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Going Further in Managing Risk

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GROUNDWATER AND SOIL VAPOUR MONITORING EVENT (MAY 2022)

September 2022
J154748

Renewal SA

Tonsley - Residential Audit Area

Statements of Limitation

This report should be read in conjunction with Greencap's Statement of limitations which are available on the company website. Refer www.greencap.com.au/about-greencap/statements-of-limitation.

It has been expressly agreed in writing between Greencap Pty Ltd and Urban Renewal Authority trading as Renewal SA that this report pursuant to Panel Deed dated 15 October 2021 will be relied upon by Renewal SA, the Crown in right of the State of South Australia and in the case of this environmental report, by any site contamination auditor appointed to undertake a site contamination audit.

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Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

Tonsley - Residential Audit Area

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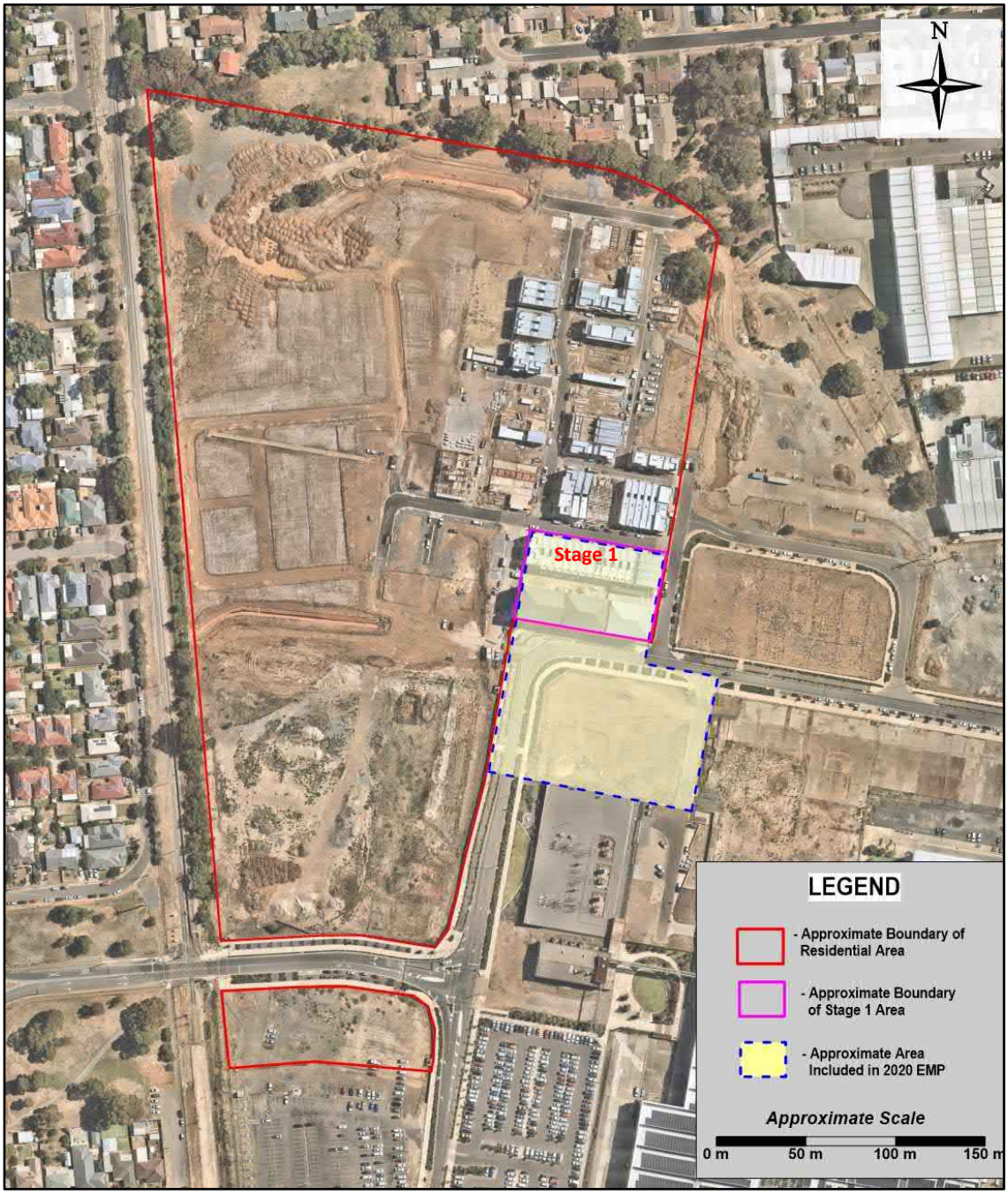
1 INTRODUCTION

1.1 Background

Greencap Pty Ltd (Greencap) was engaged by Renewal SA to undertake groundwater and soil vapour monitoring for a portion of the Tonsley redevelopment site. The monitoring has been conducted in accordance with the requirements of the '*Environmental Monitoring Plan (EMP) – Tonsley Residential Audit Area'* dated March 2020 (2020 EMP). The monitoring area, along with the approximate boundary of the Residential Audit Area is shown in Figure 1.



(source www.nearmap.com, image date 5 February 2020)

Figure 1 – Residential Audit Area and Monitoring Area

Ongoing groundwater and soil vapour monitoring is a condition of the Site Contamination Audit Statement (SCAS) prepared for the Residential Audit Area by South Australian EPA accredited Site Contamination Auditor Mr. Adrian Webber of Mud Environmental (the Auditor). Condition 6 of the SCAS states: *'Ongoing soil vapour and groundwater monitoring is the responsibility of Renewal SA and must be undertaken by a suitably qualified and experienced environmental consultant (with reference to Schedule B9 of the ASC NEPM* [National Environment Protection (Assessment of Site Contamination)]*), in accordance with the Greencap report 'Environmental Monitoring Plan – Tonsley SANZ' dated October 2017' (2017 EMP)*.

The 2017 EMP was developed to outline the monitoring requirements to assess the potential migration of chemicals in groundwater and soil vapour and levels of risks together with contingencies should increases in concentrations of chemicals of concern increase the risk profile. Monitoring commenced in October 2017.

The 2020 EMP superseded the 2017 EMP and was prepared following a review of the monitoring program. Amendments included changes to the monitoring network, the analytical program, monitoring frequency and trigger levels. The changes are discussed in detail in the 2020 EMP. The 2020 EMP was reviewed and approved by the Auditor.

Further details relating to the objectives and requirements of the EMP are presented in Section 3.

1.2 Scope of Work

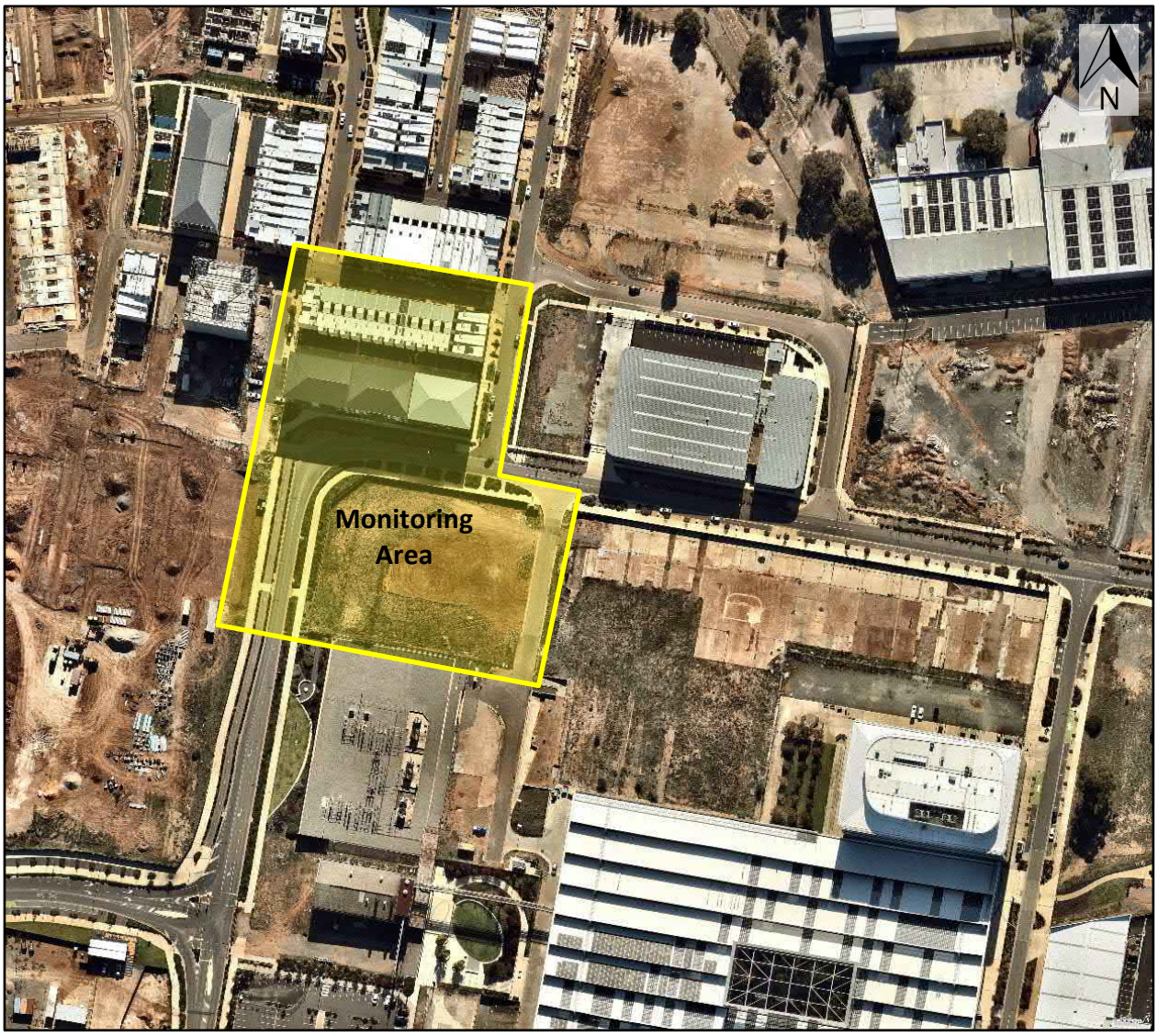
The scope of work for the monitoring as outlined in the 2020 EMP included:

- Gauging and sampling of the EMP groundwater monitoring wells.
- Soil vapour sampling from the EMP soil vapour points.
- Field and laboratory analysis of the groundwater and soil vapour samples (including appropriate quality assurance / quality control).
- Comparison of the sampling results to trigger levels stipulated in the EMP.

The most recent groundwater and soil vapour monitoring round was conducted in May 2022 instead of April as scheduled in the EMP. This was due to insurmountable delays associated with the pandemic and equipment availability along with weather conditions.

2 SITE CONDITIONS

The site and surrounding areas are currently undergoing redevelopment, including residential development of the Residential Audit Area (Figure 1). An aerial photograph dated 21 May 2022 is shown as Figure 2 below, along with the approximate extent of the monitoring area.



source www.nearmap.com (image date: 21 May 2022)

Figure 2 – Monitoring Area

Remediation activities have been carried out previously in the area identified to be the primary source of the impacts, which triggered the requirement for ongoing monitoring. The remediation works are summarised in Section 1.2 of the 2020 EMP.

3 ENVIRONMENTAL MONITORING PLAN

3.1 Monitoring Objectives

The objectives of the ongoing monitoring are to:

- Undertake regular monitoring of the identified groundwater and soil vapour impacts to verify that the concentrations of chemicals of concern (primarily petroleum hydrocarbons) remain within levels that do not pose an unacceptable risk to future site occupants.
- Identify potential changes to the assessed levels of risk to human health from the identified contamination via the monitoring of concentrations of chemicals of concern, including comparison to established trigger levels that may indicate a variation in the level of risk.
- Establish mechanisms and management measures or remedial actions which should be implemented if level of risk shows an increasing trend.

3.2 Monitoring Network

The groundwater monitoring wells and soil vapour points sampled as part of the monitoring program are presented in Figure 3. The monitoring points are located in areas with generally reliable access including road reserves and driveways.

The coordinates and construction details/monitoring intervals of the groundwater monitoring wells and vapour points selected for ongoing monitoring as outlined in the 2020 EMP are detailed in Table 1.

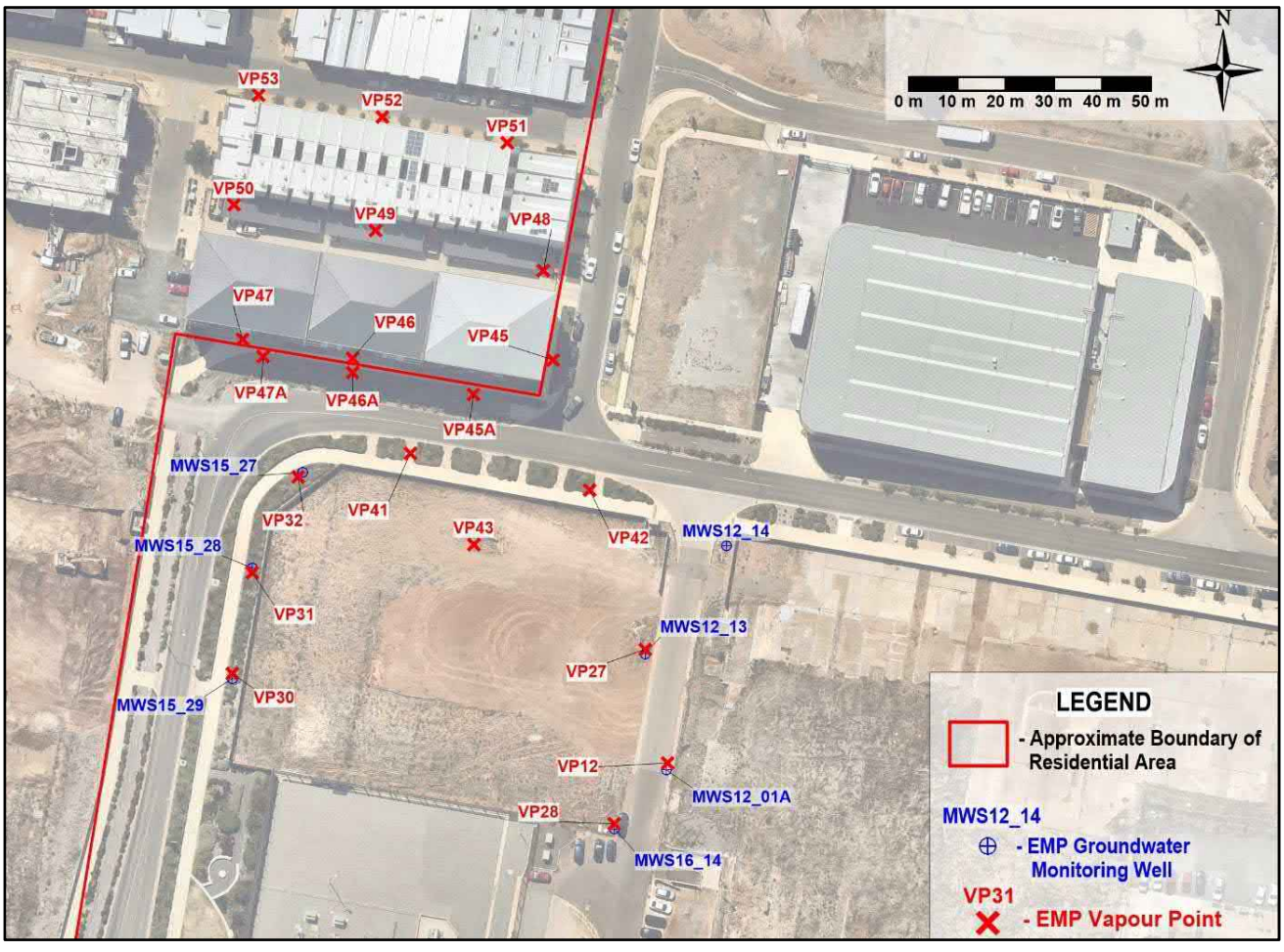


Figure 3 – EMP Monitoring Locations (Groundwater and Soil Vapour)

Table 1 – Monitoring Network Details					
Location ID	Easting (MGA94)	Northing (MGA94)	Elevation – GL or TOC* (m AHD**)	Monitoring Depth(s) or Screened Interval (m AHD)	Surface Completion
Vapour Monitoring Points					
VP12	278283.621	6123447.76	45.840	2.5 (43.35) 3.8 (42.04) 6.0 (39.84)	Gatic
VP27	278278.9	6123471	46.397	3.0 (43.397) 6.0 (40.397)	Gatic
VP28	278272.6	6123435	45.45	3.0 (42.45)	Gatic
VP30	278193.5	6123466	43.518	3.0 (40.518)	Gatic
VP31	278197.6	6123487	43.78	3.0 (40.78)	Gatic
VP32	278207.1	6123507	43.971	3.0 (40.971)	Gatic
VP41	278230	6123509	43.8#	3.0 (40.80) 6.0 (37.80)	Gatic
VP42	278259	6123503	43.8#	4.5 (39.30) 6.0 (37.80)	Gatic
VP43	278243	6123493	43.8#	3.0 (40.80) 6.0 (37.80)	Gatic
VP45	278259.92	6123531.14	45.85	3.7 (42.15)	Gatic
VP45A	278243#	6123524#	45.3#	2.3 (43.0)	Gatic
VP46	278227	6123530	44.4#	3.7 (40.70)	Gatic
VP46A	278218#	6123528#	44.5#	2.5 (43.0)	Gatic
VP47	278194	6123535	43.5#	3.7 (39.80)	Gatic
VP47A	278200#	6123532#	43.6#	2.5 (41.1)	Gatic
VP48	278257.90	6123549.55	45.67	3.7 (41.97)	Gatic
VP49	278226	6123560	44.23	3.7 (40.53)	Gatic
VP50	278196	6123565	43.29	3.7 (39.59)	Gatic
VP51	278249	6123575	44.3#	3.7 (40.60)	Gatic
VP52	278225	6123580	43.6#	3.7 (39.90)	Gatic
VP53	278200	6123585	43.0#	3.7 (39.30)	Gatic
Groundwater Monitoring Wells					
MWS12_01A	278283.34	6123446.33	45.687	12.5 (33.187) to 15.5 (30.187)	Gatic
MWS12_13	278278.9	6123470	46.313	12.4 (33.913 to 15.4 (30.913)	Gatic
MWS12_14	278295.8	6123493	47.343	12.5 (34.843) to 15.5 (31.843)	Gatic
MWS15_27	278208.1	6123508	43.899	13.0 (30.899) to 16.0 (27.899)	Gatic
MWS15_28	278197.6	6123488	43.712	13.0 (30.712) to 16.0 (27.712)	Gatic
MWS15_29	278193.5	6123465	43.428	9.5 (33.928) to 12.5 (30.928)	Gatic
MWS16_14	278272.6	6123434	45.374	9.0 (36.374) to 12.0 (33.374)	Gatic

*TOC – top of casing for groundwater wells; GL – ground level for vapour points
**AHD = Australian Height Datum
Location/elevation have not been surveyed by a licenced surveyor and it was extrapolated using the surveyed locations in the vicinity

Vapour points VP45A, VP46A and VP47A were installed as alternate / replacement vapour points due to historical issues with collecting samples from several vapour points located in the Stage 1 of the Residential Area, particularly for VP45, VP46 and VP47 and based on recommendations presented in the July 2020 Groundwater and Soil Vapour Monitoring Event report. The proposed approach involves first assessing the existing VP45, VP46 and VP47 points and attempting to sample these. However, if samples are not able to be collected, the alternate / replacement vapour points (VP45A, VP46A and VP47A) would be sampled.

