts						31	3	5	5	9	4	2

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**µg/L:** micrograms per litre
ppm: parts per million	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 2			2	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	92			70-130	Pass	
Acenaphthylene	%	85			70-130	Pass	
Anthracene	%	80			70-130	Pass	
Benz(a)anthracene	%	95			70-130	Pass	
Benzo(a)pyrene	%	85			70-130	Pass	
Benzo(b&j)fluoranthene	%	97			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	101			70-130	Pass	
Chrysene	%	82			70-130	Pass	
Dibenz(a.h)anthracene	%	108			70-130	Pass	
Fluoranthene	%	101			70-130	Pass	
Fluorene	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	84			70-130	Pass	
Naphthalene	%	87			70-130	Pass	
Phenanthrene	%	97			70-130	Pass	
Pyrene	%	103			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			80-120	Pass	
Barium	%	106			80-120	Pass	
Beryllium	%	102			80-120	Pass	
Boron	%	97			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Chromium	%	114			80-120	Pass	
Cobalt	%	114			80-120	Pass	
Copper	%	113			80-120	Pass	
Lead	%	109			80-120	Pass	
Manganese	%	111			80-120	Pass	
Mercury	%	106			80-120	Pass	
Molybdenum	%	106			80-120	Pass	
Nickel	%	110			80-120	Pass	
Selenium	%	103			80-120	Pass	
Silver	%	104			80-120	Pass	
Tin	%	105			80-120	Pass	
Zinc	%	107			80-120	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	111			70-130	Pass	
TRH C10-C14	%	71			70-130	Pass	
TRH C6-C10	%	104			70-130	Pass	
TRH >C10-C16	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	86			70-130	Pass	
Ethylbenzene	%	87			70-130	Pass	
m&p-Xylenes	%	96			70-130	Pass	
Xylenes - Total*	%	96			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	103			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.1.1-Trichloroethane			%	94			70-130	Pass	
1.2-Dichlorobenzene			%	91			70-130	Pass	
1.2-Dichloroethane			%	114			70-130	Pass	
Trichloroethene			%	116			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	95			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M23-Jn0069155	NCP	%	116			70-130	Pass	
Acenaphthylene	M23-Jn0069155	NCP	%	118			70-130	Pass	
Anthracene	M23-Jn0069155	NCP	%	106			70-130	Pass	
Benz(a)anthracene	M23-Jn0069155	NCP	%	79			70-130	Pass	
Benzo(a)pyrene	M23-Jn0069155	NCP	%	109			70-130	Pass	
Benzo(b&j)fluoranthene	M23-Jn0069155	NCP	%	113			70-130	Pass	
Benzo(g.h.i)perylene	M23-Jn0069155	NCP	%	113			70-130	Pass	
Benzo(k)fluoranthene	M23-Jn0069155	NCP	%	104			70-130	Pass	
Chrysene	M23-Jn0069155	NCP	%	89			70-130	Pass	
Dibenz(a.h)anthracene	M23-Jn0069155	NCP	%	83			70-130	Pass	
Fluoranthene	M23-Jn0069155	NCP	%	88			70-130	Pass	
Fluorene	M23-Jn0069155	NCP	%	128			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M23-Jn0069155	NCP	%	88			70-130	Pass	
Naphthalene	M23-Jn0069155	NCP	%	96			70-130	Pass	
Phenanthrene	M23-Jn0069155	NCP	%	85			70-130	Pass	
Pyrene	M23-Jn0069155	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M23-Jn0067636	CP	%	110			75-125	Pass	
Barium	M23-Jn0065803	NCP	%	101			75-125	Pass	
Beryllium	M23-Jn0067636	CP	%	105			75-125	Pass	
Boron	M23-Jn0067636	CP	%	96			75-125	Pass	
Cadmium	M23-Jn0067636	CP	%	104			75-125	Pass	
Chromium	M23-Jn0067636	CP	%	114			75-125	Pass	
Cobalt	M23-Jn0067636	CP	%	110			75-125	Pass	
Copper	M23-Jn0067636	CP	%	114			75-125	Pass	
Lead	M23-Jn0065803	NCP	%	103			75-125	Pass	
Manganese	M23-Jn0065803	NCP	%	88			75-125	Pass	
Mercury	M23-Jn0067636	CP	%	112			75-125	Pass	
Molybdenum	M23-Jn0067636	CP	%	110			75-125	Pass	
Nickel	M23-Jn0067636	CP	%	110			75-125	Pass	
Selenium	M23-Jn0067636	CP	%	102			75-125	Pass	
Silver	M23-Jn0067636	CP	%	106			75-125	Pass	
Tin	M23-Jn0067636	CP	%	108			75-125	Pass	
Zinc	M23-Jn0067636	CP	%	121			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M23-Jn0066595	NCP	%	103			70-130	Pass	
TRH C10-C14	M23-Jn0061207	NCP	%	76			70-130	Pass	
TRH C6-C10	M23-Jn0066595	NCP	%	96			70-130	Pass	
TRH >C10-C16	M23-Jn0061207	NCP	%	75			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M23-Jn0066595	NCP	%	93			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	M23-Jn0066595	NCP	%	83			70-130	Pass	
Ethylbenzene	M23-Jn0066595	NCP	%	81			70-130	Pass	
m&p-Xylenes	M23-Jn0066595	NCP	%	90			70-130	Pass	
o-Xylene	M23-Jn0066595	NCP	%	90			70-130	Pass	
Xylenes - Total*	M23-Jn0066595	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M23-Jn0066595	NCP	%	100			70-130	Pass	
1.1.1-Trichloroethane	M23-Jn0066595	NCP	%	91			70-130	Pass	
1.2-Dichlorobenzene	M23-Jn0066595	NCP	%	87			70-130	Pass	
1.2-Dichloroethane	M23-Jn0066595	NCP	%	111			70-130	Pass	
Trichloroethene	M23-Jn0066595	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M23-Jn0066595	NCP	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M23-Jn0067625	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M23-Jn0067636	CP	mg/kg	3.0	2.9	1.7	30%	Pass	
Barium	M23-Jn0065803	NCP	mg/kg	13	14	4.2	30%	Pass	
Beryllium	M23-Jn0067636	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M23-Jn0067636	CP	mg/kg	13	11	15	30%	Pass	
Cadmium	M23-Jn0067636	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M23-Jn0067636	CP	mg/kg	15	15	<1	30%	Pass	
Cobalt	M23-Jn0067636	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M23-Jn0067636	CP	mg/kg	14	14	<1	30%	Pass	
Lead	M23-Jn0065803	NCP	mg/kg	6.4	6.7	3.3	30%	Pass	
Manganese	M23-Jn0065803	NCP	mg/kg	28	29	4.3	30%	Pass	
Mercury	M23-Jn0067636	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M23-Jn0067636	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M23-Jn0067636	CP	mg/kg	7.1	7.1	<1	30%	Pass	
Selenium	M23-Jn0067636	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M23-Jn0067636	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Tin	M23-Jn0067636	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M23-Jn0067636	CP	mg/kg	120	120	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M23-Jn0067526	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M23-Jn0059572	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M23-Jn0059572	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M23-Jn0059572	NCP	mg/kg	110	100	3.3	30%	Pass	
TRH C6-C10	M23-Jn0067526	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M23-Jn0059572	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M23-Jn0059572	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M23-Jn0059572	NCP	mg/kg	110	130	14	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M23-Jn0067526	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M23-Jn0067526	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M23-Jn0067526	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M23-Jn0067526	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M23-Jn0067526	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	M23-Jn0067526	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromobenzene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Dichlorodifluoromethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Styrene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M23-Jn0067526	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M23-Jn0067641	CP	%	23	23	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

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

Authorised by:

Savini Suduweli	Analytical Services Manager
Carroll Lee	Senior Analyst-Organic
Carroll Lee	Senior Analyst-Volatile
Edward Lee	Senior Analyst-Organic
Emily Rosenberg	Senior Analyst-Metal
Harry Bacalis	Senior Analyst-Volatile
Joseph Edouard	Senior Analyst-Organic
Mary Makarios	Senior Analyst-Sample Properties

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Agon Environmental Pty Ltd
3/224 Glen Osmond Road
Fullarton
SA 5063

Attention: **Carlo Echevarria**

Report **1003399-W**
Project name Buckingham Arms Gilberton
Project ID JC1225
Received Date Jun 29, 2023

Client Sample ID			**RB02**	**RB03**	**TB02**	**TB03**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M23-Jn0067645**	**M23-Jn0067646**	**M23-Jn0067647**	**M23-Jn0067648**
Date Sampled			**Jun 26, 2023**	**Jun 27, 2023**	**Jun 26, 2023**	**Jun 27, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	-	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	-	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	-	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	-	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	-	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	116	114	102	102
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	-	-
Volatile Organics						
Naphthalene[N02]	0.01	mg/L	-	-	< 0.01	< 0.01

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 29, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 29, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Jun 29, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Jun 29, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 29, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			

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Company Name: Agon Environmental Pty Ltd - SA
Address: 3/224 Glen Osmond Road
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SA 5063

Project Name: Buckingham Arms Gilberton
Project ID: JC1225

Order No.:
Report #: 1003399
Phone: 08 8338 1009
Fax:

Received: Jun 29, 2023 5:52 AM
Due: Jul 6, 2023
Priority: 5 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	BH08_0.3-0.4	Jun 26, 2023		Soil	M23-Jn0067636		X	X		X		
2	BH08_13.0	Jun 26, 2023		Soil	M23-Jn0067637				X	X	X	
3	BH09_0.4-0.5	Jun 26, 2023		Soil	M23-Jn0067638			X	X	X		
4	BH09_11.0	Jun 26, 2023		Soil	M23-Jn0067639				X	X		
5	BH09_13.0	Not Provided		Soil	M23-Jn0067640				X	X	X	
6	BH10_0.3-0.4	Jun 27, 2023		Soil	M23-Jn0067641		X	X		X		
7	BH10_11.0	Jun 27, 2023		Soil	M23-Jn0067642				X	X		
8	BH10_13.0	Jun 27, 2023		Soil	M23-Jn0067643		X	X		X		
9	QC06	Jun 26, 2023		Soil	M23-Jn0067644			X		X		
10	RB02	Jun 26, 2023		Water	M23-Jn0067645						X	
11	RB03	Jun 27, 2023		Water	M23-Jn0067646						X	
12	TB02	Jun 26, 2023		Water	M23-Jn0067647							X
13	TB03	Jun 27, 2023		Water	M23-Jn0067648							X

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Project Name: Buckingham Arms Gilberton
Project ID: JC1225

Order No.:
Report #: 1003399
Phone: 08 8338 1009
Fax:

Received: Jun 29, 2023 5:52 AM
Due: Jul 6, 2023
Priority: 5 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
14	BH08_0.05-0.15	Jun 26, 2023		Soil	M23-Jn0067649	X						
15	BH08_0.7-0.8	Jun 26, 2023		Soil	M23-Jn0067650	X						
16	BH08_0.9-1.0	Jun 26, 2023		Soil	M23-Jn0067651	X						
17	BH08_1.9-2.0	Jun 26, 2023		Soil	M23-Jn0067652	X						
18	BH08_2.8-2.9	Jun 26, 2023		Soil	M23-Jn0067653	X						
19	BH08_3.5-3.6	Jun 26, 2023		Soil	M23-Jn0067654	X						
20	BH08_4.9-5.0	Jun 26, 2023		Soil	M23-Jn0067655	X						
21	BH08_7.0	Jun 26, 2023		Soil	M23-Jn0067656	X						
22	BH08_9.0	Jun 26, 2023		Soil	M23-Jn0067657	X						
23	BH08_11.0	Jun 26, 2023		Soil	M23-Jn0067658	X						
24	BH08_15.0	Jun 26, 2023		Soil	M23-Jn0067659	X						
25	BH09_0.05-0.15	Jun 26, 2023		Soil	M23-Jn0067660	X						
26	BH09_0.7-0.8	Jun 26, 2023		Soil	M23-Jn0067661	X						
27	BH09_1.4-1.5	Jun 26, 2023		Soil	M23-Jn0067662	X						

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Company Name: Agon Environmental Pty Ltd - SA
Address: 3/224 Glen Osmond Road
Fullarton
SA 5063

Project Name: Buckingham Arms Gilberton
Project ID: JC1225

Order No.:
Report #: 1003399
Phone: 08 8338 1009
Fax:

Received: Jun 29, 2023 5:52 AM
Due: Jul 6, 2023
Priority: 5 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
28	BH09_2.4-2.5	Jun 26, 2023		Soil	M23-Jn0067663	X						
29	BH09_3.8-3.9	Jun 25, 2023		Soil	M23-Jn0067664	X						
30	BH09_4.9-5.0	Jun 26, 2023		Soil	M23-Jn0067665	X						
31	BH09_7.0	Jun 26, 2023		Soil	M23-Jn0067666	X						
32	BH09_9.0	Jun 26, 2023		Soil	M23-Jn0067667	X						
33	BH09_15.0	Jun 26, 2023		Soil	M23-Jn0067668	X						
34	BH10_0.05-0.15	Jun 27, 2023		Soil	M23-Jn0067669	X						
35	BH10_0.8-0.9	Jun 27, 2023		Soil	M23-Jn0067670	X						
36	BH10_1.6-1.7	Jun 27, 2023		Soil	M23-Jn0067671	X						
37	BH10_2.9-3.0	Jun 27, 2023		Soil	M23-Jn0067672	X						
38	BH10_5.0	Jun 27, 2023		Soil	M23-Jn0067673	X						
39	BH10_7.0	Jun 27, 2023		Soil	M23-Jn0067674	X						
40	BH10_9.0	Jun 27, 2023		Soil	M23-Jn0067675	X						
41	BH10_15.0	Jun 27, 2023		Soil	M23-Jn0067676	X						
42	QC05	Jun 26, 2023		Soil	M23-Jn0067677	X						

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Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	VIC EPA Metals : Metals M17	Volatile Organics	Moisture Set	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
43	QC07	Jun 27, 2023		Soil	M23-Jn0067678	X						
44	QC08	Jun 27, 2023		Soil	M23-Jn0067679	X						
Test Counts						31	3	5	5	9	4	2

eurofins | Environment Testing

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**µg/L:** micrograms per litre
ppm: parts per million	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Volatile Organics							
Naphthalene	mg/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	116			70-130	Pass	
TRH C10-C14	%	109			70-130	Pass	
TRH C6-C10	%	114			70-130	Pass	
TRH >C10-C16	%	105			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	91			70-130	Pass	
Toluene	%	96			70-130	Pass	
Ethylbenzene	%	93			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
Xylenes - Total*	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	101			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M23-Jl0000743	NCP	%	121			70-130	Pass	
TRH C10-C14	M23-Jn0069455	NCP	%	87			70-130	Pass	
TRH C6-C10	M23-Jl0000743	NCP	%	120			70-130	Pass	
TRH >C10-C16	M23-Jn0069455	NCP	%	84			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M23-Jl0000743	NCP	%	117			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	M23-Jl0000743	NCP	%	117			70-130	Pass	
Ethylbenzene	M23-Jl0000743	NCP	%	115			70-130	Pass	
m&p-Xylenes	M23-Jl0000743	NCP	%	117			70-130	Pass	
o-Xylene	M23-Jl0000743	NCP	%	115			70-130	Pass	
Xylenes - Total*	M23-Jl0000743	NCP	%	116			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M23-Jl0000743	NCP	%	120			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	M23-Jn0060274	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M23-Jn0060274	NCP	mg/L	0.2	0.1	37	30%	Fail	Q15
TRH C29-C36	M23-Jn0060274	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	M23-Jn0060274	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M23-Jn0060274	NCP	mg/L	0.2	0.1	34	30%	Fail	Q15
TRH >C34-C40	M23-Jn0060274	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M23-Jn0067647	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C6-C10	M23-Jn0067647	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M23-Jn0067647	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M23-Jn0067647	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M23-Jn0067647	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M23-Jn0067647	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M23-Jn0067647	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M23-Jn0067647	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M23-Jn0067647	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M23-Jn0067648	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C6-C10	M23-Jn0067648	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M23-Jn0067648	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M23-Jn0067648	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M23-Jn0067648	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M23-Jn0067648	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M23-Jn0067648	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M23-Jn0067648	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M23-Jn0067648	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Savini Suduweli	Analytical Services Manager
Carroll Lee	Senior Analyst-Volatile
Harry Bacalis	Senior Analyst-Volatile
Joseph Edouard	Senior Analyst-Organic

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Agon Environmental Pty Ltd
3/224 Glen Osmond Road
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Attention: **Carlo Echevarria**

Report **1007484-W**
Project name BUCKINGHARM ARMS DD
Project ID JC1225
Received Date Jul 13, 2023

Client Sample ID			**MW01**
Sample Matrix			**Water**
Eurofins Sample No.			**M23-Jl0025311**
Date Sampled			**Jul 13, 2023**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	96
Volatile Organics			
1.1-Dichloroethane	0.001	mg/L	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001

Client Sample ID			MW01
Sample Matrix			Water
Eurofins Sample No.			M23-Jl0025311
Date Sampled			Jul 13, 2023
Test/Reference	LOR	Unit	
Volatile Organics			
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005
2-Propanone (Acetone)	0.005	mg/L	0.059
4-Chlorotoluene	0.001	mg/L	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005
Allyl chloride	0.001	mg/L	< 0.001
Benzene	0.001	mg/L	< 0.001
Bromobenzene	0.001	mg/L	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.005	mg/L	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001
Chloroethane	0.005	mg/L	< 0.005
Chloroform	0.005	mg/L	< 0.005
Chloromethane	0.005	mg/L	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001
Dibromomethane	0.001	mg/L	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001
Iodomethane	0.001	mg/L	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001
Trichloroethene	0.001	mg/L	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003
Total MAH*	0.003	mg/L	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005
4-Bromofluorobenzene (surr.)	1	%	96
Toluene-d8 (surr.)	1	%	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jul 14, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 14, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 14, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Jul 14, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Volatile Organics	Melbourne	Jul 14, 2023	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			

eurofins

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Project Name: BUCKINGHARM ARMS DD
Project ID: JC1225

Order No.:
Report #: 1007484
Phone: 08 8338 1009
Fax:

Received: Jul 13, 2023 1:00 PM
Due: Jul 17, 2023
Priority: 2 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						BTEX	Volatile Organics	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	MW01	Jul 13, 2023		Water	M23-Jl0025311	X	X	X
Test Counts						1	1	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**µg/L:** micrograms per litre
ppm: parts per million	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.005			0.005	Pass	
2-Propanone (Acetone)	mg/L	< 0.005			0.005	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.005			0.005	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.005			0.005	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.005			0.005	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Methylene Chloride	mg/L	< 0.005			0.005	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	116			70-130	Pass	
TRH C10-C14	%	86			70-130	Pass	
TRH C6-C10	%	122			70-130	Pass	
TRH >C10-C16	%	81			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	90			70-130	Pass	
Toluene	%	95			70-130	Pass	
Ethylbenzene	%	96			70-130	Pass	
m&p-Xylenes	%	86			70-130	Pass	
Xylenes - Total*	%	91			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	83			70-130	Pass	
1.1.1-Trichloroethane	%	79			70-130	Pass	
1.2-Dichlorobenzene	%	102			70-130	Pass	
1.2-Dichloroethane	%	121			70-130	Pass	
Trichloroethene	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	89			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	B23-JI0016723	NCP	%	91			70-130	Pass	
TRH C10-C14	M23-JI0021820	NCP	%	102			70-130	Pass	
TRH C6-C10	B23-JI0016723	NCP	%	95			70-130	Pass	
TRH >C10-C16	M23-JI0021820	NCP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-JI0016723	NCP	%	82			70-130	Pass	
Toluene	B23-JI0016723	NCP	%	81			70-130	Pass	
Ethylbenzene	B23-JI0016723	NCP	%	76			70-130	Pass	
m&p-Xylenes	B23-JI0016723	NCP	%	77			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
o-Xylene	B23-JI0016723	NCP	%	76			70-130	Pass	
Xylenes - Total*	B23-JI0016723	NCP	%	77			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	B23-JI0016723	NCP	%	93			70-130	Pass	
1.1.1-Trichloroethane	B23-JI0016723	NCP	%	85			70-130	Pass	
1.2-Dichlorobenzene	B23-JI0016723	NCP	%	86			70-130	Pass	
1.2-Dichloroethane	B23-JI0016723	NCP	%	124			70-130	Pass	
Trichloroethene	B23-JI0016723	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	B23-JI0016723	NCP	%	93			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M23-JI0025506	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M23-JI0022376	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M23-JI0022376	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M23-JI0022376	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C6-C10	M23-JI0025506	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M23-JI0022376	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M23-JI0022376	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M23-JI0022376	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M23-JI0025506	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M23-JI0025506	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1-Dichloroethene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1-Trichloroethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2-Trichloroethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dibromoethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichlorobenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloroethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloropropane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.3-Trichloropropane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.4-Trimethylbenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichlorobenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichloropropane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3.5-Trimethylbenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.4-Dichlorobenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
2-Butanone (MEK)	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Propanone (Acetone)	M23-JI0025506	NCP	mg/L	0.005	0.006	22	30%	Pass	
4-Chlorotoluene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Allyl chloride	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Bromobenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromochloromethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromodichloromethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromoform	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromomethane	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Carbon disulfide	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Carbon Tetrachloride	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chlorobenzene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chloroethane	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloroform	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloromethane	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
cis-1.2-Dichloroethene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
cis-1.3-Dichloropropene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromochloromethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromomethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dichlorodifluoromethane	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Iodomethane	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Isopropyl benzene (Cumene)	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Methylene Chloride	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Styrene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Tetrachloroethene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.2-Dichloroethene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.3-Dichloropropene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichloroethene	M23-JI0025506	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichlorofluoromethane	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Vinyl chloride	M23-JI0025506	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M23-JI0025506	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised by:

Savini Suduweli	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Harry Bacalis	Senior Analyst-Volatile

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Agon Environmental Pty Ltd
3/224 Glen Osmond Road
Fullarton
SA 5063

NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Attention: **Carlo Echevarria**

Report **1019370-W**
Project name Buckingham Arms DD
Project ID JC1225
Received Date Aug 23, 2023

Client Sample ID			**MW01**	**MW02**	**MW03**	**TB05**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M23-Au0057538**	**M23-Au0057539**	**M23-Au0057540**	**M23-Au0057541**
Date Sampled			**Aug 21, 2023**	**Aug 21, 2023**	**Aug 21, 2023**	**Aug 21, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	98	99	97	103
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-

Client Sample ID			MW01	MW02	MW03	TB05
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M23-Au0057538	M23-Au0057539	M23-Au0057540	M23-Au0057541
Date Sampled			Aug 21, 2023	Aug 21, 2023	Aug 21, 2023	Aug 21, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
4-Bromofluorobenzene (surr.)	1	%	98	99	97	-
Toluene-d8 (surr.)	1	%	105	104	106	-
Naphthalene[N02]	0.01	mg/L	-	-	-	< 0.01
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	-

Client Sample ID			MW01	MW02	MW03	TB05
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M23-Au0057538	M23-Au0057539	M23-Au0057540	M23-Au0057541
Date Sampled			Aug 21, 2023	Aug 21, 2023	Aug 21, 2023	Aug 21, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	-	0.001	-	-
Arsenic (filtered)	0.001	mg/L	< 0.001	-	0.002	-
Barium	0.02	mg/L	-	0.20	-	-
Barium (filtered)	0.02	mg/L	0.22	-	0.17	-
Beryllium	0.001	mg/L	-	< 0.001	-	-
Beryllium (filtered)	0.001	mg/L	< 0.001	-	< 0.001	-
Boron	0.05	mg/L	-	1.5	-	-
Boron (filtered)	0.05	mg/L	1.2	-	0.92	-
Cadmium	0.0002	mg/L	-	< 0.0002	-	-
Cadmium (filtered)	0.0002	mg/L	< 0.0002	-	< 0.0002	-
Chromium	0.001	mg/L	-	< 0.001	-	-
Chromium (filtered)	0.001	mg/L	< 0.001	-	< 0.001	-
Cobalt	0.001	mg/L	-	0.003	-	-
Cobalt (filtered)	0.001	mg/L	0.002	-	< 0.001	-
Copper	0.001	mg/L	-	< 0.001	-	-
Copper (filtered)	0.001	mg/L	< 0.001	-	< 0.001	-
Lead	0.001	mg/L	-	< 0.001	-	-
Lead (filtered)	0.001	mg/L	< 0.001	-	< 0.001	-
Manganese	0.005	mg/L	-	0.50	-	-
Manganese (filtered)	0.005	mg/L	0.28	-	0.090	-
Mercury	0.0001	mg/L	-	< 0.0001	-	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	-	< 0.0001	-
Molybdenum	0.005	mg/L	-	0.009	-	-
Molybdenum (filtered)	0.005	mg/L	< 0.005	-	< 0.005	-
Nickel	0.001	mg/L	-	0.001	-	-
Nickel (filtered)	0.001	mg/L	< 0.001	-	< 0.001	-
Selenium	0.001	mg/L	-	0.007	-	-
Selenium (filtered)	0.001	mg/L	0.008	-	0.006	-
Silver	0.005	mg/L	-	< 0.005	-	-
Silver (filtered)	0.005	mg/L	< 0.005	-	< 0.005	-
Tin	0.005	mg/L	-	< 0.005	-	-
Tin (filtered)	0.005	mg/L	< 0.005	-	< 0.005	-
Zinc	0.005	mg/L	-	< 0.005	-	-
Zinc (filtered)	0.005	mg/L	< 0.005	-	< 0.005	-

Client Sample ID			RB05	QC10
Sample Matrix			Water	Water
Eurofins Sample No.			M23-Au0057542	M23-Au0057543
Date Sampled			Aug 21, 2023	Aug 21, 2023
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02

Client Sample ID			RB05	QC10
Sample Matrix			Water	Water
Eurofins Sample No.			M23-Au0057542	M23-Au0057543
Date Sampled			Aug 21, 2023	Aug 21, 2023
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1
BTEX				
Benzene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	103	95
Volatile Organics				
1.1-Dichloroethane	0.001	mg/L	-	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	-	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	-	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	-	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	-	< 0.001
1.3-Dichloropropane	0.001	mg/L	-	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	-	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	-	< 0.001
2-Butanone (MEK)	0.005	mg/L	-	< 0.005
2-Propanone (Acetone)	0.005	mg/L	-	< 0.005
4-Chlorotoluene	0.001	mg/L	-	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	-	< 0.005
Allyl chloride	0.001	mg/L	-	< 0.001
Benzene	0.001	mg/L	-	< 0.001
Bromobenzene	0.001	mg/L	-	< 0.001
Bromochloromethane	0.001	mg/L	-	< 0.001
Bromodichloromethane	0.001	mg/L	-	< 0.001
Bromoform	0.001	mg/L	-	< 0.001
Bromomethane	0.005	mg/L	-	< 0.005
Carbon disulfide	0.001	mg/L	-	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	< 0.001
Chlorobenzene	0.001	mg/L	-	< 0.001
Chloroethane	0.005	mg/L	-	< 0.005
Chloroform	0.005	mg/L	-	< 0.005
Chloromethane	0.005	mg/L	-	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	-	< 0.001

Client Sample ID			RB05	QC10
Sample Matrix			Water	Water
Eurofins Sample No.			M23-Au0057542	M23-Au0057543
Date Sampled			Aug 21, 2023	Aug 21, 2023
Test/Reference	LOR	Unit		
Volatile Organics				
cis-1.3-Dichloropropene	0.001	mg/L	-	< 0.001
Dibromochloromethane	0.001	mg/L	-	< 0.001
Dibromomethane	0.001	mg/L	-	< 0.001
Dichlorodifluoromethane	0.005	mg/L	-	< 0.005
Ethylbenzene	0.001	mg/L	-	< 0.001
Iodomethane	0.001	mg/L	-	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002
Methylene Chloride	0.005	mg/L	-	< 0.005
o-Xylene	0.001	mg/L	-	< 0.001
Styrene	0.001	mg/L	-	< 0.001
Tetrachloroethene	0.001	mg/L	-	< 0.001
Toluene	0.001	mg/L	-	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	-	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	-	< 0.001
Trichloroethene	0.001	mg/L	-	< 0.001
Trichlorofluoromethane	0.005	mg/L	-	< 0.005
Vinyl chloride	0.005	mg/L	-	< 0.005
Xylenes - Total*	0.003	mg/L	-	< 0.003
Total MAH*	0.003	mg/L	-	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	< 0.005
4-Bromofluorobenzene (surr.)	1	%	-	95
Toluene-d8 (surr.)	1	%	-	102
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Aug 23, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Aug 23, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Aug 23, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Aug 23, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Aug 23, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Melbourne	Aug 23, 2023	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
VIC EPA Metals : Metals M17	Melbourne	Aug 23, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Vic EPA Metals : Metals M17 filtered	Melbourne	Aug 23, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

eurofins

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Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
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VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd
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NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Agon Environmental Pty Ltd - SA
Address: 3/224 Glen Osmond Road
Fullarton
SA 5063