3.3 Monitoring Program

In accordance with the 2020 EMP, sampling from groundwater wells and soil vapour points (refer Table 1 and Figure 3) should be conducted annually in April. After three years (i.e. after April 2023) the EMP is to be reviewed, if not triggered sooner.

3.3.1 EMP Sampling Requirements

Groundwater wells and soil vapour points are to be sampled in accordance with the methodologies outlined in Appendix F of the 2020 EMP that was developed in accordance with Schedule B9 of the ASC NEPM.

Quality control/quality assurance (QA/QC) sampling and analysis should also be undertaken, including the collection and analysis of duplicate and blank samples.

3.3.2 Analytical Program

Samples from monitoring wells and vapour points were analysed at NATA accredited testing laboratories in accordance with the requirements of the EMP. The analytes tested in groundwater and soil vapour as required by the 2020 EMP are presented in Table 2 and Table 3, respectively.

Table 2 – Groundwater Analytical Program	
Total Recoverable Hydrocarbons (TRH)	C_6-C_{10} less BTEX (F1) >C_{10}-C_{16} less naphthalene (F2)
BTEX Compounds	Benzene Ethyl benzene Xylenes
Monocyclic Aromatic Hydrocarbons (MAH)	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene 1-methyl-4-ethyl benzene
Chlorinated Hydrocarbons	Tetrachloroethene (PCE) Trichloroethene (TCE) cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,1-Dichloroethene Vinyl chloride (chloroethene) Bromodichloromethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1,2,2-Tetrachloroethane Chloroform Hexachloro-1,3-butadiene (Hexachlorobutadiene)
Other VOCs	2-hexanone (MBK)

Table 3 – Soil Vapour Analytical Program	
Total Recoverable Hydrocarbons (TRH)	C_6-C_{10} less BTEX (F1) >C_{10}-C_{16} less naphthalene (F2)
BTEX Compounds	Benzene Ethyl benzene Xylenes
Monocyclic Aromatic Hydrocarbons (MAH)	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene 1-methyl-4-ethyl benzene
Chlorinated Hydrocarbons	Tetrachloroethene (PCE) Trichloroethene (TCE) cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,1-Dichloroethene Vinyl chloride (chloroethene) Bromodichloromethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1,2,2-Tetrachloroethane Chloroform Hexachloro-1,3-butadiene (Hexachlorobutadiene)
Other VOCs	1,4-Dioxane 2-hexanone (MBK) 2-Propanol (isopropyl alcohol)

3.4 Trigger Levels

The trigger levels defined in the 2020 EMP were based on complete linkages between the contamination sources (impacts in soil vapour and groundwater) and potential human receptors via the inhalation pathways identified in the Detailed Site Investigation report for the Residential Audit Area *'Detailed Site Investigation – Tonsley SANZ'*, dated October 2017. Two sets of trigger levels were developed for the onsite and offsite monitoring locations, as detailed in the sections below.

3.4.1 Onsite Trigger Levels

Site specific trigger levels were developed for chemicals included in Table 3 for the onsite vapour points (VP45 to VP53 inclusive, refer Figure 3). The trigger levels for these vapour points are based on 80% of the concentrations assessed in 2017 SANZ VIRA. Adopting 80% of the threshold concentrations allows for a 20% buffer at which the potential risks are considered marginally acceptable.

Trigger levels for groundwater were also assigned for Audit Area boundary monitoring wells (MWS12_14, MWS15_27 to MWS15_29, refer Figure 3). While these monitoring wells are offsite, given their proximity to the residential site, any elevated concentrations may directly impact on the assessed risk to future residents which is why specific trigger levels have been determined and reported in this section.

The adopted onsite trigger levels for the specified groundwater wells and soil vapour points are presented in Table 4.

Table 4 – Groundwater & Soil Vapour Trigger Levels		
Chemicals	Trigger Levels	
	Groundwater wells MWS12_14, MWS15_27 to MWS15_29 (mg/L)	Vapour points VP45 to VP53 (mg/m^3)
Total Petroleum Hydrocarbons		
C6-C10 less BTEX (F1)	6.0	9,900
Chlorinated Hydrocarbons		
Tetrachloroethene (PCE)	0.001#	13.6
Trichloroethene (TCE)	0.018	10.4
cis-1,2-Dichloroethene	0.006	7.2
trans-1,2-Dichloroethene	0.001#	7.92
1,1-Dichloroethene (1,1-DCE)	0.042	7.92
Vinyl chloride (VC)	0.0076	5.12
Bromodichloromethane	0.001#	13.6
1,1,1-Trichloroethane	0.001#	11.2
1,1,2-Trichloroethane	0.001#	11.2
1,1,2,2-Tetrachloroethane	0.001#	14.4
Chloroform	0.005#	9.6
Hexachloro-1,3-butadiene (Hexachlorobutadiene)	0.02#	21.6
Monocyclic Aromatic Hydrocarbons (MAH)		
1,2,4-Trimethylbenzene	0.002	1,184
1,3,5-Trimethylbenzene	0.001	5,120
1-methyl-4-ethyl benzene	-	1,600
BTEX		
Benzene	5.0	256
Ethylbenzene	*NL	4,640
Xylenes	NL	41,630
Other VOCs		
2-Propanol (isopropyl alcohol)	-	208
1,4-Dioxane	-	25.6
2-hexanone (MBK):	0.005#	208

*NL – not limiting as defined in the ASC NEPM
At laboratory limit of reporting
"-" Not tested in groundwater

3.4.2 Offsite Trigger Levels

No specific trigger levels have been developed for offsite vapour points as the areas will be used primarily for commercial/industrial activities (i.e. not residential). These activities have a different risk profile (not considered in SANZ VIRA). The risk to future occupants of these areas was not directly considered in Greencap's assessment, nor the SCAR for the Residential Audit Area. However, the following is also noted:

- One allotment (Lot 331) to the north east of the monitoring area is proposed to have commercial/industrial land-use on the ground floor with high density residential use above. A Site Contamination Audit Report (SCAR) was prepared for this allotment by Philip Hitchcock of Australian Environmental Auditors. The SCAR confirmed the site was suitable for this proposed use, with no conditions associated with ongoing environmental monitoring or site management.
- The allotment(s) within which the offsite 'source' area (former fuel infrastructure) was located are currently under Audit. These allotments are to be developed as part of the Flinders University Stage 2 development (Lot 94) and other commercial/industrial purposes (Lot 93). Remediation activities were conducted across the source area and the Audit has progressed with Interim Audit Advice (IAA) provided by the appointed site contamination auditor Mr Adrian Webber of Mud Environmental. The IAA concluded the Flinders Stage 2 site (Lot 94) is likely to be suitable for restricted use as a tertiary education facility subject to several conditions.

No specific trigger levels have been developed for offsite groundwater wells (other than for the wells indicated in Table 4) as these are representative of up-gradient concentrations located between the source area and the residential area and are not directly relevant to the risks to the residential area occupants.

The results of offsite monitoring wells/points have been compared with the previous results to assess trends and the potential for future migration of contaminated groundwater and soil vapour towards the Residential Audit Area. The 2020 EMP notes that where a relative percentage difference of more than 50% is calculated for two successive sampling events, or an ongoing increasing trend is noted that suggests an increasing potential risk, response measures (as outlined in Section 6.2 of the 2020 EMP) should be implemented.

Where one result is below the laboratory detection limit, the limit of reporting is used to assess the relative percentage differences.

4 GROUNDWATER AND SOIL VAPOUR SAMPLING

For the May 2022 sampling event, groundwater was sampled on 19 and 20 May 2022. Soil vapour sampling was conducted between 13 and 17 May 2022.

The sampling methodologies, analytical programs, and applied quality control are outlined in the sections below.

4.1 Groundwater

4.1.1 Groundwater Sampling Methodology

As per the requirements of the EMP (refer Appendix F of the 2020 EMP), the following sampling methodology was implemented:

- Prior to collecting groundwater samples, standing water levels were measured from the reference surveyed point on the top of well casing. Measurements were taken to check for any separate phase (free) product present in each of the wells using interface water level meter.
- Groundwater sampling was conducted using low-flow sampling techniques.
- Water quality parameters (pH, temperature, electrical conductivity, oxidation reduction potential and dissolved oxygen) were monitored during purging using a calibrated water quality meter. Water levels were also monitored during sampling to ensure that minimal stable drawdown occurred. Samples were collected when water quality parameters had stabilised.
- The sampler wore a new pair of nitrile disposable gloves for collecting each sample.
- All groundwater samples were placed in containers provided by the analytical laboratories.
- The samples were stored on ice in a portable cooler immediately following sampling and were delivered under similar conditions to the NATA accredited analytical laboratories with accompanying chain of custody documentation.

Groundwater sampling field records for the May 2022 monitoring event are included in Appendix A.

4.1.2 Groundwater Analytical Program

The groundwater analytical program included testing for chemicals as per the requirements of the 2020 EMP, as discussed in Section 3.3.2 and shown in Table 2.

Eurofins was used as the primary laboratory and Australian Laboratory Services (ALS) was used as the secondary laboratory. Both laboratories are NATA accredited for the analytical testing conducted.

4.1.3 Groundwater Quality Assurance and Quality Control (QA/QC)

The QA/QC sampling and analysis measures comprised the following:

- Intra-laboratory and Inter-laboratory duplicate groundwater samples were collected at a frequency of at least 1 sample per 10 primary samples. Duplicate samples were tested for the same suite of analytes as primary samples (refer Section 3.3.2).
- Rinsate samples were collected at a rate of 1 per day from micro-purge pumps used to demonstrate the quality of the equipment decontamination.
- Trip blank samples were collected at a rate of 1 per sampling day.

The results of the QA/QC analyses are included in Section 6.

4.2 Soil Vapour

4.2.1 Soil Vapour Sampling Methodology

The May 2022 sampling event was conducted some 5 days after any significant rainfall event. It is noted that 9.2mm of rain was recorded between on 8 May 2022 at the Mitchell Park BOM weather station (#023140).

All soil vapour points were attempted to be sampled as per the requirements of the EMP using Summa canister methods. Several soil vapour points were not able to be sampled as follows:

- VP42_4.5 was unable to be sampled. This vapour point appeared to be blocked and may require repair.
- Vapour was sampled from VP45, but vapour was not able to be extracted from VP45A. VP45A was installed as a back-up vapour point because in previous sampling events, VP45 was unable to be sampled (possible water ingress).
- VP46 and VP47 were not able to be sampled, which is consistent with previous sampling events. Unfortunately, the back-up vapour points (VP46A and VP47A) were also unable to be sampled due to water ingress. This appears to be a consistent issue in this portion of the site.
- VP48 was not sampled due to the presence of water. This is consistent with previous sampling events.
- VP52 and VP53 were not sampled as vapour could not be extracted. Again, this is consistent with previous sampling events.

Purging and Screening

Prior to sampling, up to one bore volume was purged from each soil vapour monitoring point. An initial PID reading was taken, and a landfill gas meter (GA 5000) was used during the purging of each of the vapour points to measure oxygen, carbon dioxide and methane to determine the effectiveness of purging (and to ensure these stabilised prior to sample collection).

During the purging of several vapour points, the gas meter 'stalled', or water was note in sampling tubing as noted on the sampling records. While high moisture content in the soil profile may be the reason for the 'stalling', it is also possible that the soil formation is so tight that flow was restricted.

Leak Tests

A helium leak test was conducted at each vapour point to ensure that vapour samples collected were representative of the targeted soil depth being sampled and that ambient air was not being drawn into the vapour point. The helium leak test methodology comprised filling a shroud (which overlay the soil vapour point) with helium and measuring the concentration using a helium detector. Soil vapour was then drawn from the vapour point and a real-time helium concentration measured.

A 'shut-in' test was also performed on each sample train (external components used to sample soil vapour: tubing, summa canisters, and regulator). The shut-in test involved assembling the sample train with the intake from soil vapour sampling point capped. The regulator was opened allowing the sample train to be under full vacuum from the Summa canister. The sample train was then allowed to sit under full vacuum for several minutes (2-5 minutes) during which the vacuum gauge was monitored for any drop in the vacuum.

Sampling Time and Flow Rate

Following a check of the canister pressure (using a calibrated pressure gauge), a clean calibrated mass flow controller was connected to the top of each canister allowing the desired volume (~800) to enter the 1L canisters over a period of approximately 1-2 hours. Increases in sampling times for some vapour points was due to the reduced rate at which soil vapour could be extracted.

4.2.2 Soil Vapour Analytical Program

The soil vapour analytical program included testing for chemicals as required by the EMP and discussed in Section 3.3.2 and detailed in Table 3. Australian Laboratory Services (ALS) was used as the primary laboratory and Eurofins was used as the secondary laboratory. Both laboratories are NATA accredited for the analytical testing conducted.

4.2.3 Vapour Sampling QA/QC Measures

The QA/QC measures for the vapour sampling included:

- A review of the summa canister vacuum pressure prior to, after and upon receipt at the laboratory.
- Leak testing, as per the above (refer Section 4.2.1).
- Intra and inter-laboratory duplicate samples collected at a frequency of at least 1 sample per 10 primary samples. These duplicate samples were collected using a dual manifold drawing air into the primary and duplicate canisters at the same rate. Duplicated samples were tested for the same suite of analytes as primary samples. The results of the QA/QC analyses are included in Section 6.2.

The soil vapour sampling field records and calibration certificates for the equipment used are included in Appendix B.

5 GROUNDWATER AND SOIL VAPOUR SAMPLING RESULTS

5.1 Groundwater Results

5.1.1 Groundwater Level Gauging

Groundwater level gauging was conducted prior to groundwater sampling. The groundwater levels from the last year of monitoring (April 2021 to May 2022) and the water level differences are presented in Table 5.

Table 5 - Groundwater Level Gauging Results

Well ID	Reference Point Elevation (m AHD*)	Apr-21		May-22		Water Level Differences (m)
		Depth to Water (m bTOC)	Elevation (m AHD)	Depth to Water (m bTOC)	Elevation (m AHD)	May 22 – Apr 21
MWS12_01A	45.687	7.963	37.724	7.479	38.208	0.484
MWS12_13	46.313	8.671	37.642	8.220	38.093	0.451
MWS12_14	47.36	9.033	38.327	8.628	38.732	0.405
MWS15_27	43.8	7.956	35.844	7.335	36.465	0.621
MWS15_28	43.47	7.692	35.778	7.073	36.397	0.619
MWS15_29	43.32	7.423	35.897	6.679	36.641	0.744
MWS16_14	45.374	7.621	37.753	7.105	38.269	0.516

*m AHD metres Australian Height Datum
** m bTOC – metres below top of well casing

Table 5 shows an increase in groundwater levels in all monitoring wells. This is also illustrated in Figure 4 which presents the groundwater level hydrographs.