Project Name: Buckingham Arms DD
Project ID: JC1225

Order No.:
Report #: 1019370
Phone: 08 8338 1009
Fax:

Received: Aug 23, 2023 2:03 PM
Due: Aug 25, 2023
Priority: 2 Day
Contact Name: Carlo Echevarria

Eurofins Analytical Services Manager : Savini Suduweli

Sample Detail						VIC EPA Metals : Metals M17	Vic EPA Metals : Metals M17 filtered	Volatile Organics	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	MW01	Aug 21, 2023		Water	M23-Au0057538		X	X	X	
2	MW02	Aug 21, 2023		Water	M23-Au0057539	X		X	X	
3	MW03	Aug 21, 2023		Water	M23-Au0057540		X	X	X	
4	TB05	Aug 21, 2023		Water	M23-Au0057541					X
5	RB05	Aug 21, 2023		Water	M23-Au0057542				X	
6	QC10	Aug 21, 2023		Water	M23-Au0057543			X	X	
Test Counts						1	2	4	5	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**µg/L:** micrograms per litre
ppm: parts per million	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.005			0.005	Pass	
2-Propanone (Acetone)	mg/L	< 0.005			0.005	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.005			0.005	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.005			0.005	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.005			0.005	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Methylene Chloride	mg/L	< 0.005			0.005	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride	mg/L	< 0.005			0.005	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Barium	mg/L	< 0.02			0.02	Pass	
Barium (filtered)	mg/L	< 0.02			0.02	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron	mg/L	< 0.05			0.05	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Molybdenum	mg/L	< 0.005			0.005	Pass	
Molybdenum (filtered)	mg/L	< 0.005			0.005	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Silver	mg/L	< 0.005			0.005	Pass	
Silver (filtered)	mg/L	< 0.005			0.005	Pass	
Tin	mg/L	< 0.005			0.005	Pass	
Tin (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C9	%	88			70-130	Pass	
TRH C10-C14	%	95			70-130	Pass	
TRH C6-C10	%	88			70-130	Pass	
TRH >C10-C16	%	85			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	83			70-130	Pass	
Toluene	%	78			70-130	Pass	
Ethylbenzene	%	83			70-130	Pass	
m&p-Xylenes	%	83			70-130	Pass	
Xylenes - Total*	%	83			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	110			70-130	Pass	
1.1.1-Trichloroethane	%	115			70-130	Pass	
1.2-Dichlorobenzene	%	122			70-130	Pass	
1.2-Dichloroethane	%	98			70-130	Pass	
Trichloroethene	%	105			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	98			80-120	Pass	
Barium	%	100			80-120	Pass	
Beryllium	%	102			80-120	Pass	
Boron	%	104			80-120	Pass	
Cadmium	%	94			80-120	Pass	
Chromium	%	98			80-120	Pass	
Cobalt	%	98			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	89			80-120	Pass	
Manganese	%	101			80-120	Pass	
Mercury	%	97			80-120	Pass	
Molybdenum	%	96			80-120	Pass	
Nickel	%	97			80-120	Pass	
Selenium	%	101			80-120	Pass	
Silver	%	97			80-120	Pass	
Tin	%	102			80-120	Pass	
Zinc	%	98			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M23-Au0055994	NCP	%	92			70-130	Pass	
TRH C6-C10	M23-Au0055994	NCP	%	96			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M23-Au0055994	NCP	%	77			70-130	Pass	
Toluene	M23-Au0055994	NCP	%	89			70-130	Pass	
Ethylbenzene	M23-Au0055994	NCP	%	90			70-130	Pass	
m&p-Xylenes	M23-Au0055994	NCP	%	87			70-130	Pass	
o-Xylene	M23-Au0055994	NCP	%	90			70-130	Pass	
Xylenes - Total*	M23-Au0055994	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M23-Au0055994	NCP	%	79			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.1.1-Trichloroethane	M23-Au0055994	NCP	%	80			70-130	Pass	
1.2-Dichlorobenzene	M23-Au0055994	NCP	%	79			70-130	Pass	
1.2-Dichloroethane	M23-Au0055994	NCP	%	85			70-130	Pass	
Naphthalene	M23-Au0055994	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M23-Au0052331	NCP	%	99			75-125	Pass	
Barium (filtered)	M23-Au0052331	NCP	%	97			75-125	Pass	
Beryllium (filtered)	M23-Au0052331	NCP	%	101			75-125	Pass	
Cadmium (filtered)	M23-Au0052331	NCP	%	88			75-125	Pass	
Chromium (filtered)	M23-Au0052331	NCP	%	94			75-125	Pass	
Cobalt (filtered)	M23-Au0052331	NCP	%	94			75-125	Pass	
Copper (filtered)	M23-Au0052331	NCP	%	96			75-125	Pass	
Lead (filtered)	M23-Au0052331	NCP	%	82			75-125	Pass	
Manganese (filtered)	M23-Au0052331	NCP	%	102			75-125	Pass	
Mercury (filtered)	M23-Au0052331	NCP	%	87			75-125	Pass	
Molybdenum (filtered)	M23-Au0052331	NCP	%	82			75-125	Pass	
Nickel (filtered)	M23-Au0052331	NCP	%	91			75-125	Pass	
Selenium (filtered)	M23-Au0052331	NCP	%	97			75-125	Pass	
Silver (filtered)	M23-Au0052331	NCP	%	84			75-125	Pass	
Tin (filtered)	M23-Au0052331	NCP	%	84			75-125	Pass	
Zinc (filtered)	M23-Au0052331	NCP	%	91			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	M23-Au0057539	CP	%	115			70-130	Pass	
TRH >C10-C16	M23-Au0057539	CP	%	104			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M23-Au0052331	NCP	%	105			75-125	Pass	
Barium	M23-Au0052331	NCP	%	105			75-125	Pass	
Beryllium	M23-Au0052331	NCP	%	115			75-125	Pass	
Boron	M23-Au0053699	NCP	%	101			75-125	Pass	
Cadmium	M23-Au0052331	NCP	%	99			75-125	Pass	
Chromium	M23-Au0052331	NCP	%	99			75-125	Pass	
Cobalt	M23-Au0052331	NCP	%	103			75-125	Pass	
Copper	M23-Au0052331	NCP	%	105			75-125	Pass	
Lead	M23-Au0052331	NCP	%	92			75-125	Pass	
Manganese	M23-Au0052331	NCP	%	92			75-125	Pass	
Mercury	M23-Au0052331	NCP	%	101			75-125	Pass	
Molybdenum	M23-Au0052331	NCP	%	101			75-125	Pass	
Nickel	M23-Au0052331	NCP	%	100			75-125	Pass	
Selenium	M23-Au0052331	NCP	%	111			75-125	Pass	
Silver	M23-Au0052331	NCP	%	99			75-125	Pass	
Tin	M23-Au0052331	NCP	%	113			75-125	Pass	
Zinc	M23-Au0052331	NCP	%	91			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M23-Au0055995	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M23-Au0057538	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M23-Au0057538	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M23-Au0057538	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C6-C10	M23-Au0055995	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M23-Au0057538	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH >C16-C34	M23-Au0057538	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M23-Au0057538	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M23-Au0055995	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M23-Au0055995	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1-Dichloroethene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1-Trichloroethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2-Trichloroethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dibromoethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichlorobenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloroethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloropropane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.3-Trichloropropane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.4-Trimethylbenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichlorobenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichloropropane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3.5-Trimethylbenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.4-Dichlorobenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
2-Butanone (MEK)	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Propanone (Acetone)	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Chlorotoluene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Allyl chloride	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromobenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromochloromethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromodichloromethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromoform	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromomethane	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Carbon disulfide	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Carbon Tetrachloride	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chlorobenzene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chloroethane	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloroform	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloromethane	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
cis-1.2-Dichloroethene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
cis-1.3-Dichloropropene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromochloromethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromomethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dichlorodifluoromethane	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Iodomethane	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Isopropyl benzene (Cumene)	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Methylene Chloride	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Styrene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Tetrachloroethene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.2-Dichloroethene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.3-Dichloropropene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichloroethene	M23-Au0055995	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichlorofluoromethane	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Vinyl chloride	M23-Au0055995	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Naphthalene	M23-Au0055995	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M23-Au0052331	NCP	mg/L	0.011	0.012	6.3	30%	Pass	
Barium (filtered)	M23-Au0052331	NCP	mg/L	< 0.02	0.02	3.9	30%	Pass	
Beryllium (filtered)	M23-Au0052331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron (filtered)	M23-Au0052331	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Cadmium (filtered)	M23-Au0052331	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M23-Au0052331	NCP	mg/L	0.051	0.054	6.4	30%	Pass	
Cobalt (filtered)	M23-Au0052331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M23-Au0052331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M23-Au0052331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	M23-Au0052331	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury (filtered)	M23-Au0052331	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Molybdenum (filtered)	M23-Au0052331	NCP	mg/L	0.021	0.023	7.4	30%	Pass	
Nickel (filtered)	M23-Au0052331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Selenium (filtered)	M23-Au0052331	NCP	mg/L	0.002	0.002	5.9	30%	Pass	
Silver (filtered)	M23-Au0052331	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Tin (filtered)	M23-Au0052331	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc (filtered)	M23-Au0052331	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Barium	M23-Au0052331	NCP	mg/L	0.05	0.05	2.7	30%	Pass	
Beryllium	M23-Au0052331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron	M23-Au0052331	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Cobalt	M23-Au0052331	NCP	mg/L	0.003	0.003	2.0	30%	Pass	
Manganese	M23-Au0052331	NCP	mg/L	0.14	0.15	4.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised by:

Catherine Wilson	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Emily Rosenberg	Senior Analyst-Metal
Joseph Edouard	Senior Analyst-Volatile

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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CERTIFICATE OF ANALYSIS 335961

Client Details

Client	Agon Environmental Pty Ltd
Attention	Carlo Echevarria
Address	Unit 3, 224 Glen Osmond Rd, FULLARTON, SA, 5063

Sample Details

Your Reference	**JC1225**
Number of Samples	6 Air
Date samples received	23/10/2023
Date completed instructions received	23/10/2023

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	25/10/2023
Date of Issue	25/10/2023

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Results Approved By
Amanda Chui, Air Toxics Team Leader
Liam Timmins, Organics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

TO15 in Canisters/Bags						
Our Reference		335961-1	335961-2	335961-3	335961-4	335961-5
Your Reference	UNITS	SV04	SV_QV03	SV03	SV02	SV01
Date Sampled		20/01/2023	20/01/2023	20/01/2023	20/01/2023	20/01/2023
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		3517	3292	1706	2476	3537
Vacuum before Shipment	Hg"	-30	-30	-30	-30	-30
Vacuum before Analysis	Hg"	-2	-2	-5	-0.93	-3
Date prepared	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Date analysed	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Propylene	ppbv	0.6	0.7	<0.5	<0.5	0.6
Dichlorodifluoromethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorotetrafluoroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Butadiene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Ethanol	ppbv	<5	<5	20	5	10
Acrolein	ppbv	<5	<5	<5	<5	<5
Trichlorofluoromethane (Freon 11)	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	ppbv	<5	<5	6	<5	<5
Isopropyl Alcohol	ppbv	<5	<5	<5	7	20
1,1-Dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichlorotrifluoroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ppbv	<5	<5	<5	<5	<5
Carbon Disulfide	ppbv	<5	<5	<5	<5	<5
trans-1,2-dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
MTBE	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,1- Dichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Acetate	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
MEK	ppbv	20	20	<5	<5	<5
Hexane	ppbv	<0.5	<0.5	<0.5	<0.5	1
cis-1,2-Dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Ethyl Acetate	ppbv	8.2	7.0	<0.5	<0.5	<0.5
Chloroform	ppbv	10	10	2	3	2
Tetrahydrofuran	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5

TO15 in Canisters/Bags						
Our Reference		335961-1	335961-2	335961-3	335961-4	335961-5
Your Reference	UNITS	SV04	SV_QV03	SV03	SV02	SV01
Date Sampled		20/01/2023	20/01/2023	20/01/2023	20/01/2023	20/01/2023
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		3517	3292	1706	2476	3537
Cyclohexane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Heptane	ppbv	5.1	5.4	0.7	0.9	<0.5
Trichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dioxane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	ppbv	8.2	8.2	1	0.7	0.6
Methyl Methacrylate	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
MIBK	ppbv	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	ppbv	2	2	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Butyl Ketone	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ppbv	3	3	<0.5	<0.5	<0.5
Tetrachloroethene	ppbv	2	2	<0.5	<0.5	<0.5
1,2-Dibromoethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ppbv	5	4	1	<0.5	<0.5
m-& p-Xylene	ppbv	5	5	1	<1	<1
Styrene	ppbv	2	2	<0.5	<0.5	<0.5
o-Xylene	ppbv	2	2	<0.5	<0.5	<0.5
Bromoform	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
4-ethyl toluene	ppbv	2	2	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ppbv	2	2	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	ppbv	8.9	8.7	2	<0.5	<0.5
1,3-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Benzyl chloride	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ppbv	0.7	0.7	<0.5	<0.5	<0.5
Hexachloro- 1,3-butadiene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate-Bromochloromethane	% rec	93	99	105	104	101
Surrogate -1,4-Difluorobenzene	% rec	90	96	100	100	96
Surrogate-Chlorobenzene-D5	% rec	90	95	98	98	94

TO15 in Canisters µg/m3						
Our Reference		335961-1	335961-2	335961-3	335961-4	335961-5
Your Reference	UNITS	SV04	SV_QV03	SV03	SV02	SV01
Date Sampled		20/01/2023	20/01/2023	20/01/2023	20/01/2023	20/01/2023
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		3517	3292	1706	2476	3537
Vacuum before Shipment	Hg"	-30	-30	-30	-30	-30
Vacuum before Analysis	Hg"	-2	-2	-5	-0.93	-3
Date prepared	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Date analysed	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Propylene	µg/m³	1	1	<0.9	<0.9	1
Dichlorodifluoromethane	µg/m³	<2.5	<2.5	<2.5	<2.5	<2.5
Chloromethane	µg/m³	<1	<1	<1	<1	<1
1,2-Dichlorotetrafluoroethane	µg/m³	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl chloride	µg/m³	<1.3	<1.3	<1.3	<1.3	<1.3
1,3-Butadiene	µg/m³	<1.1	<1.1	<1.1	<1.1	<1.1
Bromomethane	µg/m³	<1.9	<1.9	<1.9	<1.9	<1.9
Chloroethane	µg/m³	<1.3	<1.3	<1.3	<1.3	<1.3
Ethanol	µg/m³	<9	<9	30	10	20
Acrolein	µg/m³	<11	<11	<11	<11	<11
Trichlorofluoromethane (Freon 11)	µg/m³	<2.8	<2.8	<2.8	<2.8	<2.8
Acetone	µg/m³	<11.9	<11.9	10	<11.9	<11.9
Isopropyl Alcohol	µg/m³	<12	<12	<12	20	50
1,1-Dichloroethene	µg/m³	<2	<2	<2	<2	<2
1,1,2-Trichlorotrifluoroethane	µg/m³	<3.8	<3.8	<3.8	<3.8	<3.8
Methylene chloride (Dichloromethane)	µg/m³	<17	<17	<17	<17	<17
Carbon Disulfide	µg/m³	<16	<16	<16	<16	<16
trans-1,2-dichloroethene	µg/m³	<2	<2	<2	<2	<2
MTBE	µg/m³	<1.8	<1.8	<1.8	<1.8	<1.8
1,1- Dichloroethane	µg/m³	<2	<2	<2	<2	<2
Vinyl Acetate	µg/m³	<1.8	<1.8	<1.8	<1.8	<1.8
MEK	µg/m³	48	56	<15	<15	<15
Hexane	µg/m³	<1.8	<1.8	<1.8	<1.8	5
cis-1,2-Dichloroethene	µg/m³	<2	<2	<2	<2	<2
Ethyl Acetate	µg/m³	30	25	<1.8	<1.8	<1.8
Chloroform	µg/m³	49	49	9	10	8
Tetrahydrofuran	µg/m³	<1.5	<1.5	<1.5	<1.5	<1.5
1,1,1-Trichloroethane	µg/m³	<2.7	<2.7	<2.7	<2.7	<2.7
1,2-Dichloroethane	µg/m³	<2	<2	<2	<2	<2
Benzene	µg/m³	<1.6	<1.6	<1.6	<1.6	<1.6
Carbon tetrachloride	µg/m³	<3.1	<3.1	<3.1	<3.1	<3.1