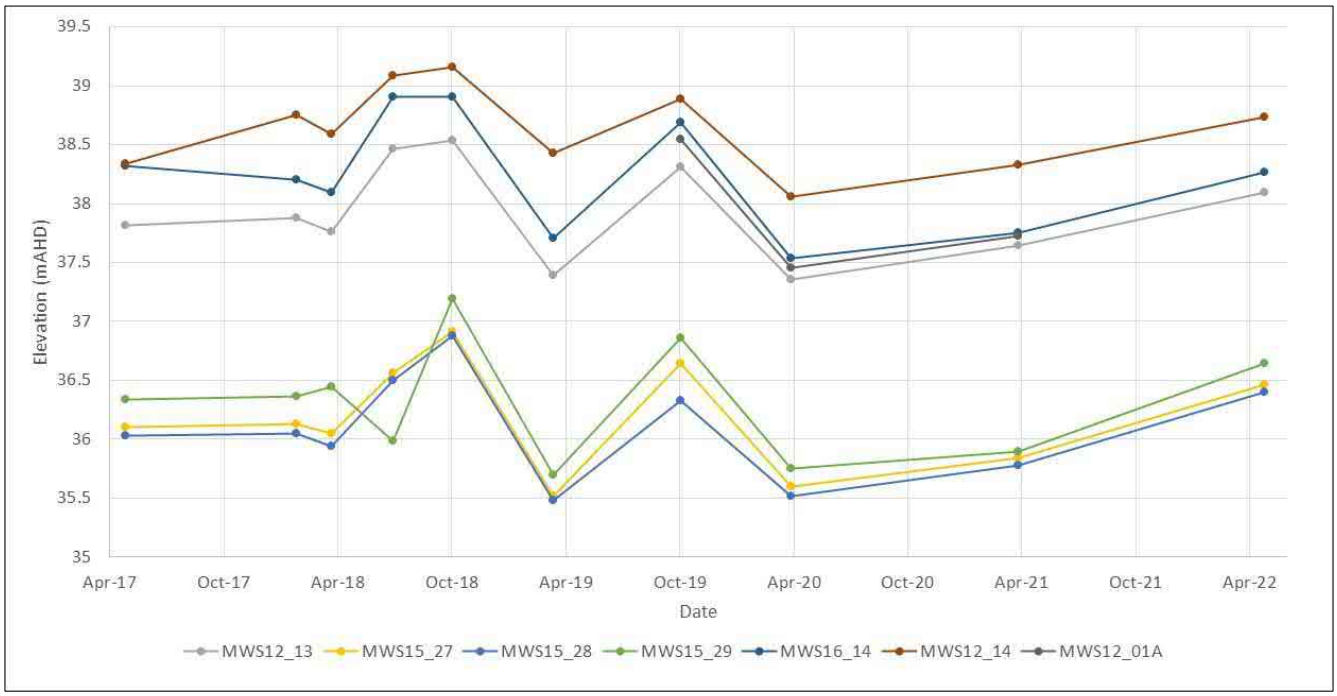


Figure 4 – Groundwater Level Hydrographs

5.1.2 Field Measured Groundwater Quality Parameters

The field water quality parameters measured during groundwater monitoring events conducted since 2020 are summarised in Table 6.

Table 6 - Field Measured Groundwater Quality Parameters (2019-2021)

Location	Date	pH	Temp (Deg C)	Electrical Conductivity (µS/cm)	Calculated *TDS (mg/L)	Oxidation-Reduction Potential, ORP (mV)	Dissolved Oxygen (ppm)
MWS12_01A	17-Apr-2020	7.02	21.8	5,554	3,555	-36.7	3.32
	23-Apr-2021	6.86	21.2	5,311	3,399	20.10	2.04
	19-May-2022	**6.67**	**20.8**	**4,591**	**2,938**	**56.1**	**2.47**
MWS12_13	16-Apr-2020	6.99	22.8	13,428	8,594	3.19	3.00
	23-Apr-2021	6.58	20.9	10,880	6,963	-8.60	2.57
	19-May-2022	**6.73**	**20.6**	**8,006**	**5,123**	**47.3**	**-****
MWS12_14	16-Apr-2020	6.93	21.6	6,742	4,315	23.3	5.99
	23-Apr-2021	6.35	21.1	7,333	4,693	-31.3	1.44
	19-May-2022	**6.48**	**20.3**	**6,312**	**4,040**	**8.6**	**-****
MWS15_27	16-Apr-2020	7.19	20.9	14,929	9,555	18.2	2.45
	27-Apr-2021	6.49	20	16,327	10,449	49.20	2.65
	19-May-2022	**6.52**	**19.8**	**14.049**	**8,991**	**40.5**	**-****
MWS15_28	16-Apr-2020	7.46	21.3	6,805	5,507	-52.8	3.30
	27-Apr-2021	6.66	20.7	6,708	4,293	-68.2	0.83
	20-May-2022	**6.84**	**18.6**	**5,537**	**3,544**	**-0.5**	**5.45**
MWS15_29	16-Apr-2020	7.66	20.5	5,752	3,681	-38.0	1.94
	27-Apr-2021	7.03	20.7	4,796	3,069	-132.8	2.08
	19-May-2022	**6.60**	**20.5**	**6,395**	**4,029**	**-73.2**	**2.61**
MWS16_14	17-Apr-2020	7.11	21.1	5,511	3,527	-33.1	3.90
	23-Apr-2021	6.75	20.7	5,639	3,609	-55.60	3.09
	19-May-2022	**6.84**	**20.8**	**4,808**	**3,077**	**-75.1**	**1.06**

*TDS – Total dissolved solids were calculated using the conversion ratio of 0.64 from electrical conductivity values.**-unreliable reading

As shown in Table 6, generally there is reasonable consistency in the measured groundwater quality parameters. Groundwater salinity was measured to be lower in May 2022 compared to April 2021 which is consistent with the groundwater level increase over the same period. This is interpreted to be a result of a seasonal variation associated with the freshwater (rainwater) recharge.

5.1.3 Analytical Results

Summary tables presenting the results of groundwater sampling conducted in May 2022, together with historical results, are attached to this report. Laboratory certificates are included in Appendix C. The reported concentrations of chemicals of concern were assessed against the trigger levels presented in Section 3.4.

Onsite Trigger Levels

Onsite trigger levels were developed for the Residential Audit Area boundary wells MWS12_14, MWS15_27, MWS15_28 and MWS15_29 and are presented in Table 4.

No onsite trigger level exceedances were reported during this monitoring event.

MWS15_28 reported the concentration of cis-1,2-dichloroethene of 7.4µg/ in April 2021 which marginally exceeded the trigger value of 6µg/L. The cis-1,2-dichloroethene concentration of 4.3 µg/L reported in the May 2022 round was below the trigger level.

Offsite Trigger Levels

As defined in Section 3.4.2, the adopted offsite trigger levels are related to relative percentage differences (RPDs) between consecutive sampling results. Where there is an RPD greater than +50%, a trigger level exceedance is considered to have occurred. RPDs were calculated between the most recent results (between April 2020 and April 2021 sampling events).

The majority of the calculable RPDs (i.e. when results reported above LORs) were below the trigger level of +50% except the RPD value of +67% calculated for tetrachloroethene at MWS12_01A. This RPD value was exaggerated due to very low reported concentrations marginally above LOR (0.02µg/L in April 2021 versus 0.04µg/L in May 2022) compared to the residential trigger level of 6µg/L.

5.1.4 Trend Analysis

Trend analysis for petroleum hydrocarbons (the key chemicals of concern) was undertaken using Mann Kendall statistical methods. The Mann Kendall tool requires a minimum of four data points. As such, only wells with four results above laboratory limits of reporting (LORs) were used to evaluate trends (i.e. MWS12_01A and MWS12_14).

The results of the trend analysis are included in Appendix D and summarised in Table 7 below. The results below LORs (where four or more results were above LORs) were assumed to be a half of a LOR for the purpose of the statistical assessment.

Table 7 – Mann-Kendall Results Summary - Groundwater

Well ID	Trend (Confidence Factor)				
	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1 (C6-C10 minus BTEX)
MWS12_01A	Decreasing Trend (99.9%)	Decreasing Trend # (99.4%)	Decreasing Trend # (99.8%)	Decreasing Trend # (97.5%)	Prob Decreasing (91.1%) #
MWS12_14	Decreasing Trend (98.2%)	Insufficient data*	No Trend # (76.4%)	Insufficient data*	Insufficient data*

Notes:
* Less than four independent results above laboratory limits of reporting (LOR) available
# half LOR used in the trend analysis

No increasing trends were calculated for any of the monitoring wells / chemicals assessed. The Mann-Kendall analysis demonstrated a generally decreasing trend near the source area (MWS12_01A) with either 'decreasing 'or 'no trend' for MWS12_14 at the boundary of residential area.

5.2 Soil Vapour Results

5.2.1 Field Measured Parameters

Soil Vapour Points

Prior to sampling, all soil vapour points were purged and landfill gas/PID readings were collected. The stabilised readings for May 2022, together with previous results in April 2021 are summarised in Table 8. As discussed in Section 4.2.1 several soil vapour points could not be sampled during the May 2022 monitoring round either due to water ingress or low permeability of the soil matrix which is also illustrated in Table 8.

Table 8 - Field Measured Soil Vapour Quality Parameters

Vapour Point Depth (m)	Date	Oxygen (O2) (%)	Carbon Dioxide (CO2) (%)	Methane (CH4) (%)	Hydrogen Sulphide (H2S) (ppm)	Carbon Monoxide (CO) (ppm)	PID reading (ppm)
VP12_2.5	28/4/2021	0.0	9.0	0.3	0	1	5.3
	13/5/2022	**5.3**	**8.0**	**0**	**0**	**1**	**17.7**
VP12_3.8	28/4/2021	0.1	9.2	7.5	0	3	191.3
	13/5/2022	**0**	10	5.0	**0**	0	**199**
VP12_6.0	28/4/2021	1.5	9.5	12.1	1	10	228.1
	13/5/2022	**0**	**10**	**7.2**	1	1	**175.0**
VP27_3.0	28/4/2021	0.0	12.3	6.0	0	2	45.6
	16/5/2022	**9.5**	**11.1**	**0**	**0**	**1**	**21.1**
VP27_6.0	28/4/2021	2.2	11.2	7.8	0	4	416.9
	16/5/2022	**0**	**11.9**	**3.2**	**0**	**0**	**255**
VP28_3.0	28/4/2021	9.2	10	0.2	0	0	1.8
	13/5/2022	**8.1**	8.3	0	**0**	1	**9.8**
VP30_3.0	28/4/2021	16.7	5.4	0.0	0	2	3.3
	17/5/2022	**17.8**	**4.1**	**0.0**	**0**	0	**7.0**
VP31_3.0	28/4/2021	14.4	7.1	0.0	0	2	8.6
	17/5/2022	**16.0**	**5.5**	**0.0**	**0**	**1**	**6.4**
VP32_3.0	28/4/2021	5.4	12.0	0.0	0	2	11.2
	17/5/2022	**10.7**	**8.2**	**0.0**	**0**	1	**11.7**
VP41_3.0	28/4/2021	0.0	14.2	0.2	0	2	87.1
	16/5/2022	**0.7**	**13.9**	**0.0**	**0**	1	**7.1**
VP41_6.0	28/4/2021	6.8	10.4	0.0	0	3	26.9
	16/5/2022	**0.0**	**14.4**	**0.3**	**0**	2	**21.9**
VP42_4.5	28/4/2021	6.6	10.8	0.0	0	2	18.7
	17/5/2022	**Gas meter stalled – sample was not collected**					
VP42_6.0	28/4/2021	0.0	14.4	0.1	0	3	103.7
	13/5/2022	**0.0**	**14.**	**0.0**	**0**	**2**	**72**
VP43_3.0	28/4/2021	0.0	15.6	0.4	1	2	77.8

Table 8 - Field Measured Soil Vapour Quality Parameters							
Vapour Point Depth (m)	Date	Oxygen (O2) (%)	Carbon Dioxide (CO2) (%)	Methane (CH4) (%)	Hydrogen Sulphide (H2S) (ppm)	Carbon Monoxide (CO) (ppm)	PID reading (ppm)
	13/5/2022	**0.0**	**16.7**	**0.2**	0	1	**18.6**
VP43_6.0	28/4/2021	1.9	12.6	0.5	0	2	83.7
	16/5/2022	**0.0**	**15.3**	**0.1**	**0**	1	**8.2**
VP45_3.7	29/4/2012	No soil vapour could be extracted - not sampled					
	16/5/2022	**11.6**	**15.1**	**0.0**	**0**	**1**	**1.6**
VP45A	29/6/2021	6.2	13.4	0.0	0	1	0.4
	16/5/2022	**0.0**	**6.5**	**0.0**	**0**	**1**	**7.2**
VP46_3.7	29/4/2021	No soil vapour could be extracted - not sampled					
	16/5/2022	**No access**					
VP46A	29/6/2021	4.0	3.8	0.0	0	0	0.1
	16/5/2022	**0.0**	**3.3**	**0.0**	**0**	**1**	**10.4**
VP47_3.7	15/4/2020	No soil vapour could be extracted - not sampled					
	16/5/2022	**No soil vapour could be extracted - not sampled**					
VP47A	29/6/2021	Water Ingress Not Sampled					
	16/5/2022	**Water Ingress Not Sampled**					
VP48_3.7	29/4/2021	Water Ingress Not Sampled					
	16/5/2022	**Water Ingress Not Sampled**					
VP49_3.7	29/4/2021	0.0	9.0	0.2	0	0	16.2
	16/5/2022	**1.0**	**7.4**	**0.0**	**0**	1	**4.8**
VP50_3.7	29/4/2021	11.5	4.4	0.0	1	0	17.2
	16/5/2022	**2.9**	**9.4**	**0.0**	0	1	**2.8**
VP51_3.7	29/4/2021	2.6	10.5	0.0	0	0	17.3
	16/5/2022	**2.4**	**10.9**	**0.0**	**0**	**1**	**1.7**
VP52_3.7	29/4/2021	19.9	0.1	0.0	0	0	0.0
	16/5/2022	**PID stalled – sample not collected**					
VP53_3.7	29/4/2021	No soil vapour could be extracted - not sampled					
	16/5/2022	**No soil vapour could be extracted - not sampled**					

Table 8 shows an overall general consistency in measured parameters between sampling events and generally within the previously observed ranges.

5.2.2 Laboratory Testing Results and Comparison to Trigger Levels

Onsite Trigger Levels

The results from vapour points VP45 to VP53, inclusive were compared to the 'on-site' trigger levels (refer to Section 3.4.1 and Table 4). All results were below the laboratory limits of reporting and the adopted trigger levels.

Offsite Trigger Levels

Summary tables presenting the results of soil vapour sampling conducted in May2022, together with historical results are attached to this report. The laboratory certificates are included in Appendix E.

The reported concentrations of chemicals of concern were assessed by calculating RPDs between subsequent sampling results (April 2021 and May 2022). A trigger level exceedance is considered to have occurred when the calculated RPD is greater than +50%. RPDs were not calculated for the chemicals with both concentrations reported below the laboratory reporting limits.

Most reported concentrations of the chemicals tested had calculated RPD values of less than 50% when compared to the previous sampling event. This was the exception of two exceedances of the RPD +50% for F2 (>C10-C16 minus naphthalene) hydrocarbons at VP41_6.0 and VP43_3.0. No trigger level for F2 is included in the EMP and the NEPM HSL for F2 is NL (not limiting) for 3 and 6 metre depths. This indicates the variations in the reported concentrations would not change the risk profile for the onsite residents and the risk remains to be acceptable.

It is noted that duplicate results have also been considered, particularly where significant variations were identified between primary and duplicate samples (refer Section 6.2.2 for further detail). Of note are the results from primary sample VP27_6.0 and the inter-laboratory duplicate sample from this location (QV04). A concentration of 1,1-dichloroethane of <0.2mg/m^3 was reported by primary laboratory (ALS) compared to the result reported by the secondary laboratory of 0.5mg/m^3. This was the first time the presence of 1,1-dichloroethane was above the LOR at this vapour point, but the LOR for this chemical was significantly raised during previous monitoring events. Comparison of the May 2022 duplicate result with the adopted trigger levels did not show an exceedance.

5.2.3 Trend Analysis

As required by the EMP, trend analysis for petroleum hydrocarbons (the key chemicals of concern) was undertaken using Mann Kendall statistical methods.

As the Mann Kendall tool requires a minimum of four data points for the analysis, only vapour points with four results above LORs were used to evaluate trends. The results reported below LORs (with the presence of four results above LORs) were assumed to be a half of a LOR for the purpose of this statistical assessment.

The results of the trend analysis are included in Appendix F and summarised in Table 9.

Table 9 – Mann-Kendall Results Summary - Soil Vapour

Vapour Point ID	Trend (Confidence Factor)				
	Benzene	Ethylbenzene	Total Xylenes	F1 (C6-C10 minus BTEX)	F2 (>C10-C16 minus naphthalene)
VP12_2.5	Decreasing # (99.3%)	Decreasing # (96.9%)	Prob. Decreasing # (94.6%)	Decreasing (99.3%)	Stable # (45.2%)
VP12_3.8	Decreasing # (95.8%)	Prob. Decreasing # (91.1%)	Prob. Decreasing # (91.1%)	Stable # (72.6%)	No Trend # (86.2%)
VP27_3.0	Decreasing # (99.2%)	Decreasing # (99.2%)	Decreasing # (99.8%)	Decreasing (99.7%)	Prob. Decreasing # (94.0%)

Table 9 – Mann-Kendall Results Summary - Soil Vapour					
Vapour Point ID	Trend (Confidence Factor)				
	Benzene	Ethylbenzene	Total Xylenes	F1 (C6-C10 minus BTEX)	F2 (>C10-C16 minus naphthalene)
VP27_6.0	Stable # (84.6%)	Decreasing # (98.8%)	Decreasing # (98.2%)	Prob. Decreasing (96.4%)	No Trend (87.3%)
VP41_6.0	Decreasing # (98.8%)	No Trend # (80.1%)	No Trend # (79.2%)	Prob. Decreasing (94.0%)	No Trend (79.2%)
VP42_4.5	NA*	NA*	NA*	NA*	NA*
VP42_6.0	Decreasing # (99.4%)	Decreasing # (99.9%)	Decreasing # (100%)	Decreasing (99.9%)	Stable # (82.1%)
VP43_3.0	Decreasing # (99.5%)	Decreasing (99.8%)	Decreasing (99.8%)	Stable (63.6%)	**Increasing #** (99.5%)
VP43_6.0	Decreasing (>99.9%)	Decreasing # (>99.9%)	Decreasing (>99.9%)	Decreasing (100%)	Decreasing (96.4%)

Notes:
half LOR used in the trend analysis; *NA no sample in May 2022

The Mann-Kendall analysis demonstrates that most of the trends assessed were 'decreasing' with a few showing 'probably decreasing', 'stable' and 'no trend' (potentially indicative of seasonal variations). An increasing trend (VP43_3.0) was calculated for TRH C_{10}-C_{16} 'F2 for the second consecutive sampling event.