TO15 in Canisters µg/m3						
Our Reference		335961-1	335961-2	335961-3	335961-4	335961-5
Your Reference	UNITS	SV04	SV_QV03	SV03	SV02	SV01
Date Sampled		20/01/2023	20/01/2023	20/01/2023	20/01/2023	20/01/2023
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		3517	3292	1706	2476	3537
Cyclohexane	µg/m³	<1.7	<1.7	<1.7	<1.7	<1.7
Heptane	µg/m³	21	22	3	4	<2
Trichloroethene	µg/m³	<2.7	<2.7	<2.7	<2.7	<2.7
1,2-Dichloropropane	µg/m³	<2.3	<2.3	<2.3	<2.3	<2.3
1,4-Dioxane	µg/m³	<1.8	<1.8	<1.8	<1.8	<1.8
Bromodichloromethane	µg/m³	55	55	8	5	4
Methyl Methacrylate	µg/m³	<2	<2	<2	<2	<2
MIBK	µg/m³	<20	<20	<20	<20	<20
cis-1,3-Dichloropropene	µg/m³	<2.3	<2.3	<2.3	<2.3	<2.3
trans-1,3-Dichloropropene	µg/m³	<2.3	<2.3	<2.3	<2.3	<2.3
Toluene	µg/m³	6	6	<1.9	<1.9	<1.9
1,1,2-Trichloroethane	µg/m³	<2.7	<2.7	<2.7	<2.7	<2.7
Methyl Butyl Ketone	µg/m³	<2	<2	<2	<2	<2
Dibromochloromethane	µg/m³	9	9	<1.6	<1.6	<1.6
Tetrachloroethene	µg/m³	10	10	<3.4	<3.4	<3.4
1,2-Dibromoethane	µg/m³	<3.8	<3.8	<3.8	<3.8	<3.8
Chlorobenzene	µg/m³	<2.3	<2.3	<2.3	<2.3	<2.3
Ethylbenzene	µg/m³	20	20	4	<2.2	<2.2
m-& p-Xylene	µg/m³	20	20	5	<4.3	<4.3
Styrene	µg/m³	7	6	<2.1	<2.1	<2.1
o-Xylene	µg/m³	10	10	<2.2	<2.2	<2.2
Bromoform	µg/m³	<5.2	<5.2	<5.2	<5.2	<5.2
1,1,2,2-Tetrachloroethane	µg/m³	<3.4	<3.4	<3.4	<3.4	<3.4
4-ethyl toluene	µg/m³	9	9	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m³	10	10	<2.5	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m³	44	43	7	<2.5	<2.5
1,3-Dichlorobenzene	µg/m³	<3	<3	<3	<3	<3
Benzyl chloride	µg/m³	<2.6	<2.6	<2.6	<2.6	<2.6
1,4-Dichlorobenzene	µg/m³	<3	<3	<3	<3	<3
1,2-Dichlorobenzene	µg/m³	<3	<3	<3	<3	<3
1,2,4-Trichlorobenzene	µg/m³	<3.7	<3.7	<3.7	<3.7	<3.7
Naphthalene	µg/m³	4	4	<2.6	<2.6	<2.6
Hexachloro- 1,3-butadiene	µg/m³	<5.3	<5.3	<5.3	<5.3	<5.3
Surrogate-Bromochloromethane	% rec	93	99	105	104	101
Surrogate -1,4-Difluorobenzene	% rec	90	96	100	100	96
Surrogate-Chlorobenzene-D5	% rec	90	95	98	98	94

IPA in Carbon Tubes & Badges		
Our Reference		335961-6
Your Reference	UNITS	SV_QC04
Date Sampled		20/01/2023
Type of sample		Air
Air Kit Security No.		Carbon Tube
Date Extracted	-	24/10/2023
Date Analysed	-	25/10/2023
Tube Sampling rate	mL/min	1
Tube Sampling Time	mins	86.0
Volume sampled	m^3	0.000086
Isopropyl Alcohol*	µg	<5
Isopropyl Alcohol*	$µg/m^3$	<58140
Surrogate Toluene-d8	%	73
Surrogate 4-Bromofluorobenzene	%	85

Method ID	Methodology Summary
ORG-022	Determination of volatile organic compounds in charcoal tubes/badges/sorbents using CS2 extraction, determined by GC/GC-MS. Desorption efficiencies are not applied to results. Note where µg/m$^{3 \text{ or } mg/m3}$ results are supplied for SKC badges, the factors used are for 575-002, if 575-002 data is unavailable for an analyte then use 575-001 then 575-003 (exposure time must be supplied). Otherwise a sampling rate may be used for a similar analyte on request. Analytes such as (where applicable) Iodomethane, Chloroprene, Nitrobenzene, Naphthalene and 1, 2, 3 / 1, 2, 4 Trichlorobenzenes are considered to be semi-quant analyses using CS2 desorption from charcoal tubes. The latter three compounds are better served by XAD-2 collection and analysis. Note - air volume measurements are not covered by Envirolab's NATA accreditation.
TO15	USEPA TO15 - Analysis of VOC's in air using USEPA TO15 and in house method AT-002. Note, longer term stability of some oxygenated compounds is questionable where significant humidity is present.
USEPA 18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography using USEPA m18.

QUALITY CONTROL: TO15 in Canisters/Bags						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Vacuum before Shipment	Hg"			[NT]	1	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	1	-2	-2	0	[NT]	[NT]
Date prepared	-			24/10/2023	1	24/10/2023	24/10/2023		24/10/2023	[NT]
Date analysed	-			24/10/2023	1	24/10/2023	24/10/2023		24/10/2023	[NT]
Propylene	ppbv	0.5	TO15	<0.5	1	0.6	0.6	0	114	[NT]
Dichlorodifluoromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Vinyl chloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,3-Butadiene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Bromomethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethanol	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Acrolein	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Acetone	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Isopropyl Alcohol	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
1,1-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Carbon Disulfide	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
trans-1,2-dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MTBE	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1- Dichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Vinyl Acetate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MEK	ppbv	5	TO15	<5	1	20	20	0	[NT]	[NT]
Hexane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	94	[NT]
cis-1,2-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethyl Acetate	ppbv	0.5	TO15	<0.5	1	8.2	8.4	2	[NT]	[NT]
Chloroform	ppbv	0.5	TO15	<0.5	1	10	10	0	[NT]	[NT]
Tetrahydrofuran	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,1-Trichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Benzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	94	[NT]
Carbon tetrachloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Cyclohexane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	78	[NT]
Heptane	ppbv	0.5	TO15	<0.5	1	5.1	5.2	2	98	[NT]

QUALITY CONTROL: TO15 in Canisters/Bags					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Trichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloropropane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,4-Dioxane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Bromodichloromethane	ppbv	0.5	TO15	<0.5	1	8.2	8.2	0	[NT]	[NT]
Methyl Methacrylate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MIBK	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
cis-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
trans-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Toluene	ppbv	0.5	TO15	<0.5	1	2	2	0	98	[NT]
1,1,2-Trichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methyl Butyl Ketone	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Dibromochloromethane	ppbv	0.5	TO15	<0.5	1	3	3	0	[NT]	[NT]
Tetrachloroethene	ppbv	0.5	TO15	<0.5	1	2	2	0	[NT]	[NT]
1,2-Dibromoethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	ppbv	0.5	TO15	<0.5	1	5	5	0	102	[NT]
m-& p-Xylene	ppbv	1	TO15	<1	1	5	5	0	102	[NT]
Styrene	ppbv	0.5	TO15	<0.5	1	2	2	0	103	[NT]
o-Xylene	ppbv	0.5	TO15	<0.5	1	2	2	0	102	[NT]
Bromoform	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
4-ethyl toluene	ppbv	0.5	TO15	<0.5	1	2	2	0	114	[NT]
1,3,5-Trimethylbenzene	ppbv	0.5	TO15	<0.5	1	2	2	0	109	[NT]
1,2,4-Trimethylbenzene	ppbv	0.5	TO15	<0.5	1	8.9	8.9	0	116	[NT]
1,3-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Benzyl chloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,4-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2,4-Trichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Naphthalene	ppbv	0.5	TO15	<0.5	1	0.7	0.7	0	[NT]	[NT]
Hexachloro- 1,3-butadiene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	105	1	93	96	3	106	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	101	1	90	95	5	103	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	100	1	90	94	4	100	[NT]

QUALITY CONTROL: TO15 in Canisters µg/m3					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Vacuum before Shipment	Hg"			[NT]	1	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	1	-2	-2	0	[NT]	[NT]
Date prepared	-			24/10/2023	1	24/10/2023	24/10/2023		[NT]	[NT]
Date analysed	-			24/10/2023	1	24/10/2023	24/10/2023		[NT]	[NT]
Propylene	µg/m³	0.9	TO15	<0.9	1	1	1	0	[NT]	[NT]
Dichlorodifluoromethane	µg/m³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
Chloromethane	µg/m³	1.0	TO15	<1.0	1	<1	<1	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	µg/m³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
Vinyl chloride	µg/m³	1.3	TO15	<1.3	1	<1.3	<1.3	0	[NT]	[NT]
1,3-Butadiene	µg/m³	1.1	TO15	<1.1	1	<1.1	<1.1	0	[NT]	[NT]
Bromomethane	µg/m³	1.9	TO15	<1.9	1	<1.9	<1.9	0	[NT]	[NT]
Chloroethane	µg/m³	1.3	TO15	<1.3	1	<1.3	<1.3	0	[NT]	[NT]
Ethanol	µg/m³	9	TO15	<9	1	<9	<9	0	[NT]	[NT]
Acrolein	µg/m³	11	TO15	<11	1	<11	<11	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	µg/m³	2.8	TO15	<2.8	1	<2.8	<2.8	0	[NT]	[NT]
Acetone	µg/m³	11.9	TO15	<11.9	1	<11.9	<11.9	0	[NT]	[NT]
Isopropyl Alcohol	µg/m³	12	TO15	<12	1	<12	<12	0	[NT]	[NT]
1,1-Dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	µg/m³	3.8	TO15	<3.8	1	<3.8	<3.8	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	µg/m³	17	USEPA 18	<17	1	<17	<17	0	[NT]	[NT]
Carbon Disulfide	µg/m³	16	TO15	<16	1	<16	<16	0	[NT]	[NT]
trans-1,2-dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
MTBE	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
1,1- Dichloroethane	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Vinyl Acetate	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
MEK	µg/m³	15	TO15	<15	1	48	53	10	[NT]	[NT]
Hexane	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
cis-1,2-Dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Ethyl Acetate	µg/m³	1.8	TO15	<1.8	1	30	30	0	[NT]	[NT]
Chloroform	µg/m³	2.4	TO15	<2.4	1	49	49	0	[NT]	[NT]
Tetrahydrofuran	µg/m³	1.5	TO15	<1.5	1	<1.5	<1.5	0	[NT]	[NT]
1,1,1-Trichloroethane	µg/m³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloroethane	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Benzene	µg/m³	1.6	TO15	<1.6	1	<1.6	<1.6	0	[NT]	[NT]
Carbon tetrachloride	µg/m³	3.1	TO15	<3.1	1	<3.1	<3.1	0	[NT]	[NT]
Cyclohexane	µg/m³	1.7	TO15	<1.7	1	<1.7	<1.7	0	[NT]	[NT]
Heptane	µg/m³	2.0	TO15	<2.0	1	21	21	0	[NT]	[NT]

QUALITY CONTROL: TO15 in Canisters µg/m3						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Trichloroethene	µg/m³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloropropane	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
1,4-Dioxane	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
Bromodichloromethane	µg/m³	3.4	TO15	<3.4	1	55	55	0	[NT]	[NT]
Methyl Methacrylate	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
MIBK	µg/m³	20	TO15	<20	1	<20	<20	0	[NT]	[NT]
cis-1,3-Dichloropropene	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
trans-1,3-Dichloropropene	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
Toluene	µg/m³	1.9	TO15	<1.9	1	6	6	0	[NT]	[NT]
1,1,2-Trichloroethane	µg/m³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
Methyl Butyl Ketone	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Dibromochloromethane	µg/m³	1.6	TO15	<1.6	1	9	9	0	[NT]	[NT]
Tetrachloroethene	µg/m³	3.4	TO15	<3.4	1	10	10	0	[NT]	[NT]
1,2-Dibromoethane	µg/m³	3.8	TO15	<3.8	1	<3.8	<3.8	0	[NT]	[NT]
Chlorobenzene	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
Ethylbenzene	µg/m³	2.2	TO15	<2.2	1	20	20	0	[NT]	[NT]
m-& p-Xylene	µg/m³	4.3	TO15	<4.3	1	20	20	0	[NT]	[NT]
Styrene	µg/m³	2.1	TO15	<2.1	1	7	7	0	[NT]	[NT]
o-Xylene	µg/m³	2.2	TO15	<2.2	1	10	10	0	[NT]	[NT]
Bromoform	µg/m³	5.2	TO15	<5.2	1	<5.2	<5.2	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	µg/m³	3.4	TO15	<3.4	1	<3.4	<3.4	0	[NT]	[NT]
4-ethyl toluene	µg/m³	2.5	TO15	<2.5	1	9	9	0	[NT]	[NT]
1,3,5-Trimethylbenzene	µg/m³	2.5	TO15	<2.5	1	10	10	0	[NT]	[NT]
1,2,4-Trimethylbenzene	µg/m³	2.5	TO15	<2.5	1	44	44	0	[NT]	[NT]
1,3-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
Benzyl chloride	µg/m³	2.6	TO15	<2.6	1	<2.6	<2.6	0	[NT]	[NT]
1,4-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
1,2-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/m³	3.7	TO15	<3.7	1	<3.7	<3.7	0	[NT]	[NT]
Naphthalene	µg/m³	2.6	TO15	<2.6	1	4	4	0	[NT]	[NT]
Hexachloro- 1,3-butadiene	µg/m³	5.3	TO15	<5.3	1	<5.3	<5.3	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	105	1	93	96	3	[NT]	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	101	1	90	95	5	[NT]	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	100	1	90	94	4	[NT]	[NT]

QUALITY CONTROL: IPA in Carbon Tubes & Badges					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date Extracted	-			24/10/2023	[NT]	[NT]	[NT]	[NT]	24/10/2023	[NT]
Date Analysed	-			25/10/2023	[NT]	[NT]	[NT]	[NT]	25/10/2023	[NT]
Isopropyl Alcohol*	µg	5	ORG-022	<5	[NT]	[NT]	[NT]	[NT]	80	[NT]
Surrogate Toluene-d8	%		ORG-022	[NT]	[NT]	[NT]	[NT]	[NT]	95	[NT]
Surrogate 4-Bromofluorobenzene	%		ORG-022	[NT]	[NT]	[NT]	[NT]	[NT]	97	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

APPENDIX K: STATISTICAL ANALYSIS

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.114/09/2023 12:33:22 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Zinc

General Statistics

Total Number of Observations	19	Number of Distinct Observations	18
Number of Detects	18	Number of Non-Detects	1
Number of Distinct Detects	17	Number of Distinct Non-Detects	1
Minimum Detect	7.9	Minimum Non-Detect	5
Maximum Detect	260	Maximum Non-Detect	5
Variance Detects	4595	Percent Non-Detects	5.263%
Mean Detects	72.61	SD Detects	67.78
Median Detects	41	CV Detects	0.934
Skewness Detects	1.523	Kurtosis Detects	2.133
Mean of Logged Detects	3.886	SD of Logged Detects	0.945

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.817	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.897	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.229	Lilliefors GOF Test
5% Lilliefors Critical Value	0.202	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	69.05	KM Standard Error of Mean	15.55
KM SD	65.87	95% KM (BCA) UCL	97.68
95% KM (t) UCL	96.01	95% KM (Percentile Bootstrap) UCL	94.63
95% KM (z) UCL	94.62	95% KM Bootstrap t UCL	105.4
90% KM Chebyshev UCL	115.7	95% KM Chebyshev UCL	136.8
97.5% KM Chebyshev UCL	166.2	99% KM Chebyshev UCL	223.8

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.487	Anderson-Darling GOF Test
5% A-D Critical Value	0.758	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.172	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.208	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.397	k star (bias corrected MLE)	1.201
Theta hat (MLE)	51.96	Theta star (bias corrected MLE)	60.43
nu hat (MLE)	50.3	nu star (bias corrected)	43.25
Mean (detects)	72.61		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

58					Minimum	0.01				Mean	68.78
59					Maximum	260				Median	36
60					SD	67.95				CV	0.988
61					k hat (MLE)	0.756			k star (bias corrected MLE)		0.671
62					Theta hat (MLE)	91.04			Theta star (bias corrected MLE)		102.5
63					nu hat (MLE)	28.71			nu star (bias corrected)		25.51
64					Adjusted Level of Significance (β)	0.0369					
65					Approximate Chi Square Value (25.51, α)	15			Adjusted Chi Square Value (25.51, β)		14.3
66					95% Gamma Approximate UCL (use when n>=50)	117			95% Gamma Adjusted UCL (use when n<50)		122.7
67											
68					Estimates of Gamma Parameters using KM Estimates						
69					Mean (KM)	69.05				SD (KM)	65.87
70					Variance (KM)	4339				SE of Mean (KM)	15.55
71					k hat (KM)	1.099				k star (KM)	0.96
72					nu hat (KM)	41.75				nu star (KM)	36.5
73					theta hat (KM)	62.84				theta star (KM)	71.89
74					80% gamma percentile (KM)	111.5			90% gamma percentile (KM)		160.6
75					95% gamma percentile (KM)	209.8			99% gamma percentile (KM)		324.5
76											
77					Gamma Kaplan-Meier (KM) Statistics						
78					Approximate Chi Square Value (36.50, α)	23.67			Adjusted Chi Square Value (36.50, β)		22.77
79					95% Gamma Approximate KM-UCL (use when n>=50)	106.5			95% Gamma Adjusted KM-UCL (use when n<50)		110.7
80											
81					Lognormal GOF Test on Detected Observations Only						
82					Shapiro Wilk Test Statistic	0.969			Shapiro Wilk GOF Test		
83					5% Shapiro Wilk Critical Value	0.897			Detected Data appear Lognormal at 5% Significance Level		
84					Lilliefors Test Statistic	0.139			Lilliefors GOF Test		
85					5% Lilliefors Critical Value	0.202			Detected Data appear Lognormal at 5% Significance Level		
86					Detected Data appear Lognormal at 5% Significance Level						
87											
88					Lognormal ROS Statistics Using Imputed Non-Detects						
89					Mean in Original Scale	69.03				Mean in Log Scale	3.764
90					SD in Original Scale	67.69				SD in Log Scale	1.062
91					95% t UCL (assumes normality of ROS data)	95.96			95% Percentile Bootstrap UCL		94.3
92					95% BCA Bootstrap UCL	98.04			95% Bootstrap t UCL		105.1
93					95% H-UCL (Log ROS)	148.9					
94											
95					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution						
96					KM Mean (logged)	3.766				KM Geo Mean	43.23
97					KM SD (logged)	1.028				95% Critical H Value (KM-Log)	2.651
98					KM Standard Error of Mean (logged)	0.243				95% H-UCL (KM -Log)	139.4
99					KM SD (logged)	1.028				95% Critical H Value (KM-Log)	2.651
100					KM Standard Error of Mean (logged)	0.243					
101											
102					DL/2 Statistics						
103					DL/2 Normal				DL/2 Log-Transformed		
104					Mean in Original Scale	68.92				Mean in Log Scale	3.73
105					SD in Original Scale	67.81				SD in Log Scale	1.143
106					95% t UCL (Assumes normality)	95.89			95% H-Stat UCL		171.3
107					DL/2 is not a recommended method, provided for comparisons and historical reasons						
108											
109					Nonparametric Distribution Free UCL Statistics						
110					Detected Data appear Gamma Distributed at 5% Significance Level						
111											
112					Suggested UCL to Use						
113					95% KM Adjusted Gamma UCL	110.7			95% GROS Adjusted Gamma UCL		122.7
114											

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

b(a)p

General Statistics

Total Number of Observations	16	Number of Distinct Observations	5
Number of Detects	4	Number of Non-Detects	12
Number of Distinct Detects	4	Number of Distinct Non-Detects	1
Minimum Detect	0.6	Minimum Non-Detect	0.5
Maximum Detect	1.3	Maximum Non-Detect	0.5
Variance Detects	0.123	Percent Non-Detects	75%
Mean Detects	0.95	SD Detects	0.351
Median Detects	0.95	CV Detects	0.37
Skewness Detects	-1.28E-15	Kurtosis Detects	-5.211
Mean of Logged Detects	-0.106	SD of Logged Detects	0.385