The concentration of F2 in May 2022 were higher than in the previous sampling events. The reason for this increase is not clear considering there are unlikely to be active sources of impacts in the vicinity of VP43 and no increasing trends were noted at any surrounding vapour points, nor from the VP43 probe installed at 6 metre depth. As indicated in Section 5.2.2 the NEPM HSL for F2 is NL (not limiting) for 3 metre depths and the reported increase in concentrations does not change the risk profile for the onsite residents. This trend pattern will continue to be assessed during future monitoring events.

6 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

This section presents the results of the Quality Assurance and Quality Control (QA/QC) measures conducted during May 2022 groundwater and soil vapour sampling event, as required by the EMP. The QA/QC measures included:

- Ensuring the sampling equipment (water quality meter, landfill gas meter, helium meter and PID) were calibrated before use.
- Adopting appropriate sampling procedures for the potential contaminants of concern.
- Adopting appropriate sample labelling, preservation, storage and transport under chain of custody procedures.
- The collection and analyses of field QA/QC samples, including inter and intra laboratory duplicate samples.
- Conducting laboratory analyses within appropriate holding times.
- The use of laboratories that hold NATA accreditation for the analyses undertaken.
- The analysis of laboratory QA/QC samples, including duplicates, blanks, trip spikes, matrix spikes, matrix spike duplicates, and surrogates.

The following sections detail the QA/QC analyses for both groundwater and soil vapours and considers the analytical data quality.

6.1 Groundwater QA/QC

6.1.1 Internal Laboratory QA

The results of the internal quality assurance programs of the laboratories are presented with the laboratory certificates in Appendix C. Appropriate internal QA/QC were reported by both laboratories as follows:

- Accuracy (measured by laboratory spike and surrogate recovery samples) generally within 70% - 130% recovery.
- Precision (measured by duplicate sample analysis) generally within 30% relative percentage difference.

The accuracy of the laboratory reports was of acceptable quality. There were a few breaches reported by the secondary laboratory used including a holding time for clear plastic natural container and insufficient frequency of laboratory QC for semi-volatile organic compounds. This however would not influence the assessment of the results presented in this report.

6.1.2 Field Duplicates

Field duplicate groundwater samples were collected and analysed at the primary and secondary laboratories. A summary of the field duplicate testing is summarised in Table 10.

Table 10 - Groundwater Duplicate Analyses

Sample	Duplicates analysed at primary laboratory	Duplicates analysed at secondary laboratory
MWS12_01A	QC01 (analytes as per Table 2)	QC01A (analytes as per Table 2)

The duplicate samples were analysed for the same suite of analytes as primary samples. The frequency of inter- and intra-laboratory groundwater duplicate analyses is within the frequency required by the EMP.

The calculated RPDs for groundwater duplicates are included in the summary tables attached. Most of the groundwater duplicate analyses have RPD values below the recommended comparison criteria of 50% indicating acceptable quality of laboratory analyses. The few exceptions included:

- Elevated RPDs for >C10 TPH/TRH fractions in the intra laboratory duplicate due to low reported concentrations marginally above LORs only reported in the duplicate sample. The inter laboratory sample reported all TRH/TPH concentrations below the respective LORs further confirming the appropriateness of the primary sample results.
- Elevated RPDs were calculated for several chlorinated hydrocarbons in the interlaboratory duplicate partially due to low reported concentrations. The higher concentrations were reported from the duplicate sample, but these results were still within the previously reported ranges and do not change the outcomes of this report.

6.1.3 Blank Samples

Trip blank samples were collected and analysed during the groundwater sampling event. Summary of the blank samples collected, and the analysis performed is presented in Table 11 below.

Table 11 - Summary of Blank Analyses

Date	Sample ID	Blank type	Analyses
19 May 2022	TB01	Blank	BTEXN
	RB01	Rinsate	TRH C6-C10 & BTEX

All reported concentrations in the trip blank and rinsate samples were below laboratory reporting limits indicating no cross-contamination during sampling or transportation has occurred. The blank sample results are presented along with the groundwater result summary tables provided as an attachment to this report.

6.1.4 Data Quality Conclusions - Groundwater

The internal QC procedures reported by the laboratories and the field duplicate and blank samples indicate the groundwater analytical data is of acceptable quality for the purposes of this monitoring event.

6.2 Soil Vapour QA/QC

6.2.1 Internal Laboratory QA

The results of the internal quality assurance programs of the laboratory are presented with the laboratory certificates in Appendix E. Appropriate internal QA/QC were reported by both laboratories as follows:

- Accuracy (measured by laboratory spike and surrogate recovery samples) within the acceptable range between 70% - 130% recovery.
- Precision (measured by duplicate sample analysis) within 50% relative percentage difference.

The accuracy of the laboratory reports was of acceptable quality.

6.2.2 Field Duplicates

Field duplicate samples were collected and analysed at the primary and secondary laboratories (ALS and Eurofins respectively). A summary of the field duplicate samples collected are summarised in Table 12.

Table 12 - Soil Vapour Duplicate Analyses

Primary Sample ID	Duplicates analysed at primary laboratory (analytes)	Duplicates analysed at secondary laboratory (analytes)
VP42_6.0	QV01 (as per Table 3)	-
VP27_6.0	-	QV04 (as per Table 3)
VP27_3.0	QV03 (as per Table 3)	-
VP49_3.7	-	QV02 (as per Table 3)

The frequency of inter and intra laboratory soil vapour duplicate analyses was within the frequency required by the EMP.

The calculated RPDs for soil vapour duplicates are included in the summary tables attached. Most primary and secondary laboratory duplicate soil vapour analyses have RPD values calculated below the 50% threshold with the exception of those listed in Table 13.

Table 13 – Soil Vapour Duplicate Sample RPDs (>50%)

Primary Sample ID	Duplicate Sample	Analyte	RPD%
VP27_6.0	QV02 (secondary lab)	4-methyl-2-pentanone	199%
		1,1-dichloroethane	86%
		Hexane	57%
		2.2.4-trimethylpentane	114%
		Cyclohexane	200%

The chemicals for which the RPD exceedances were calculated were generally similar to chemicals (except TRH C_6-C_{10}, F1) for which RPD exceedance were calculated during the previous April 2021 monitoring round for the same vapour point. The elevated RPDs were due to the secondary laboratory reporting significantly lower concentrations compared to the primary laboratory including the concentrations of 4-methyl-2-pentanone and Cyclohexane reported to be below LOR. Considering that the elevated RPDs were calculated for the same chemicals at the same vapour point previously this may indicate that soil vapour at this location does not have a uniform chemistry.

Regardless, the overall quality of the soil vapour data is considered appropriate given all other duplicates reported comparable results.

6.2.3 Leak Testing

As discussed in Section 4.2.1, prior to the soil vapour sampling, leak testing was undertaken on each sampling point to ensure that vapour samples were representative of the targeted soil depth being sampled and that ambient air was not being drawn into the vapour well. Two methods of leak testing (helium and shut-in) were undertaken.

Helium Leak Test

A comparison was made between the shroud concentration and measured vapour point concentration to ensure the difference in concentration was less than the recommended difference of 10%.

The measured helium concentrations detected within all soil vapour points were less than 10% of the measured shroud concentration indicating the integrity of all soil vapour points was generally sound using the helium leak test method (refer Appendix C for soil vapour sampling records).

Shut in Test

The sample train for each soil vapour point were all found to hold the initial vacuum reading throughout the shut-in test indicating there were no leaks. The sampling records in Appendix B also include the shut-in test results.

6.2.4 Data Quality Conclusions – Soil Vapour

The internal QC procedures reported by the laboratories as well as the duplicate analyses and leak testing undertaken, indicate the analytical data is of acceptable quality for the purposes of this investigation.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Greencap has undertaken groundwater and soil vapour monitoring for a portion of the Tonsley Innovation District in accordance with the requirements of the 2020 Environmental Monitoring Plan (2020 EMP). The scope of work has included:

- Gauging and sampling of seven groundwater monitoring wells.
- Soil vapour sampling from the soil vapour points included in EMP, however it is noted that several vapour points were not able to be sampled due to water ingress or low permeability of the soil matrix, which generally consistent with previous monitoring events.
- Field and laboratory analysis of the groundwater and soil vapour samples.
- Comparison of the sampling results to on and off-site trigger levels stipulated in the 2020 EMP.

Groundwater Results

No exceedances of the adopted onsite trigger levels were reported during this monitoring event.

The adopted off-site trigger levels are related to variations between consecutive sampling results. A single exceedance was calculated for tetrachloroethene at MWS12_01A. However, this RPD value was exaggerated due to very low reported concentrations marginally above LOR.

Trend analysis for the key chemicals of concern (petroleum hydrocarbons) was also undertaken and no increasing trends were calculated for any of the locations / chemicals assessed.

Soil Vapour Results

The results of the on-site soil vapour monitoring were all below the adopted trigger levels with all reported concentrations below the laboratory limits of reporting.

Most of the results of the off-site soil vapour points had calculated RPD values of less than 50% when compared to the previous sampling event, except for exceedances for F2 (>C10-C16 minus naphthalene) hydrocarbons at VP41_6.0 and VP43_3.0. No trigger level for F2 is included in the EMP and the NEPM HSL for F2 is not limiting for 3 and 6 metre depths. This indicates the reported concentrations would not change the risk profile for the onsite residents and the risk remains to be acceptable.

The trend analysis demonstrates that most of the trends assessed were 'decreasing' with a few showing 'probably decreasing', 'stable' and 'no trend' (potentially indicative of seasonal variations). An increasing trend (VP43_3.0) was calculated for TRH C_{10}-C_{16} 'F2 for the second monitoring event with reported concentrations higher than all previous rounds. The reason for this increase is not clear and no increasing trends were noted at any surrounding vapour points, nor the VP43 probe installed at 6 metre depth. The NEPM HSL for F2 is not limiting and the reported increase in concentrations does not change the risk profile for the onsite residents, however this trend pattern will continue to be assessed during future monitoring events.

7.2 Recommendations

Based on the results of the May 2022 groundwater and soil vapour sampling, no additional actions are warranted. The regular EMP sampling schedule should be followed, with the next sampling event to occur in April 2023.

Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

Summary Tables - Groundwater

		Inorganics		TPH / BTEX							Chlorinated Hy																	
		pH (Lab)	TDS	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	Benzal Chloride	Benzotrichloride	Benzyl chloride	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane
		pH_Units	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL		0.1	10	0.05	0.05	0.5	0.1	0.05	0.05	0.02	1	0.1	1	1	0.01	0.1	1	0.01	0.1	1	0.1	0.1	0.0002	0.5	0.1	0.1	0.05	0.1	0.5
Field ID	Sampled																												
RPD >50% (increase in concentration) - Offsite Wells																													
MWS12_01	23/10/2008	-	-	5160	8470	<100	4030	182	4212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-	-
MWS12_01	2/07/2009	-	-	3510	6870	<50	2450	88	2538	-	-	-	-	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MWS12_01	15/01/2010	-	-	4000	<20	6610	1490	40	1530	-	-	-	-	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MWS12_01	18/04/2011	-	-	6	<2	<2	<2	<2	<2	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MWS12_01	18/09/2014	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MWS12_01A	26/08/2015	7.5	3000	730	350	28	180	21	200	1.1	-	-	-	1	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MWS12_01A	18/05/2017	7.2	3100	45	<1	<1	<2	<1	<3	0.1	-	-	-	<1	8.2	-	-	-	-	-	-	-	-	<1	-	-	-	-	-
MWS12_01A	24/07/2019	-	2300	9	<1	<1	<2	<1	<3	0.06	-	-	-	<1	10	-	-	-	-	-	-	-	-	<1	-	-	-	-	-
MWS12_01A	23/10/2019	8.1	3100	1	<1	<1	<2	<1	<3	<0.02	-	-	-	<1	12	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
MWS12_01A	17/04/2020	7.5	2500	4	<1	<1	<2	<1	<3	0.06	-	<1	<1	<1	8	45	-	-	-	-	-	-	-	<1	<1	-	-	-	-
MWS12_01A	22/04/2021	7.6	2900	3	<1	<1	<2	<1	<3	0.05	<1	<1	<1	<1	10	41	<1	8.6	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_01A	19/05/2022	7.7	2,900	<1	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	8.0	26	<1	4.7	<1	<1	<0.1	<0.1	<0.005	<1	<1	<1	<1	<1	<5
RPD MWS12_01A										-50					-22	-45													
MWS12_13	28/06/2017	6.9	4900	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	34	79	<1	3.9	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS12_13	15/02/2018	-	-	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	12	47	<1	1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_13	12/04/2018	7.3	10,000	1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	13	43	<1	1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_13	19/07/2018	7.3	6500	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	13	49	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_13	24/10/2018	7.6	7900	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	16	67	<1	<1	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS12_13	2/04/2019	7.3	3600	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	14	81	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_13	23/10/2019	7.7	8300	<1	<1	<1	<2	<1	<3	<0.02	-	-	-	<1	17	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
MWS12_13	16/04/2020	7.3	8700	<1	<1	<1	<2	<1	<3	<0.2	-	<1	<1	<1	12	80	-	-	-	-	-	-	-	<1	<1	-	-	-	-
MWS12_13	22/04/2021	7.7	7000	<1	<1	<1	<2	<1	<3	0.06	<1	<1	<1	<1	20	85	<1	<0.01	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_13	19/05/2022	7.2	4,700	<1	<1	<1	<2	<1	<3	0.02	<1	<1	<1	<1	17	55	<1	0.74		<1	<0.1	<0.1	<0.005	<1	<1	<1	<1	<1	<5
RPD MWS12_13										-100					-16	-43													
MWS16_14	18/05/2017	7.2	2600	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	2	<1	<1	8.5	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS16_14	15/02/2018	-	-	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	2	<1	<1	17	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS16_14	11/04/2018	7.6	2700	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	3	<1	<1	26	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MW1S6_14	19/07/2018	7.5	2900	<1	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	3	<1	<1	24	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS16_14	24/10/2018	8	2800	<1	<1	<1	<2	<1	<3	0.02	<1	<1	<1	<1	2	<1	<1	17	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS16_14	2/04/2019	7.8	1800	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	2	<1	<1	21	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS16_14	22/10/2019	8	2100	<1	<1	<1	<2	<1	<3	<0.02	-	-	-	<1	2	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
MWS16_14	17/04/2020	7.5	3500	<1	<1	<1	<2	<1	<3	<0.02	-	<1	<1	<1	2	<1	-	-	-	-	-	-	-	<1	<1	-	-	-	-
MWS16_14	22/04/2021	7.4	3000	<1	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	2.5	2	<1	20	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS16_14	19/05/2022	7.4	3,000	1	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	1.8	1	<1	13		<1	<0.1	<0.1	<0.005	<1	<1	<1	<1	<1	<5
RPD MWS16_14										0					-33			-42											

		ydrocarbons								MAH		olvent
		Chloroform	Chloromethane	cis-1,2-dichloroethene	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	2-hexanone (MBK)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL		0.1	1	0.01	0.04	0.01	0.02	0.1	0.05	0.05	0.05	
Field ID	Sampled											
RPD >50% (increase in concentration) - Offsite Wells												
MWS12_01	23/10/2008	<100	-	<1000	-	-	-	<100	<1000	-	<100	
MWS12_01	2/07/2009	<50	-	<50	-	<50	<50	<50	<1	1830	250	
MWS12_01	15/01/2010	<20	-	<20	-	<20	<20	<20	<1	1170	102	
MWS12_01	18/04/2011	-	-	<5	-	<5	<5	<5	<0.5	<5	<5	
MWS12_01	18/09/2014	<20	-	<20	-	<20	<20	<20	<20	-	-	
MWS12_01A	26/08/2015	<5	-	6.5	-	25	<1	<1	4.9	-	-	
MWS12_01A	18/05/2017	<5	-	8.7	-	32	<0.02	<1	4.3	<1	<1	
MWS12_01A	24/07/2019	<5	-	9.8	-	29	0.03	<1	<0.05	<1	<1	
MWS12_01A	23/10/2019	<5	-	15	-	41	<1	<1	5	<1	<1	
MWS12_01A	17/04/2020	<5	-	10	-	23	<1	<1	3	<1	<1	
MWS12_01A	22/04/2021	<5	<1	10	<0.1	26	0.02	<1	4.8	<1	<1	-
MWS12_01A	19/05/2022	<5	<5	7.7	<5	15	0.04	<1	2.5	<1	<1	-
RPD MWS12_01A				-26		-54	67		-63			
MWS12_13	28/06/2017	<5	<1	1.1	-	8.9	<0.02	<1	18	<1	<1	-
MWS12_13	15/02/2018	<5	<1	<1	<0.1	3	<1	<1	3	<1	<1	-
MWS12_13	12/04/2018	<5	<1	<1	<0.1	3	<1	<1	4	<1	<1	-
MWS12_13	19/07/2018	<5	<1	<1	<0.1	3	<1	<1	7	<1	<1	-
MWS12_13	24/10/2018	<5	<1	<1	-	5	<1	<1	7	<1	<1	<1
MWS12_13	2/04/2019	<5	<1	<1	<0.1	4	<1	<1	14	<1	<1	<1
MWS12_13	23/10/2019	<5	<1	<1	-	5	<1	<1	<10	<1	<1	
MWS12_13	16/04/2020	<5	-	<1	-	5	<1	<1	5	<1	<1	
MWS12_13	22/04/2021	<5	<1	2.5	<0.1	16	<0.02	<1	10	<1	<1	-
MWS12_13	19/05/2022	<5	<5	3.4	<5	12	0.04	<1	5.7	<1	<1	
RPD MWS12_13				31		-29			-55			
MWS16_14	18/05/2017	<5	<1	0.21	-	<0.01	<0.02	<1	<0.05	<1	<1	-
MWS16_14	15/02/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS16_14	11/04/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MW1S6_14	19/07/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS16_14	24/10/2018	<5	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
MWS16_14	2/04/2019	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1
MWS16_14	22/10/2019	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	
MWS16_14	17/04/2020	<5	-	<1	-	<1	<1	<1	<1	<1	<1	
MWS16_14	22/04/2021	<5	<1	4.8	<0.1	0.67	<0.02	<1	<0.05	<1	<1	-
MWS16_14	19/05/2022	<5	<5	5.4	<5	0.54	<0.02	<1	<0.05	<1	<1	
RPD MWS16_14				12		-21						

		Inorganics		TPH / BTEX							Chlorinated Hy																	
		pH (Lab)	TDS	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	Benzal Chloride	Benzotrichloride	Benzyl chloride	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane
		pH_Units	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL		0.1	10	0.05	0.05	0.5	0.1	0.05	0.05	0.02	1	0.1	1	1	0.01	0.1	1	0.01	0.1	1	0.1	0.1	0.0002	0.5	0.1	0.1	0.05	0.1	0.5
Field ID	Sampled																												
Groundwater Tigger Levels for "Onsite" Wells				5000						6		1	1	1		42									1				
MWS12_14	18/05/2017	7.4	3700	7	4	<1	3	<1	<3	<0.02	<1	<1	<1	<1	2.6	<1	<1	0.34	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS12_14	15/02/2018	-	-	7	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	4	<1	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_14	12/04/2018	7.1	4000	3	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	4	<1	<1	1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_14	18/07/2018	7.3	4000	6	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	3	<1	<1	1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_14	24/10/2018	7.6	4000	2	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	3	<1	<1	2	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS12_14	2/04/2019	7.3	5400	3	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	3	<1	<1	1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_14	23/10/2019	7.7	3200	11	<1	<1	<2	<1	<3	<0.02	-	-	-	<1	4	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
MWS12_14	16/04/2020	7	6200	2	<1	<1	<2	<1	<3	<0.02	-	<1	<1	<1	3	<1	-	-	-	-	-	-	-	<1	<1	-	-	-	-
MWS12_14	22/04/2021	7.3	3800	<1	<1	<1	<2	<1	<3	0.05	<1	<1	<1	<1	4.3	<1	<1	2.2	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS12_14	19/05/2022	7.0	3,700	<1	<1	<1	<2	<1	<3	0.04	<1	<1	<1	<1	4.2	<1	<1	2.2		<1	<0.1	<0.1	<0.005	<1	<1	<1	<1	<1	<5
MWS15_27	17/05/2017	6.8	13,000	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	0.36	<1	<1	0.05	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_27	15/02/2018	-	-	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	1	4	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_27	11/04/2018	7.3	14,000	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MW1S5_27	18/07/2018	7.2	15,000	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_27	22/10/2018	7.6	14,000	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_27	3/04/2019	7.5	12,000	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	1	4	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_27	22/10/2019	7.6	10,000	<1	<1	<1	<2	<1	<3	<0.02	-	-	-	<1	<1	1	<1	<1	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_27	16/04/2020	7.1	12,000	<1	<1	<1	<2	<1	<3	<0.02	-	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	<1	<1	-	-	-	-
MWS15_27	27/04/2021	7.2	13,000	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	1.2	5	<1	0.34	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_27	20/05/2022	7.1	9,300	<1	<1	<1	<2	<1	<3	<20	<1	<1	<1	<1	1.3	5	<1	<0.01		<1	<0.1	<0.1	<0.005	<1	<1	<1	<1	<1	<5
MWS15_28	17/05/2017	7.1	3700	<1	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	15	42	<1	13	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_28	14/02/2018	-	-	<1	<1	<1	<2	<1	<3	0.02	<1	<1	<1	<1	11	31	<1	16	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_28	11/04/2018	7.3	3500	<1	<1	<1	<2	<1	<3	0.02	<1	<1	<1	<1	10	28	<1	14	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_28	18/07/2018	7.6	3500	<1	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	8	21	<1	14	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_28	22/10/2018	7.8	3300	<1	<1	<1	<2	<1	<3	0.03	<1	<1	<1	<1	7	22	<1	13	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_28	3/04/2019	7.7	4600	<1	<1	<1	<2	<1	<3	0.02	<1	<1	<1	<1	7	30	<1	12	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_28	22/10/2019	7.9	3200	<1	<1	<1	<2	<1	<3	<0.02	-	-	-	<1	12	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_28	21/11/2019	-	-	-	-	-	-	-	-	-	-	-	-	<1	21	-	-	-	-	-	-	-	-	<1	-	-	-	-	-
MWS15_28	16/04/2020	7.2	3800	<1	<1	<1	<2	<1	<3	0.04	-	<1	<1	<1	8	42	-	-	-	-	-	-	-	<1	<1	-	-	-	-
MWS15_28	27/04/2021	7.3	3600	<1	<1	<1	<2	<1	<3	0.04	<1	<1	<1	<1	7.2	35	<1	12	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_28	19/05/2022	7.7	3,100	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	4.0	19	<1	5.1		<1	<0.1	<0.1	<0.005	<1	<1	<1	<1	<1	<5
MWS15_29	17/05/2017	-	6000	<1	<1	<1	<1	<3	-	<0.02	<1	<1	<1	<1	0.04	<1	<1	<0.01	<1	-	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_29	15/02/2018	-	-	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_29	11/04/2018	7.8	2800	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	3	<1	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	3	<1	<1	2	<1
MWS15_29	18/07/2018	7.5	2900	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_29	22/10/2018	11	750	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-	<1	<1	<1	<1	<1	<1
MWS15_29	3/04/2019	9	1600	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_29	22/10/2019	7.9	9300	<1	<1	<1	<2	<1	<3	<0.02	-	-	-	<1	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_29	16/04/2020	7.5	3300	<1	<1	<1	<2	<1	<3	<0.02	-	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	<1	<1	-	-	-	-
MWS15_29	27/04/2021	7.6	2400	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<0.01	<1	<1	0.02	<1	<1	<0.1	<0.1	<0.001	<1	<1	<1	<1	<1	<1
MWS15_29	19/05/2022	7.2	6,600	<1	<1	<1	<2	<1	<3	<0.02	<1	<1	<1	<1	<0.01	<1	<1	<0.01		<1	<0.1	<0.1	<0.005	<1	<1	<1	<1	<1	<5

		ydrocarbons								MAH		olvent
		Chloroform	Chloromethane	cis-1,2-dichloroethene	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	2-hexanone (MBK)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL		0.1	1	0.01	0.04	0.01	0.02	0.1	0.05	0.05	0.05	
Field ID	Sampled											
Groundwater Tigger Levels for "Onsite" Wells		5		6	20	18	1	1	7.6	2	1	5
MWS12_14	18/05/2017	<5	<1	0.23	-	0.01	<0.02	<1	<0.05	2	1	-
MWS12_14	15/02/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS12_14	12/04/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS12_14	18/07/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS12_14	24/10/2018	<5	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
MWS12_14	2/04/2019	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1
MWS12_14	23/10/2019	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS12_14	16/04/2020	<5	-	<1	-	<1	<1	<1	<1	<1	<1	-
MWS12_14	22/04/2021	<5	<1	0.59	<0.1	0.04	<0.02	<1	<0.05	<1	<1	-
MWS12_14	19/05/2022	<5	<5	0.91	<5	0.02	<0.02	<1	<0.05	<1	<1	
MWS15_27	17/05/2017	<5	<1	0.21	-	0.14	<0.02	<1	0.27	<1	<1	-
MWS15_27	15/02/2018	<5	<1	2	<0.1	2	<1	<1	<1	<1	<1	-
MWS15_27	11/04/2018	<5	<1	1	<0.1	2	<1	<1	<1	<1	<1	-
MW1S5_27	18/07/2018	<5	<1	1	<0.1	1	<1	<1	<1	<1	<1	-
MWS15_27	22/10/2018	<5	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
MWS15_27	3/04/2019	<5	<1	2	<0.1	2	<1	<1	<1	<1	<1	<1
MWS15_27	22/10/2019	<5	<1	<1	-	<1	<1	<1	<1	<1	<1	-
MWS15_27	16/04/2020	<5	-	<1	-	<1	<1	<1	<1	<1	<1	-
MWS15_27	27/04/2021	<5	<1	1.5	<0.1	1.4	<0.02	<1	0.24	<1	<1	-
MWS15_27	20/05/2022	<5	<5	1.6	<5	1.3	<0.02	<1	<0.05	<1	<1	-
MWS15_28	17/05/2017	<5	<1	6	-	18	0.03	<1	7.6	<1	<1	-
MWS15_28	14/02/2018	<5	<1	6	<0.1	15	<1	<1	3	<1	<1	-
MWS15_28	11/04/2018	<5	<1	6	<0.1	16	<1	<1	<1	<1	<1	-
MWS15_28	18/07/2018	<5	<1	6	<0.1	15	<1	<1	<1	<1	<1	-
MWS15_28	22/10/2018	<5	<1	6	-	14	<1	<1	2	<1	<1	<1
MWS15_28	3/04/2019	<5	<1	6	<0.1	18	<1	<1	5	<1	<1	<1
MWS15_28	22/10/2019	<5	-	11	-	29	<1	<1	4	<1	<1	-
MWS15_28	21/11/2019	<5	-	6	-	19	<1	<1	2	<1	<1	-
MWS15_28	16/04/2020	<5	-	8	-	21	<1	<1	3	<1	<1	-
MWS15_28	27/04/2021	<5	<1	7.4	<0.1	16	0.02	<1	2.5	<1	<1	-
MWS15_28	19/05/2022	<5	<5	4.3	<5	6.6	<0.02	<1	0.96	<1	<1	-
MWS15_29	17/05/2017	<5	<1	<0.01	-	<0.01	<0.02	<1	0.07	<1	<1	-
MWS15_29	15/02/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS15_29	11/04/2018	5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS15_29	18/07/2018	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS15_29	22/10/2018	<5	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
MWS15_29	3/04/2019	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1
MWS15_29	22/10/2019	<5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	-
MWS15_29	16/04/2020	<5	-	<1	-	<1	<1	<1	<1	<1	<1	-
MWS15_29	27/04/2021	<5	<1	<0.01	<0.1	0.04	<0.02	<1	<0.05	<1	<1	-
MWS15_29	19/05/2022	<5	<5	<0.01	<5	<0.01	<0.02	<1	<0.05	<1	<1	-

			Field ID	MW12_01A	QC01		MW12_01A	QC01A	
			Matrix Type	Water	Water		Water	Water	
			Date	19/05/2022	19/05/2022		19/05/2022	19/05/2022	
			Lab Report Number	890251	890251	RPD	890251	EM2209614	RPD
	Unit	EQL							
BTEX									
Benzene	µg/L	0.05		<1	<1	0	<1	0.44	0
Ethylbenzene	µg/L	0.05		<1	<1	0	<1	<0.05	0
Naphthalene (VOC)	mg/L	0.01		<0.01	<0.01	0	<0.01		
Toluene	µg/L	0.5		<1	<1	0	<1	<0.5	0
Total BTEX	µg/L	1						<1	
Xylene (m & p)	µg/L	0.1		<2	<2	0	<2	<0.10	0
Xylene (o)	µg/L	0.05		<1	<1	0	<1	<0.05	0
Xylene Total	µg/L	0.05		<3	<3	0	<3	<0.05	0
Chlorinated Hydrocarbons									
1,1,1,2-tetrachloroethane	µg/L	1		<1	<1	0	<1		
1,1,1-trichloroethane	µg/L	0.1		<1	<1	0	<1	<0.1	0
1,1,2,2-tetrachloroethane	µg/L	1		<1	<1	0	<1		
1,1,2-trichloroethane	µg/L	1		<1	<1	0	<1		
1,1-dichloroethane	µg/L	0.01		8.0	7.6	5	8.0	9.0	12
1,1-dichloroethene	µg/L	0.1		26	25	4	26	44.2	52
1,2,3-trichloropropane	µg/L	1		<1	<1	0	<1		
1,2-dibromo-3-chloropropane	µg/L	0.1						<0.10	
1,2-dichloroethane	µg/L	0.01		4.7	4.4	7	4.7	6.8	37
1,2-Dichloroethene	µg/L	0.1						9.00	
1,2-dichloropropane	µg/L	0.1		<1	<1	0	<1	<0.1	0
1,3-dichloropropane	µg/L	1		<1	<1	0	<1		
Benzal Chloride	µg/L	0.1		<0.1	<0.1	0	<0.1		
Benzotrichloride	µg/L	0.1		<0.1	<0.1	0	<0.1		
Benzyl chloride	mg/L	0.0002		<0.005	<0.005	0	<0.005	<0.0002	0
Bromochloromethane	µg/L	0.5		<1	<1	0	<1	<0.5	0
Bromodichloromethane	µg/L	0.1		<1	<1	0	<1	<0.10	0
Bromoform	µg/L	0.1		<1	<1	0	<1	<0.10	0
Carbon tetrachloride	µg/L	0.05		<1	<1	0	<1	<0.05	0
Chlorodibromomethane	µg/L	0.1		<1	<1	0	<1	<0.10	0
Chloroethane	µg/L	0.5		<5	<5	0	<5	<0.5	0
Chloroform	µg/L	0.1		<5	<5	0	<5	0.15	0
Chloromethane	µg/L	5		<5	<5	0	<5		
cis-1,2-dichloroethene	µg/L	0.01		7.7	7.3	5	7.7	8.8	13
cis-1,3-dichloropropene	µg/L	0.1		<1	<1	0	<1	<0.1	0
Dibromomethane	µg/L	1		<1	<1	0	<1		
Dichloromethane	µg/L	0.02		<0.02	<0.02	0	<0.02	<1.0	0
Hexachlorobutadiene	µg/L	0.04		<5	<5	0	<5	<0.04	0
Hexachlorocyclopentadiene	µg/L	5		<5	<5	0	<5	<10	0
Hexachloroethane	µg/L	2		<5	<5	0	<5	<2	0
Other chlorinated hydrocarbons EPAVic	µg/L	5		54	51	6	54		
Tetrachloroethene	µg/L	0.02		0.04	0.03	29	0.04	0.45	167
trans-1,2-dichloroethene	µg/L	0.1		<1	<1	0	<1	0.2	0
trans-1,3-dichloropropene	µg/L	0.1		<1	<1	0	<1	<0.1	0
Trichloroethene	µg/L	0.01		15	14	7	15	27.6	59
Vinyl chloride	µg/L	0.05		2.5	2.4	4	2.5	5.4	73
Halogenated Benzenes									
1,2,3,4-tetrachlorobenzene	mg/L	0.005		<0.005	<0.005	0	<0.005		
1,2,3,5-Tetrachlorobenzene	mg/L	0.005		<0.005	<0.005	0	<0.005		
1,2,3-trichlorobenzene	µg/L	0.1		<5	<5	0	<5	<0.1	0
1,2,4,5-tetrachlorobenzene	µg/L	5		<5	<5	0	<5		
1,2,4-trichlorobenzene	µg/L	0.1		<5	<5	0	<5	<0.1	0
1,2-dichlorobenzene	µg/L	0.1		<1	<1	0	<1	<0.10	0
1,3,5-Trichlorobenzene	µg/L	5		<5	<5	0	<5		
1,3-dichlorobenzene	µg/L	0.1		<1	<1	0	<1	<0.10	0
1,4-dichlorobenzene	µg/L	0.01		<0.01	<0.01	0	<0.01	<0.10	0
2-chlorotoluene	µg/L	0.1						<0.1	
4-chlorotoluene	µg/L	0.1		<1	<1	0	<1	<0.1	0
Bromobenzene	µg/L	0.1		<1	<1	0	<1	<0.10	0
Chlorobenzene	µg/L	0.01		0.18	0.21	15	0.18	0.21	15
Hexachlorobenzene	µg/L	4		<5	<5	0	<5	<4	0
Pentachlorobenzene	µg/L	2		<5	<5	0	<5	<2	0
Trichlorobenzene (total)	mg/L	0.0001						<0.0001	
Halogenated Hydrocarbons									
1,2-dibromoethane	µg/L	0.1		<1	<1	0	<1	<0.1	0
Bromomethane	µg/L	0.5		<5	<5	0	<5	<0.5	0
Dichlorodifluoromethane	µg/L	0.5		<5	<5	0	<5	<0.5	0
Iodomethane	µg/L	1		<1	<1	0	<1		
Trichlorofluoromethane	µg/L	0.5		<5	<5	0	<5	<0.5	0
Inorganics									
Electrical Conductivity (Lab)	µS/cm	1		5,100	5,000	2	5,100	5,490	7
pH (Lab)	-	0.01		7.7	7.7	0	7.7	7.56	2
Total Dissolved Solids (Lab)	mg/L	10		2,900	2,700	7	2,900	2,920	1
MAH									
1,2,4-trimethylbenzene	µg/L	0.05		<1	<1	0	<1	<0.05	0
1,3,5-trimethylbenzene	µg/L	0.05		<1	<1	0	<1	<0.05	0
Isopropylbenzene	µg/L	1		<1	<1	0	<1		
Styrene	µg/L	0.05		<1	<1	0	<1	<0.05	0
Total MAH	mg/L	0.003		<0.003	<0.003	0	<0.003		
PAH									
Naphthalene	µg/L	0.05						<0.05	
Solvents									
4-Methyl-2-pentanone	µg/L	5		<5	<5	0	<5		
Acetone	mg/L	0.005		<0.005	<0.005	0	<0.005		
Allyl chloride	mg/L	0.001		<0.001	<0.001	0	<0.001		
Carbon disulfide	µg/L					0	<1		