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.862	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.262	Lilliefors GOF Test
5% Lilliefors Critical Value	0.375	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.613	KM Standard Error of Mean	0.0714
KM SD	0.247	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.738	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.73	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.827	95% KM Chebyshev UCL	0.924
97.5% KM Chebyshev UCL	1.058	99% KM Chebyshev UCL	1.322

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.448	Anderson-Darling GOF Test
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.302	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.395	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	9.353	k star (bias corrected MLE)	2.505
Theta hat (MLE)	0.102	Theta star (bias corrected MLE)	0.379
nu hat (MLE)	74.82	nu star (bias corrected)	20.04
Mean (detects)	0.95		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.282
Maximum	1.3	Median	0.01
SD	0.437	CV	1.552
k hat (MLE)	0.394	k star (bias corrected MLE)	0.362

172				Theta hat (MLE)	0.715			Theta star (bias corrected MLE)			0.778
173				nu hat (MLE)	12.62			nu star (bias corrected)			11.59
174			Adjusted Level of Significance (β)		0.0335						
175			Approximate Chi Square Value (11.59, α)		4.955			Adjusted Chi Square Value (11.59, β)			4.471
176		95% Gamma Approximate UCL (use when n>=50)			0.659			95% Gamma Adjusted UCL (use when n<50)			N/A
177											
178				Estimates of Gamma Parameters using KM Estimates							
179				Mean (KM)	0.613			SD (KM)			0.247
180				Variance (KM)	0.0611			SE of Mean (KM)			0.0714
181				k hat (KM)	6.141			k star (KM)			5.031
182				nu hat (KM)	196.5			nu star (KM)			161
183				theta hat (KM)	0.0997			theta star (KM)			0.122
184			80% gamma percentile (KM)		0.823			90% gamma percentile (KM)			0.978
185			95% gamma percentile (KM)		1.12			99% gamma percentile (KM)			1.419
186											
187				Gamma Kaplan-Meier (KM) Statistics							
188			Approximate Chi Square Value (160.99, α)		132.7			Adjusted Chi Square Value (160.99, β)			129.7
189		95% Gamma Approximate KM-UCL (use when n>=50)			0.743			95% Gamma Adjusted KM-UCL (use when n<50)			0.76
190											
191				Lognormal GOF Test on Detected Observations Only							
192			Shapiro Wilk Test Statistic		0.868			Shapiro Wilk GOF Test			
193			5% Shapiro Wilk Critical Value		0.748			Detected Data appear Lognormal at 5% Significance Level			
194			Lilliefors Test Statistic		0.273			Lilliefors GOF Test			
195			5% Lilliefors Critical Value		0.375			Detected Data appear Lognormal at 5% Significance Level			
196				Detected Data appear Lognormal at 5% Significance Level							
197											
198				Lognormal ROS Statistics Using Imputed Non-Detects							
199				Mean in Original Scale	0.393			Mean in Log Scale			-1.343
200				SD in Original Scale	0.382			SD in Log Scale			0.947
201			95% t UCL (assumes normality of ROS data)		0.56			95% Percentile Bootstrap UCL			0.554
202				95% BCA Bootstrap UCL	0.571			95% Bootstrap t UCL			0.665
203				95% H-UCL (Log ROS)	0.776						
204											
205				Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution							
206				KM Mean (logged)	-0.546			KM Geo Mean			0.579
207				KM SD (logged)	0.304			95% Critical H Value (KM-Log)			1.874
208			KM Standard Error of Mean (logged)		0.0878			95% H-UCL (KM -Log)			0.703
209				KM SD (logged)	0.304			95% Critical H Value (KM-Log)			1.874
210			KM Standard Error of Mean (logged)		0.0878						
211											
212					DL/2 Statistics						
213			DL/2 Normal					DL/2 Log-Transformed			
214				Mean in Original Scale	0.425			Mean in Log Scale			-1.066
215				SD in Original Scale	0.35			SD in Log Scale			0.598
216				95% t UCL (Assumes normality)	0.578			95% H-Stat UCL			0.575
217				DL/2 is not a recommended method, provided for comparisons and historical reasons							
218											
219				Nonparametric Distribution Free UCL Statistics							
220				Detected Data appear Normal Distributed at 5% Significance Level							
221											
222				Suggested UCL to Use							
223				95% KM (t) UCL	0.738						
224											
225	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
226	Recommendations are based upon data size, data distribution, and skewness.										
227	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
228	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										

PAHs

General Statistics

Total Number of Observations	16	Number of Distinct Observations	6
Number of Detects	6	Number of Non-Detects	10
Number of Distinct Detects	6	Number of Distinct Non-Detects	1
Minimum Detect	0.5	Minimum Non-Detect	0.5
Maximum Detect	11	Maximum Non-Detect	0.5
Variance Detects	16.4	Percent Non-Detects	62.5%
Mean Detects	4.367	SD Detects	4.05
Median Detects	3.85	CV Detects	0.927
Skewness Detects	0.823	Kurtosis Detects	-0.022
Mean of Logged Detects	0.932	SD of Logged Detects	1.286

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.909	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.186	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.95	KM Standard Error of Mean	0.805
KM SD	2.938	95% KM (BCA) UCL	3.219
95% KM (t) UCL	3.36	95% KM (Percentile Bootstrap) UCL	3.138
95% KM (z) UCL	3.273	95% KM Bootstrap t UCL	4.04
90% KM Chebyshev UCL	4.364	95% KM Chebyshev UCL	5.457
97.5% KM Chebyshev UCL	6.974	99% KM Chebyshev UCL	9.955

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.315	Anderson-Darling GOF Test
5% A-D Critical Value	0.714	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.216	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.34	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.058	k star (bias corrected MLE)	0.64
Theta hat (MLE)	4.125	Theta star (bias corrected MLE)	6.819
nu hat (MLE)	12.7	nu star (bias corrected)	7.684
Mean (detects)	4.367		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.644
Maximum	11	Median	0.01
SD	3.196	CV	1.944
k hat (MLE)	0.237	k star (bias corrected MLE)	0.234
Theta hat (MLE)	6.941	Theta star (bias corrected MLE)	7.022
nu hat (MLE)	7.578	nu star (bias corrected)	7.49
Adjusted Level of Significance (β)	0.0335		
Approximate Chi Square Value (7.49, α)	2.444	Adjusted Chi Square Value (7.49, β)	2.128

286	95% Gamma Approximate UCL (use when n>=50)				5.039		95% Gamma Adjusted UCL (use when n<50)				5.786
287											
288	Estimates of Gamma Parameters using KM Estimates										
289				Mean (KM)	1.95				SD (KM)		2.938
290				Variance (KM)	8.63				SE of Mean (KM)		0.805
291				k hat (KM)	0.441				k star (KM)		0.4
292				nu hat (KM)	14.1				nu star (KM)		12.79
293				theta hat (KM)	4.426				theta star (KM)		4.879
294			80% gamma percentile (KM)		3.147			90% gamma percentile (KM)			5.509
295			95% gamma percentile (KM)		8.104			99% gamma percentile (KM)			14.63
296											
297	Gamma Kaplan-Meier (KM) Statistics										
298	Approximate Chi Square Value (12.79, α)				5.751		Adjusted Chi Square Value (12.79, β)				5.223
299	95% Gamma Approximate KM-UCL (use when n>=50)				4.336		95% Gamma Adjusted KM-UCL (use when n<50)				4.775
300											
301	Lognormal GOF Test on Detected Observations Only										
302			Shapiro Wilk Test Statistic		0.895		Shapiro Wilk GOF Test				
303			5% Shapiro Wilk Critical Value		0.788		Detected Data appear Lognormal at 5% Significance Level				
304			Lilliefors Test Statistic		0.216		Lilliefors GOF Test				
305			5% Lilliefors Critical Value		0.325		Detected Data appear Lognormal at 5% Significance Level				
306	Detected Data appear Lognormal at 5% Significance Level										
307											
308	Lognormal ROS Statistics Using Imputed Non-Detects										
309				Mean in Original Scale	1.687				Mean in Log Scale		-1.766
310				SD in Original Scale	3.173				SD in Log Scale		2.597
311		95% t UCL (assumes normality of ROS data)			3.077			95% Percentile Bootstrap UCL			3.064
312				95% BCA Bootstrap UCL	3.514				95% Bootstrap t UCL		4.173
313				95% H-UCL (Log ROS)	217.1						
314											
315	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution										
316				KM Mean (logged)	-0.0836				KM Geo Mean		0.92
317				KM SD (logged)	1.066				95% Critical H Value (KM-Log)		2.807
318			KM Standard Error of Mean (logged)		0.292				95% H-UCL (KM -Log)		3.514
319				KM SD (logged)	1.066				95% Critical H Value (KM-Log)		2.807
320			KM Standard Error of Mean (logged)		0.292						
321											
322	DL/2 Statistics										
323	DL/2 Normal						DL/2 Log-Transformed				
324				Mean in Original Scale	1.794				Mean in Log Scale		-0.517
325				SD in Original Scale	3.115				SD in Log Scale		1.377
326			95% t UCL (Assumes normality)		3.159				95% H-Stat UCL		5.017
327	DL/2 is not a recommended method, provided for comparisons and historical reasons										
328											
329	Nonparametric Distribution Free UCL Statistics										
330	Detected Data appear Normal Distributed at 5% Significance Level										
331											
332	Suggested UCL to Use										
333				95% KM (t) UCL	3.36						
334											
335	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
336	Recommendations are based upon data size, data distribution, and skewness.										
337	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
338	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										
339											