			Field ID	MW12_01A	QC01		MW12_01A	QC01A	
			Matrix Type	Water	Water		Water	Water	
			Date	19/05/2022	19/05/2022		19/05/2022	19/05/2022	
			Lab Report Number	890251	890251	RPD	890251	EM2209614	RPD
	Unit	EQL							
Methyl Ethyl Ketone	µg/L	5		<5	<5	0	<5		
MTBE	mg/L	0.0001						<0.0001	
SVOCs									
Hexachloropropene	µg/L	2						<2	
TPH									
C10-C14 Fraction	µg/L	50		<50	150	100	<50	<50	0
C10-C36 Fraction (Sum)	µg/L	50		<100	350	111	<100	<50	0
C15-C28 Fraction	µg/L	100		<100	200	67	<100	<100	0
C29-C36 Fraction	µg/L	50		<100	<100	0	<100	<50	0
C6-C9 Fraction	µg/L	20		30	20	40	30	50	50
TRH									
>C10-C16 Fraction (F2 minus Naphthalene)	µg/L	50		<50	160	105	<50	<100	0
>C10-C16 Fraction (F2)	µg/L	50		<50	160	105	<50	<100	0
>C10-C40 Fraction (Sum)	µg/L	100		<100	360	113	<100	<100	0
>C16-C34 Fraction (F3)	µg/L	100		<100	200	67	<100	<100	0
>C34-C40 Fraction (F4)	µg/L	100		<100	<100	0	<100	<100	0
C6-C10 (F1 minus BTEX)	µg/L	20		30	20	40	30	40	29
C6-C10 Fraction (F1)	µg/L	20		30	20	40	30	40	29
VOCs									
Trihalomethanes	mg/L	0.0001						0.00015	

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

		Name	RB01	RB02	TB01	TB02
		Date	19/05/2022	19/05/2022	19/05/2022	19/05/2022
		Lab Report Number	890251	890251	890251	890251
	Unit	EQL				
BTEX						
Benzene	µg/L	1	<1	<1	<1	<1
Ethylbenzene	µg/L	1	<1	<1	<1	<1
Naphthalene (VOC)	mg/L	0.01			<0.01	<0.01
Toluene	µg/L	1	<1	<1	<1	<1
Xylene (m & p)	µg/L	2	<2	<2	<2	<2
Xylene (o)	µg/L	1	<1	<1	<1	<1
Xylene Total	µg/L	3	<3	<3	<3	<3
TRH						
C6-C10 Fraction (F1)	µg/L	20	<20	<20		

Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

Summary Tables – Soil Vapour

			TPH	BTEX					TRH	Chlorinated Hydrocarbons												MAH				Solvents	
		2-Propanol	F2-NAPHTHALENE	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	C6-C10 less BTEX (F1)	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	Bromodichloromethane	Chloroform	cis-1,2-dichloroethene	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1-methyl-4 ethyl benzene	Styrene	1,4-Dioxane	2-hexanone (MBK)
		µg/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
Trigger Level Offsite - RPD >50% (increase in concentration)																											
Field ID	Sampled																										
VP12_2.5	27/02/2016	<1500	<5000	<2000	<2700	7200	<2700	<2700	13,000,000	<3400	<4300	<8200	<2500	<4200	<7500	<2500	<6700	<3400	<4200	<2500	<1600	<3100	<3100	<3100	<2700	<2300	<6100
VP12_2.5	5/09/2016	<62	<2000	10,000	360	6300	840	220	2,500,000	<140	<170	<140	<99	<170	<120	<99	<270	<130	720	<99	<64	<120	<120	<120	<110	<90	<100
VP12_2.5	27/07/2018	<600	<200,000	<800	<1100	<950	<2150	<1100	6,420,000	<1350	<1700	<1350	<1000	<1700	<1200	<1000	<2650	<1250	<1700	<1000	<638	<1200	<1200	<1200	<1050	<900	<750
VP12_2.5	22/07/2019	-	102,000	<320	937	-	4240	2980	3,340,000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	2270	1500	1320	-	<360	<400
VP12_2.5	24/10/2019	-	<200,000	<800	<1100	<950	<2150	<1100	3,570,000	<1350	<1700	<1350	<1000	<1700	<1200	<1000	<2650	<1250	<1700	<1000	<638	<1200	<1200	<1200	<1050	<900	<1000
VP12_2.5	14/04/2020	<120	62,300	<100	<220	-	<430	<220	744,000	<270	<340	<270	<200	<340	<240	<80	<530	<100	<340	<200	<51	<240	<240	<240	-	<180	<200
VP12_2.5	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	111,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	<240	<240	<240	<210	<180	<200
VP12_2.5	13/05/2022	<120	<40,000	<100	<220	<190	<430	<220	**34000**	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
RPD VP12_2.5									-106																		
VP12_3.8	27/02/2016	<1500	<5000	<2000	<2700	6300	<2700	<2700	4,000,000	<3400	<4300	<3400	<2500	<4200	<3100	<2500	<6700	<3400	<4200	<2500	<1600	<3100	<3100	<3100	<2700	<2300	<2600
VP12_3.8	5/09/2016	<62	<2000	4500	180	3000	430	110	2,000,000	<140	<170	<140	<99	<170	<120	<99	<270	<130	520	<99	<64	<120	<120	<120	<110	<90	<100
VP12_3.8	27/07/2018	<600	<200,000	<800	<1100	<950	<2150	<1100	8,010,000	<1350	<1700	<1350	<1000	<1700	<1200	<1000	<2650	<1250	<1700	<1000	<638	<1200	<1200	<1200	<1050	<900	<750
VP12_3.8	22/07/2019	-	<40,000	<100	<220	-	<430	<220	<20,000	<270	<340	<200	<200	<340	<240	<20	<170	<5	<340	<200	<5.1	<340	<240	<240	-	<180	<200
VP12_3.8	14/11/2019	-	111,000	<320	<440	-	<860	<440	5,110,000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	<480	<480	<480	-	<360	<400
VP12_3.8	14/04/2020	<300	216,000	<400	<220	-	<1080	<550	3,890,000	<675	<850	<675	<500	<850	<600	<500	<1320	<625	<850	<500	<319	<600	<600	<600	-	<450	<500
VP12_3.8	28/04/2021	<240	84,200	<320	<440	<380	<860	<440	2630000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	<480	<480	<480	<420	<360	<400
VP12_3.8	13/05/2022	<120	**50,400**	<160	<220	<190	<430	<220	**2,070000**	<270	<340	<270	<200	<340	<240	<200	<530	<270	<340	<200	<128	<240	<240	<240	<210	<180	<200
RPD VP12_3.8			-50						-24																		
VP12_6.0	24/10/2019	-	<200,000	<800	<1100	<950	<2150	<1100	3,080,000	<1350	<1700	<1350	<1000	<1700	<1200	<1000	<2650	<1250	<1700	<1000	<638	<1200	<1200	<1200	<1050	<900	<1000
VP12_6.0	14/04/2020	<240	156,000	<400	<440	-	<1080	<440	3,460,000	<540	<680	<540	<400	<680	<480	<480	<1060	<500	<680	<400	<255	<480	<480	<480	-	<360	<400
VP12_6.0	28/04/2021	<240	177,000	<320	<440	<380	<860	<440	3,240,000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	<480	<480	<480	<420	<360	<400
VP12_6.0	13/05/2022	<120	**209,000**	<160	<220	<190	<430	<220	**1,950000**	<270	<340	<270	<200	<340	<240	<200	<530	<270	<340	<200	<128	<240	<240	<240	<210	<180	<200
RPD VP12_6.0			17						-50																		
VP27_3.0	11/05/2017	<6200	<200,000	<8000	<11,000	<9400	26,000	<11,000	4,300,000	<14,000	<18,000	<14,000	<9900	<17,000	<12,000	<9900	<27,000	<13,000	<17,000	<9900	<6400	18,000	<12,000	<12,000	<11,000	<9000	18000
VP27_3.0	7/06/2017	<620	270000	<800	2300	<940	41,000	<1100	12,000,000	<1400	<1700	<1400	<990	<1700	<1200	<990	<2700	<1300	4100	<990	<640	37,000	24,000	12,000	<1100	<900	<1000
VP27_3.0	9/02/2018	<3100	<10,000	<400	1000	-	6900	<540	7,600,000	<680	<860	<680	<500	<840	<610	<500	<1300	<670	<850	<500	<320	5600	2300	1300	-	<450	<510
VP27_3.0	9/04/2018	<31,000	<100,000	23,000	210,000	-	360,000	9600	50,000	<6800	<8600	<6800	<5000	<8400	<6100	<5000	<13,000	<4000	<8500	<5000	<1900	31,000	12,000	10,000	-	<4500	<5100
VP27_3.0	26/07/2018	<240	<80,000	<320	<440	<380	<860	<440	2,820,000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	<480	<480	<480	<420	<360	<300
VP27_3.0	23/10/2018	<266	63000	<9	<12	<10	2400	<12	960,000	<15	<19	<15	250	<18	<13	<11	<116	<15	<18	<11	<7	2600	2100	570	<12	<39	<44
VP27_3.0	23/04/2019	<240	231,000	<320	<440	<380	3350	<440	3,270,000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	3410	1470	811	<420	<360	<400
VP27_3.0	24/10/2019	-	<80,000	<320	<440	<380	<860	<440	2,300,000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	<480	<480	<480	-	<360	<400
VP27_3.0	14/04/2020	<120	<40,000	<100	<220	-	<430	<220	175,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	<240	<240	<240	-	<180	<200
VP27_3.0	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	32,700	<270	<340	<270	<200	<340	<240	<20	<530	<12.5	<340	<200	<6.4	<240	<240	<240	<210	<180	<200
VP27_3.0	16/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
RPD VP27_3.0																											
VP27_6.0	7/06/2017	<620	550,000	<800	2300	<940	4700	<1100	15,000,000	<1400	<1700	<1400	<990	<1700	<1200	<990	<2700	<1300	4000	<990	<640	<1200	<1200	<1200	<1100	<900	<1000
VP27_6.0	9/02/2018	<3100	150,000	<400	700	-	1100	<540	8,700,000	<680	<860	<680	<500	<840	<610	<500	<1300	<670	<850	<500	<320	620	<610	770	-	<450	<510
VP27_6.0	9/04/2018	<1500	320,000	<200	<270	-	<540	<270	5,400,000	<340	<430	<340	<250	<420	<310	<250	<670	<200	<420	<250	<96	<310	<310	820	-	<230	<260
VP27_6.0	26/07/2018	<1200	279,000	<1600	<2200	<1900	<4300	<2200	10,100,000	<2700	<3400	<2700	<2000	<3400	<2400	<2000	<5300	<2500	<3400	<2000	<1280	<2400	<2400	<2400	<2100	<1800	<1500
VP27_6.0	23/10/2018	<270	350,000	<9	320	<10	260	<12	1,670,000	<15	<19	<15	<11	<18	<13	<11	<117	<15	<19	<11	<7	65	73	270	<12	<40	<45
VP27_6.0	23/04/2019	<600	480,000	<800	<1100	<950	<2150	<1100	5,070,000	<1350	<1700	<1350	<1000	<1700	<1200	<1000	<2650	<1250	<1700	<1000	<638	<1200	<1200	<1200	<1050	<900	<1000
VP27_6.0	24/10/2019	-	371,000	<800	<1100	<950	<2150	<1100	5,800,000	<1350	<1700	<1350	<1000	<1700	<1200	<1000	<2650	<1250	<1700	<1000	<638	<1200	<1200	<1200	<1050	<900	<1000
VP27_6.0	14/04/2020	<480	502,000	<640	<880	-	<1720	<880	6,130,000	<1080	<1360	<1080	<800	<1360	<960	<800	<2120	<1000	<1360	<800	<510	<960	<960	<960	-	<720	<800
VP27_6.0	28/04/2021	<240	478,000	<320	<440	<380	<860	<440	4900000	<540	<680	<540	<400	<680	<480	<400	<1060	<500	<680	<400	<255	<480	<480	<480	<420	<360	<400
VP27_6.0	16/05/2022	<120	**478,000**	<160	<220	<190	<430	<220	**2,980000**	<270	<340	<270	<200	<340	<240	<200	<530	<270	<340	<200	<128	<240	<240	<240	<210	<180	<200
RPD VP27_6.0			0						-49																		
VP28_3.0	11/05/2017	90	<40	<1.6	<2.2	<1.9	<4.3	<2.2	<200	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<2.7	<3.4	<2	<1.3	<2.5	<2.5	<2.5	<2.1	<1.8	6
VP28_3.0	9/02/2018	90	250	<1.6	<2.2	-	<4.3	<2.2	350	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<2.7	<3.4	<2	<1.3	3	<2.5	<2.5	-	<1.8	<2
VP28_3.0	9/04/2018	30	100	<1.6	<2.2	-	<4.3	<2.2	9100	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<1.6	<3.4	<2	<0.8	<2.5	<2.5	<2.5	-	<1.8	<2
VP28_3.0	23/04/2019	-	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP28_3.0	Oct 2019 (Water Ingress - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP28_3.0	14/04/2020	<120	<40 000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP28_3.0	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP28_3.0	13/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP28_3.0																											
VP30_3.0	12/05/2017	<1.2	<40	<1.6	<2.2	<1.9	<4.3	<2.2	<200	<2.7	<3.4	<2.7	<2	<3.4	10	<2	<5.3	<2.7	<3.4	<2	<1.3	<2.5	<2.5	<2.5	<2.1	<1.8	<2
VP30_3.0	9/02/2018	10	180	<1.6	<2.2	-	<4.3	<2.2	<200	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<2.7	<3.4	<2	<1.3	<2.5	<2.5	<2.5	-	<1.8	<2
VP30_3.0	9/04/2018	80	100	<1.6	<2.2	-	<4.3	<2.2	<200	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<1.6	<3.4	<2	<0.8	<2.5	<2.5	<2.5	-	<1.8	<2
VP30_3.0	27/07/2018	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<150
VP30_3.0	23/10/2018	<132	<150	<4	<6	<7.5	<6	<6	<150	<7	<9	<7	<5	<9	<7	<5	<57	<7	<9	<5	<3	<7	<7	<7	<6	<19	<22
VP30_3.0	24/04/2019	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP30_3.0	24/10/2019	-	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP30_3.0	14/04/2020	<120	<40000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP30_3.0	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP30_3.0	17/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
RPD VP30_3.0 (October 2019-April 2020)																											
VP31_3.0	12/05/2017	370	130	<1.6	2	<1.9	6	<2.2	<200	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<2.7	<3.4	<2	<1.3	<2.5	<2.5	<2.5	<2.1	<1.8	<2
VP31_3.0	9/02/2018	60	280	95	26	-	89	40	250	<2.7	<3.4	<2.7	<2	20	79	<2	<5.3	<2.7	4	<2	<1.3	100	20	20	-	<1.8	2
VP31_3.0	27/07/2018	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<150
VP31_3.0	23/10/2018	<128	<150	<4	700	<7.5	340	140	<150	<7	<9	<7	<5	170	360	<5	<56	<7	<9	<5	<3	15	<6	<6	<6	<19	<21
VP31_3.0	24/04/2019	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP31_3.0	24/10/2019	-	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP31_3.0	14/04/2020	<120	<40000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP31_3.0	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP31_3.0	17/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200

			TPH	BTEX					TRH	Chlorinated Hydrocarbons												MAH				Solvents	
		2-Propanol	F2-NAPHTHALENE	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	C6-C10 less BTEX (F1)	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	Bromodichloromethane	Chloroform	cis-1,2-dichloroethene	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1-methyl-4 ethyl benzene	Styrene	1,4-Dioxane	2-hexanone (MBK)
		µg/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
Trigger Level Offsite - RPD >50% (increase in concentration)																											
Field ID	Sampled																										
RPD VP31 3.0																											
VP32_3.0	12/05/2017	<620	<20,000	<800	<1100	<940	1700	<1100	700,000	<1400	<1800	<1400	<990	<1700	<1200	<990	<2700	<1300	<1700	<990	<640	<1200	<1200	<1200	<1100	<900	<1000
VP32_3.0	9/02/2018	<50	680	<6	<9	-	<17	<9	96,000	<11	<14	<11	<8	<13	<10	<8	<21	<11	<13	<8	<5	<10	<10	<10	-	<7	<8
VP32_3.0	9/04/2018	60	1400	2	8	-	30	<2.2	73,000	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<1.6	<3.4	<2	<0.8	7	3	3	-	<1.8	<2
VP32_3.0	27/07/2018	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<150
VP32_3.0	23/10/2018	<126	<150	59	<6	72	13	<6	5400	<7	<9	<7	<5	<9	62	<5	<55	<7	<9	<5	<3	<6	<6	<6	<5	<18	<21
VP32_3.0	24/04/2019	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP32_3.0	24/10/2019	-	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP32_3.0	14/04/2020	<120	<40000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP32_3.0	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP32_3.0	17/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
RPD VP32 3.0																											
VP41_3.0	26/05/2017	<60	42,000	300	3400	<90	1500	320	160,000	<140	<170	<140	<100	<170	<120	<100	<270	<130	<170	<100	<60	450	3700	3000	<110	<90	<100
VP41_3.0	9/02/2018	10	950	10	240	-	150	3	23,000	<2.7	<3.4	<2.7	<2	<3.4	<2.4	<2	<5.3	<2.7	<3.4	<2	<1.3	25	37	47	-	<1.8	<2
VP41_3.0	9/04/2018	<600	13,000	250	9600	-	13,000	180	210,000	<140	<170	<140	<100	<170	<120	<100	<270	<80	<170	<100	<40	4500	1500	570	-	<90	<100
VP41_3.0 (Replacement)	24/10/2019	-	65,800	<100	625	-	<430	<220	251,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<12.8	<240	<240	<240	<210	<180	<200
VP41_3.0	14/04/2020	<120	196000	<100	<220	-	<430	<220	527000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	<240	<240	<240	-	<180	<200
VP41_3.0	28/04/2021	<120	116000	<100	<220	<190	<430	<220	340000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	<240	<240	<240	<210	<180	<200
VP41_3.0	16/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
RPD VP41 3.0																											
VP41_6.0	9/02/2018	<100	31,000	220	1100	-	580	<18	520,000	<23	<29	<23	24	<28	<20	<17	<44	<22	<28	<17	<11	380	120	130	-	<15	<17
VP41_6.0	9/04/2018	<31,000	490,000	270,000	3,300,000	-	5,500,000	88,000	6,900,000	<6800	<8600	<6800	<5000	<8400	<6100	<5000	<13,000	<4000	<8500	<5000	<1900	410,000	150,000	140,000	-	<4500	<5100
VP41_6.0	27/07/2018	<120	204,000	240	<220	<190	<430	<220	564,000	<270	<340	<270	<200	<340	<240	<40	<530	<50	<340	<200	<25.5	<240	<240	<240	<210	<180	<150
VP41_6.0	23/10/2018	<134	76,000	140	38	<7.5	48	<6	250,000	<7	<9	<7	<5	<9	<7	<5	<58	<7	<9	<5	<3	12	9.6	25	<6	<20	<22
VP41_6.0	24/04/2019	<120	<40,000	<100	<220	<190	<430	<220	91,600	<270	<340	<270	<200	<340	<240	<40	<530	<50	<340	<200	<25.5	<240	<240	<240	<210	<180	<200
VP41_6.0	24/10/2019	-	<40,000	<100	<220	<190	<430	<220	122,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<12.8	<240	<240	<240	<210	<180	<200
VP41_6.0	14/04/2020	<120	40,900	<100	<220	-	<430	<220	197,000	<270	<340	<270	<200	<340	<240	<20	<530	<12.5	<340	<200	<12.8	<240	<240	<240	-	<180	<200
VP41_6.0	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	133,000	<270	<340	<270	<200	<340	<240	<20	<530	<12.5	<340	<200	<6.4	<240	<240	<240	<210	<180	<200
VP41_6.0	16/05/2022	<120	**86,500**	<100	<220	<190	<430	<220	**158000**	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
RPD VP41 6.0			72						17																		
VP42_4.5	1/06/2017	<60	22,000	7100	8700	<570	76,000	10,000	430,000	<140	<170	<140	<100	<170	<120	<100	<270	<130	<170	<100	<60	4800	20,000	6200	<110	<90	<100
VP42_4.5	27/07/2018	<120	<40,000	173	555	<190	4140	<220	198,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	<240	<240	<240	<210	<180	<150
VP42_4.5	24/10/2018	<130	580	43	650	<7.5	890	45	19,000	<7	<9	<7	<5	<9	<6	<5	<56	<7	<9	<5	<3	25	110	90	<6	<19	<22
VP42_4.5	24/04/2019	<120	<40,000	<160	<220	<190	469	<220	21,900	<270	<340	<270	<200	<340	<240	<200	<530	<250	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP42_4.5	24/10/2019	-	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP42_4.5	14/04/2020	<120	<40,000	<100	<220	-	<430	<220	28,400	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP42_4.5	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP42_4.5	13/05/2022 (no sample)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD VP42 4.5																											
VP42_6.0	1/06/2017	64,000	300,000	98,000	1,800,000	<3800	5,700,000	45,000	4,000,000	<2300	<2900	<2300	<1700	<2800	<2000	<1700	<5800	<2200	<2800	<1700	<1100	230,000	100,000	100,000	<1800	14,000	140,000
VP42_6.0	9/02/2018	<31,000	220,000	660,000	2,400,000	-	4,100,000	120,000	7,000,000	<6800	<8600	<6800	<5000	<8400	<6100	<5000	<13,000	<6700	<8500	<5000	<3200	340,000	130,000	110,000	-	<4500	<5100
VP42_6.0	9/04/2018	<31,000	<100,000	1,000,000	150,000	-	390,000	100,000	6,000,000	<6800	<8600	<6800	<5000	<8400	<6100	<5000	<13,000	<4000	<8500	<5000	<1900	27,000	11,000	14,000	-	<4500	<5100
VP42_6.0	27/07/2018	<480	476,000	138,000	2,260,000	2180	4,770,000	61,600	721,000	<1080	<1360	<1080	<800	<1360	<960	<800	<2120	<1000	<1360	<800	<510	476,000	163,000	125,000	<840	<720	<600
VP42_6.0	23/10/2018	<27,030	560,000	150,000	980,000	<1036	2,430,000	32,000	400,000	<1501	<1888	<1501	<1090	<1843	<1343	<1090	<11,730	<1478	<1865	<1090	<703	370,000	140,000	94,000	<1171	<3964	<4506
VP42_6.0	24/04/2019	<120	321,000	67,400	52,900	270	220,000	1200	802,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<128	146,000	58,000	10,700	<210	<180	<200
VP42_6.0	Oct 2019 (Water Ingress - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP42_6.0	14/04/2020	<120	59,200	597	5,250	-	37,000	646	290,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	6,830	2,450	1,710	-	<180	<200
VP42_6.0	28/04/2021	<120	63,400	104	4,050	<190	15,600	<220	209,000	<270	<340	<270	<200	<340	<240	<20	<530	<12.5	<340	<200	<6.4	2810	796	540	<210	<180	<200
VP42_6.0	13/05/2022	<120	<40,000	<100	**698**	<190	**2,860**	<220	**55,500**	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	**678**	<240	<240	<210	<180	<200
VP42_6.0					-141		-138		-116													-122					
VP43_3.0	26/05/2017	<10	4100	290	3800	76	1500	<18	80,000	<23	<29	<23	24	<28	<20	<17	<44	<22	<28	<17	<11	2000	750	290	<18	<15	<17
VP43_3.0	9/02/2018	<340	14,000	900	18,000	-	5300	<61	510,000	<76	<96	<76	<56	<94	<68	<56	<149	<75	<95	<56	<36	17,000	3900	1600	-	<50	<57
VP43_3.0	9/04/2018	<600	33,000	1500	21,000	-	6000	<110	430,000	<140	<170	<140	<100	<170	<120	<100	<270	<80	<170	<100	<40	17,000	3300	1700	-	<90	<100
VP43_3.0	26/07/2018	<120	97,600	690	17,600	<190	5990	<220	604,000	<270	<340	<270	<200	<340	<240	<40	<530	<50	<340	<200	<25.5	23,700	6930	1400	<210	<180	<150
VP43_3.0	23/10/2018	<517	27,000	610	7500	<20	1900	<23	260,000	<29	<36	<29	<21	<35	<26	<21	<224	<28	<36	<21	<13	5,900	1000	650	<22	<76	<86
VP43_3.0	23/04/2019	<120	<40,000	303	3020	<190	946	<220	191,000	<270	<340	<270	<200	<340	<240	<40	<530	<50	<340	<200	<25.5	4,590	752	341	<210	<180	<200
VP43_3.0	23/10/2019	-	41,300	415	3920	<190	1050	<220	358,000	<270	<340	<270	<200	<340	<240	<40	<530	<50	<340	<200	<25.5	5,060	801	420	<210	<180	<200
VP43_3.0	14/04/2020	<120	54,500	276	2,240	-	772	<220	304,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	5,160	712	311	-	<180	<200
VP43_3.0	28/04/2021	146	62,500	200	1,260	<190	616	<220	326,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	4,480	604	<240	<210	<180	<200
VP43_3.0	16/05/2022	<120	**192,000**	**155**	**270**	<190	<430	<220	**284,000**	<270	<340	<270	<200	<340	<240	<20.0	<530	<10.8	<340	<200	<5.1	**658**	<240	<240	<210	<180	<200
RPD VP43 3.0			102	-25	-129				-14													-149					
VP43_6.0	26/05/2017	<620	710,000	8900	580,000	<940	130,000	<1100	1,800,000	<1400	<1700	<1400	<990	<1700	<1200	<990	<2700	<1300	<1700	<990	<640	400,000	92,000	53,000	<1100	<900	<1000
VP43_6.0	9/02/2018	<600	78,000	2500	110,000	-	30,000	<110	680,000	<140	<170	<140	<100	<170	<120	<100	<270	<130	<170	<100	<60	120,000	28,000	12,000	-	<90	<100
VP43_6.0	9/04/2018	<1500	330,000	4200	160,000	-	41,000	<270	620,000	<340	<430	<340	<250	<420	<310	<250	<670	<200	<420	<250	<96	160,000	31,000	17,000	-	<230	<260
VP43_6.0	26/07/2018	<120	295,000	1860	67,200	<190	19,800	<220	872,000	<270	<340	<270	<200	<340	<240	<80	<530	<100	<340	<200	<51	76,200	20,500	10,800	<210	<180	<150
VP43_6.0	23/10/2018	<515	180,000	1200	33,000	<20	10,000	<23	340,000	<29	<36	<29	<21	<35	<26	<21	<224	<28	<36	<21	<13	40,000	12,000	6100	<22	<76	<86
VP43_6.0	23/04/2019	<120	334,000	1170	37400	<190	10,200	<220	557,000	<270	<340	<270	<200	<340	<240	<40	<530	<50	<340	<200	<25.5	59,000	15,200	8500	<210	<180	<200
VP43_6.0	23/10/2019	-	262,000	619	20600	<190	4,470	<220	525,000	<270	<340	<270	<200	<340	<240	<40	<530	<50	<340	<200	<25.5	43,500	9,240	4740	<210	<180	<200
VP43_6.0	14/04/2020	<120	235,000	246	7,290	-	2,230	<220	404,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	15,800	5,600	2620	-	<180	<200
VP43_6.0	28/04/2021	<120	136,000	<100	<220	<190	469	<220	298,000	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	<12.8	5,360	1,820	501	<210	<180	<200
VP43_6.0	16/05/2022	<120	<40,000	<100	<220	<190	<430	<220	**151,000**	<270	<340	<270	<200	<340	<240	<20.0	<530	<10.8	<340	<200	<5.1	**447**	<240	<240	<210	<180	<200
RPD VP43_6.0									-65													-169					

			TPH	BTEX					TRH	Chlorinated Hydrocarbons												MAH				Solvents	
		2-Propanol	F2-NAPHTHALENE	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	C6-C10 less BTEX (F1)	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	Bromodichloromethane	Chloroform	cis-1,2-dichloroethene	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1-methyl-4 ethyl benzene	Styrene	1,4-Dioxane	2-hexanone (MBK)
		µg/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
Trigger Level Offsite - RPD >50% (increase in concentration)																											
Field ID	Sampled																										
Soil Vapour Trigger Levels - Onsite				256,000	4,640,000		41,630,000	41,630,000	9,900,000	11,200	14,400	11,200	7920	13,600	9600	7200	21,600	10,400	13,600	7920	5120	1,184,000	5,120,000	1,600,000		25,600	208,000
VP45_3.7	24/10/2019	-	<40,000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	44	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP45_3.7	15/04/2020	-	<40000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	43.6	<530	<10	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP45_3.7	Aprill 2021 no sample	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP45_3.7	16/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20.0	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP45A_2.3	29/06/2021	-	<40,000	<100	<220	-	<430	<220	26,300	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP46_3.7	15/04/2020	-	145,000	<100	<220	-	<430	<220	48,900	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP46A_2.4	29/06/2021	-	<40,000	<100	<220	-	<430	<220	38,600	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP47_3.7	April 2020 (Water Ingress / Blocked - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP47A_2.4	June 2021 (Water Ingress - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP48_3.7	Oct 2019 (Water Ingress - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP48_3.7	April 2020 (Water Ingress - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP48_3.7	April 2021 (Water Ingress - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP49_3.7	24/10/2019	-	<40,000	<100	<220	-	594	276	65,300	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	13.5	<240	<240	<240	-	<180	<200
VP49_3.7	15/04/2020	<120	<40000	<100	<220	-	<430	<220	70,800	<270	<340	<270	<200	<340	<240	<20	<530	<25	<340	<200	7.4	288	240	<240	-	<180	<200
VP49_3.7	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	85200	<270	<340	<270	<200	<340	<240	<20	<530	<12.5	<340	<200	8.4	311	<240	<240	<210	<180	<200
VP49_3.7	16/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP50_3.7	24/10/2019	-	<40,000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP50_3.7	15/04/2020	<120	<40000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP50_3.7	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP50_3.7	16/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP51_3.7	4/02/2020	-	<40,000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP51_3.7	15/04/2020	<120	<40000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP51_3.7	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP51_3.7	16/05/2022	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20.0	<530	<5.4	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP52_3.7	4/02/2020	-	<40,000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP52_3.7	15/04/2020	<120	<40000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	5.9	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP52_3.7	28/04/2021	<120	<40,000	<100	<220	<190	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	7	<340	<200	<5.1	<240	<240	<240	<210	<180	<200
VP53_3.7	4/02/2020	-	<40,000	<100	<220	-	<430	<220	<20,000	<270	<340	<270	<200	<340	<240	<20	<530	<5	<340	<200	<5.1	<240	<240	<240	-	<180	<200
VP53_3.7	April 2020 (Water Ingress / Blocked - Not Sampled)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP53_3.7	April 2021 no sample	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Field ID	VP42_6.0	QV01		VP27_3.0	QV03	
			Matrix Type	Air	Air		Air	Air	
			Date	13/05/2022	13/05/2022		16/05/2022	16/05/2022	
			Lab Report Number	EN2204789	EN2204789	RPD	EN2204789	890304	RPD
	Unit	EQL							
BTEX									
Benzene	ppmv			<0.0300	<0.0300	0	<0.0300		
	µg/m3	1.6		<100	<100	0	<100	<5	0
Ethylbenzene	ppmv			0.161	0.155	4	<0.0500		
	µg/m3	2.2		698	672	4	<220	<7	0
Toluene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	7.5		<190	<190	0	<190	19	0
Xylene (m & p)	ppmv			0.659	0.630	4	<0.100		
	µg/m3	430		2,860	2,730	5	<430		
Xylene (o)	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.2		<220	<220	0	<220	<7	0
Xylene Total	µg/m3	6.6		2,860	2,730	5	<650	<21	0
Chlorinated Hydrocarbons									
1,1,1-trichloroethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.7		<270	<270	0	<270	<9	0
1,1,2,2-tetrachloroethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.4		<340	<340	0	<340	<11	0
1,1,2-trichloroethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.7		<270	<270	0	<270	<9	0
1,1-dichloroethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2		<200	<200	0	<200	100	0
1,1-dichloroethene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2		<200	<200	0	<200	<6	0
1,2-dichloroethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2		<200	<200	0	<200	<6	0
1,2-dichloropropane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.3		<230	<230	0	<230	<7	0
Benzyl chloride	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.6		<260	<260	0	<260	<8	0
Bromodichloromethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.4		<340	<340	0	<340	<11	0
Bromoform	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	5.2		<520	<520	0	<520	<16	0
Carbon tetrachloride	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.1		<310	<310	0	<310	<10	0
Chlorodibromomethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	4.3		<430	<430	0	<430	<13	0
Chloroethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	5.3		<130	<130	0	<130	<17	0
Chloroform	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.4		<240	<240	0	<240	<8	0
Chloromethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	10.3		<100	<100	0	<100	<33	0
cis-1,2-dichloroethene	ppmv			<0.0050	<0.0050	0	<0.0050		
	µg/m3	2		<20.0	<20.0	0	<20.0	<6	0
cis-1,3-dichloropropene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.3		<230	<230	0	<230	<7	0
Dichloromethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	17.4		<170	<170	0	<170	<55	0
Hexachlorobutadiene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	21.3		<530	<530	0	<530	<67	0
Tetrachloroethene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.4		<340	<340	0	<340	<11	0
trans-1,2-dichloroethene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2		<200	<200	0	<200	<6	0
trans-1,3-dichloropropene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.3		<230	<230	0	<230	<7	0
Trichloroethene	ppmv			<0.0010	<0.0010	0	<0.0010		
	µg/m3	2.7		<5.4	<5.4	0	<5.4	<8	0
Vinyl chloride	ppmv			<0.0020	<0.0020	0	<0.0020		
Vinyl chloride	µg/m3	2.5		<5.1	<5.1	0	<5.1	<4	0
Halogenated Benzenes									
1,2,4-trichlorobenzene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	15		<370	<370	0	<370	<47	0
1,2-dichlorobenzene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3		<300	<300	0	<300	<10	0
1,3-dichlorobenzene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3		<300	<300	0	<300	<10	0
1,4-dichlorobenzene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3		<300	<300	0	<300	<10	0
Chlorobenzene	ppmv			<0.0500	<0.0500	0	<0.0500		
Chlorobenzene	µg/m3	2.3		<230	<230	0	<230	<7	0
Halogenated Hydrocarbons									
1,2-dibromoethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.6		<380	<380	0	<380	<11	0
Bromomethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	19.4		<190	<190	0	<190	<61	0
Dichlorodifluoromethane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.5		<250	<250	0	<250	<8	0
Trichlorofluoromethane	ppmv			<0.0500	<0.0500	0	<0.0500		
Trichlorofluoromethane	µg/m3	2.8		<280	<280	0	<280	<9	0
Inorganics									
Nitrogen (Total)	MOL %							76	
Temperature as Received	°C	0.1		20.0	20.0	0	20.0		
MAH									
1,2,4-trimethylbenzene	ppmv			0.138	0.126	9	<0.0500		
	µg/m3	2.5		678	619	9	<240	<8	0
1,3,5-trimethylbenzene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.5		<240	<240	0	<240	<8	0
1-methyl-4 ethyl benzene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.5		<240	<240	0	<240	<8	0
Styrene	ppmv			<0.0500	<0.0500	0	<0.0500		
Styrene	µg/m3	2.1		<210	<210	0	<210	<7	0
NA									
1, 2-Propadiene	%	0.01						<0.03	
1-Pentene	MOL %							<0.03	
2,2,4-Trimethylpentane	ppmv			0.301	0.300	0	<0.0500		
	µg/m3	9.3		1,400	1,400	0	<230	<29	0
2-Methylbutane	MOL %							<0.03	
2-Methylpropane	MOL %							<0.09	
Acetylene	%	0.01						<0.03	
Butane	MOL %							<0.09	

			Field ID	VP42_6.0	QV01		VP27_3.0	QV03	
			Matrix Type	Air	Air		Air	Air	
			Date	13/05/2022	13/05/2022		16/05/2022	16/05/2022	
			Lab Report Number	EN2204789	EN2204789	RPD	EN2204789	890304	RPD
	Unit	EQL							
cis-2-Pentene	MOL %							<0.03	
Freon 114	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.5		<350	<350	0	<350	<11	0
i-butylene	%	0.03						<0.09	
m.p-Xylene	UG/M3	4.4						<14	
Methyl Acetylene	MOL %	0.01						<0.03	
Propane	MOL %							<0.06	
Propene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	8.6		<90.0	<90.0	0	<90.0	<11	0
	MOL %							<0.03	
trans-2-Pentene	MOL %							<0.03	
Organic									
Ethane	MOL %							<0.13	
Ethene	MOL %							<0.06	
Methane	MOL %							<0.16	
Other									
Carbon Dioxide	MOL %							9.9	
Carbon Monoxide	MOL %							<0.06	
Helium	MOL %							<0.16	
Hydrogen	MOL %							<0.09	
Oxygen	MOL %							14	
PAH									
Naphthalene	ppmv			<0.0190	<0.0190	0	<0.0190		
Naphthalene	µg/m3	10.5		<100	<100	0	<100	<34	0
Pressure									
Pressure - As received	kPa	0.1		54.0	54.1	0	67.8		
Pressure - Laboratory Atmosphere	kPa	0.1		100	100	0	100		
Vacuum - As received	Inches Hg	0.03		13.7	13.6	1	9.63		
Solvents									
1,3-Butadiene	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.2		<110	<110	0	<110	<4	0
	MOL %							<0.09	
1,4-Dioxane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	7.2		<180	<180	0	<180	<23	0
2-hexanone (MBK)	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	8.2		<200	<200	0	<200	<26	0
2-Propanol	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	50		<120	<120	0	<120	<155	0
4-Methyl-2-pentanone	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.1		<200	<200	0	<200	<6	0
Acetone	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	16.6		<120	<120	0	<120	<38	0
Allyl chloride	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	1.6		<160	<160	0	<160	<20	0
Carbon disulfide	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	15.6		<160	<160	0	<160	<20	0
Cyclohexane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.5		<170	<170	0	<170	<5	0
Ethanol	µg/m3	9.4						<12	
Ethyl acetate	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	180		<180	<180	0	<180		
Heptane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	2.1		<200	<200	0	<200	<6	0
Hexane	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	5		<180	<180	0	<180	<6	0
Methyl Ethyl Ketone	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	5.9		<150	<150	0	<150	<19	0
MTBE	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	7.2		<180	<180	0	<180	<23	0
Pentane	MOL %							<0.03	
Tetrahydrofuran	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	1.5		<150	<150	0	<150	<5	0
Vinyl acetate	ppmv			<0.0500	<0.0500	0	<0.0500		
Vinyl acetate	µg/m3	7		<180	<180	0	<180	<22	0
TPH									
C10-C12 Fraction	µg/m3	100						<160	
C10-C14 Fraction	ppmv			<5.00	<5.00	0	<5.00		
	µg/m3	35,000		<35,000	<35,000	0	<35,000		
C6-C9 Fraction	ppmv			16.4	16.4	0	<5.00		
C6-C9 Fraction	µg/m3	20,000		67,000	67,000	0	<20,000		
TRH									
>C10-C16 Fraction (F2 minus	ppmv			<5.00	<5.00	0	<5.00		
Naphthalene)	µg/m3	100		<40,000	<40,000	0	<40,000	<160	0
>C10-C16 Fraction (F2)	ppmv			<5.00	<5.00	0	<5.00		
	µg/m3	40,000		<40,000	<40,000	0	<40,000		
C6-C10 (F1 minus BTEX)	ppmv			13.6	13.7	1	<5.00		
	mg/m3	0.1		55.5	55.7	0	<20.0	<0.16	0
C6-C10 Fraction (F1)	ppmv			14.5	14.5	0	<5.00		
C6-C10 Fraction (F1)	mg/m3	0.1		59.3	59.3	0	<20.0	<0.16	0
VOCs									
1-Butene	MOL %							<0.09	
2-methyl-2-butene	%	0.01						<0.03	
Freon 113	ppmv			<0.0500	<0.0500	0	<0.0500		
	µg/m3	3.8		<380	<380	0	<380	<12	0
trans-2-Butene	MOL %							<0.09	
Vinyl bromide (bromoethene)	ppmv			<0.0500	<0.0500	0	<0.0500		
Vinyl bromide (bromoethene)	µg/m3	220		<220	<220	0	<220		

		VP27_6.0	QV04		VP49_3.7	QV02	
		Air	Air		Air	Air	
		16/05/2022	16/05/2022		16/05/2022	16/05/2022	
		EN2204789	890304	RPD	EN2204789	EN2204789	RPD
	Unit						
BTEX							
Benzene	ppmv	<0.0500			<0.0300	<0.0300	0
	µg/m3	<160	59	0	<100	<100	0
Ethylbenzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<220	<10	0	<220	<220	0
Toluene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<190	<9	0	<190	<190	0
Xylene (m & p)	ppmv	<0.100			<0.100	<0.100	0
	µg/m3	<430			<430	<430	0
Xylene (o)	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<220	<10	0	<220	<220	0
Xylene Total	µg/m3	<650	<30	0	<650	<650	0
Chlorinated Hydrocarbons							
1,1,1-trichloroethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<270	<12	0	<270	<270	0
1,1,2,2-tetrachloroethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<340	<16	0	<340	<340	0
1,1,2-trichloroethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<270	<12	0	<270	<270	0
1,1-dichloroethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<200	500	86	<200	<200	0
1,1-dichloroethene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<200	<9	0	<200	<200	0
1,2-dichloroethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<200	<9	0	<200	<200	0
1,2-dichloropropane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<230	<11	0	<230	<230	0
1,2-dichloropropane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<230	<11	0	<230	<230	0
Benzyl chloride	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<260	<12	0	<260	<260	0
Bromodichloromethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<340	<15	0	<340	<340	0
Bromoform	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<520	<24	0	<520	<520	0
Carbon tetrachloride	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<310	<14	0	<310	<310	0
Chlorodibromomethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<430	<20	0	<430	<430	0
Chloroethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<130	<24	0	<130	<130	0
Chloroform	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<240	<11	0	<240	<240	0
Chloromethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<100	<47	0	<100	<100	0
cis-1,2-dichloroethene	ppmv	<0.0500			<0.0050	<0.0050	0
	µg/m3	<200	<9	0	<20.0	<20.0	0
cis-1,3-dichloropropene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<230	<10	0	<230	<230	0
Dichloromethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<170	<80	0	<170	<170	0
Hexachlorobutadiene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<530	<98	0	<530	<530	0
Tetrachloroethene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<340	<16	0	<340	<340	0
trans-1,2-dichloroethene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<200	<9	0	<200	<200	0
trans-1,3-dichloropropene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<230	<10	0	<230	<230	0
Trichloroethene	ppmv	<0.0500			<0.0010	<0.0010	0
	µg/m3	<270	<12	0	<5.4	<5.4	0
Vinyl chloride	ppmv	<0.0500			<0.0020	<0.0020	0
Vinyl chloride	µg/m3	<128	<6	0	<5.1	<5.1	0
Halogenated Benzenes							
1,2,4-trichlorobenzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<370	<68	0	<370	<370	0
1,2-dichlorobenzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<300	<14	0	<300	<300	0
1,3-dichlorobenzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<300	<14	0	<300	<300	0
1,4-dichlorobenzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<300	<14	0	<300	<300	0
Chlorobenzene	ppmv	<0.0500			<0.0500	<0.0500	0
Chlorobenzene	µg/m3	<230	<11	0	<230	<230	0
Halogenated Hydrocarbons							
1,2-dibromoethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<380	<16	0	<380	<380	0
Bromomethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<190	<89	0	<190	<190	0
Dichlorodifluoromethane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<250	<11	0	<250	<250	0
Trichlorofluoromethane	ppmv	<0.0500			<0.0500	<0.0500	0
Trichlorofluoromethane	µg/m3	<280	<13	0	<280	<280	0
Inorganics							
Nitrogen (Total)	MOL %		68				
Temperature as Received	°C	20.0			20.0	20.0	0
MAH							
1,2,4-trimethylbenzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<240	25	0	<240	<240	0
1,3,5-trimethylbenzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<240	<11	0	<240	<240	0
1-methyl-4 ethyl benzene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<240	<11	0	<240	<240	0
Styrene	ppmv	<0.0500			<0.0500	<0.0500	0
Styrene	µg/m3	<210	<10	0	<210	<210	0
NA							
1, 2-Propadiene	%		<0.04				
1-Pentene	MOL %		<0.04				
2,2,4-Trimethylpentane	ppmv	14.1			0.113	0.114	1
	µg/m3	65,800	18,000	114	528	532	1
2-Methylbutane	MOL %		<0.04				
2-Methylpropane	MOL %		<0.11				
Acetylene	%		<0.04				
Butane	MOL %						

		VP27_6.0	QV04		VP49_3.7	QV02	
		Air	Air		Air	Air	
		16/05/2022	16/05/2022		16/05/2022	16/05/2022	
		EN2204789	890304	RPD	EN2204789	EN2204789	RPD
	Unit						
cis-2-Pentene	MOL %		<0.04				
Freon 114	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<350	<16	0	<350	<350	0
i-butylene	%		<0.11				
m.p-Xylene	UG/M3		<20				
Methyl Acetylene	MOL %		<0.04				
Propane	MOL %		<0.08				
Propene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<90.0	<16	0	<90.0	<90.0	0
	MOL %		<0.04				
trans-2-Pentene	MOL %		<0.04				
Organic							
Ethane	MOL %		<0.15				
Ethene	MOL %		<0.08				
Methane	MOL %		0.52				
Other							
Carbon Dioxide	MOL %		6.1				
Carbon Monoxide	MOL %		<0.08				
Helium	MOL %		3.1				
Hydrogen	MOL %		<0.11				
Oxygen	MOL %		22				
PAH							
Naphthalene	ppmv	<0.0500			<0.0190	<0.0190	0
Naphthalene	µg/m3	<260	<49	0	<100	<100	0
Pressure							
Pressure - As received	kPa	70.0			78.8	78.8	0
Pressure - Laboratory Atmosphere	kPa	100			100	100	0
Vacuum - As received	Inches Hg	8.98			6.38	6.35	0
Solvents							
1,3-Butadiene	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<110	<5	0	<110	<110	0
	MOL %		<0.11				
1,4-Dioxane	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<180	<33	0	<180	<180	0
2-hexanone (MBK)	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<200	<38	0	<200	<200	0
2-Propanol	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<120	<225	0	<120	<120	0
4-Methyl-2-pentanone	ppmv	1.07			<0.0500	<0.0500	0
	µg/m3	4,380	<9	199	<200	<200	0
Acetone	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<120	<54	0	<120	<120	0
Allyl chloride	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<160	<29	0	<160	<160	0
Carbon disulfide	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<160	<29	0	<160	<160	0
Cyclohexane	ppmv	2.03			<0.0500	<0.0500	0
	µg/m3	6,980	<8	200	<170	<170	0
Ethanol	µg/m3		<17				
Ethyl acetate	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<180			<180	<180	0
Heptane	ppmv	0.731			<0.0500	<0.0500	0
	µg/m3	2,990	2,000	40	<200	<200	0
Hexane	ppmv	2.96			<0.0500	<0.0500	0
	µg/m3	10,400	5,800	57	<180	<180	0
Methyl Ethyl Ketone	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<150	<27	0	<150	<150	0
MTBE	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<180	<33	0	<180	<180	0
Pentane	MOL %		<0.04				
Tetrahydrofuran	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<150	<7	0	<150	<150	0
Vinyl acetate	ppmv	<0.0500			<0.0500	<0.0500	0
Vinyl acetate	µg/m3	<180	<32	0	<180	<180	0
TPH							
C10-C12 Fraction	µg/m3		360,000				
C10-C14 Fraction	ppmv	98.3			<5.00	<5.00	0
	µg/m3	683,000			<35,000	<35,000	0
C6-C9 Fraction	ppmv	1,100			<5.00	<5.00	0
C6-C9 Fraction	µg/m3	4,500,000			<20,000	<20,000	0
TRH							
>C10-C16 Fraction (F2 minus	ppmv	63.5			<5.00	<5.00	0
Naphthalene)	µg/m3	478,000	360,000	28	<40,000	<40,000	0
>C10-C16 Fraction (F2)	ppmv	63.5			<5.00	<5.00	0
	µg/m3	478,000			<40,000	<40,000	0
C6-C10 (F1 minus BTEX)	ppmv	728			<5.00	<5.00	0
	mg/m3	2,980	2,770	7	<20.0	<20.0	0
C6-C10 Fraction (F1)	ppmv	728			<5.00	<5.00	0
C6-C10 Fraction (F1)	mg/m3	2,980	2,770	7	<20.0	<20.0	0
VOCs							
1-Butene	MOL %		<0.11				
2-methyl-2-butene	%		<0.04				
Freon 113	ppmv	<0.0500			<0.0500	<0.0500	0
	µg/m3	<380	<18	0	<380	<380	0
trans-2-Butene	MOL %		<0.11				
Vinyl bromide (bromoethene)	ppmv	<0.0500			<0.0500	<0.0500	0
Vinyl bromide (bromoethene)	µg/m3	<220			<220	<220	0

Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

Appendix A: Groundwater Sampling Field Records & Equipment Calibration Certificates

Groundwater Sampling Record

GREENCAP
Going Further in Managing Risk

				Well ID
Client:	Renewal SA	Job No:	J154748	MWS12_01A
Project:	Groundwater Sampling	Sampled by:	TF	
Location:	Tonsley EMP	Date:	19/5/22	

WELL DETAILS		SAMPLING EQUIPMENT		*Other Sampling Equipment / Method
Well depth:	15.361 (m)	Device:	micropurge peristaltic footvalve bailer	
Casing diameter:	(mm)	Method:	low-flow 4-well-volume purged dry	
Casing type:	(PVC) / steel / other	WQM Make:	YSI	
Depth to product	(m bTOC)	WL Meter:	interface non-interface	
Depth to water:	7.479 (m bTOC)	Screen (from - to), m		
Product thickness	(m)	Pump Depth (m bTOC)		

Field observations: eg. well condition, nearby activities, weather, vegetation, etc

Purging instructions:

Low Flow: Start purging and stabilise the water level at ~ 0.1m drawdown. Once water level stabilises start taking water quality readings. Readings are to be taken every 3 minutes or every flow-through-cell volume (whichever is greater). Purging finishes when the three consecutive readings are within the ranges below.

4-well volume The purging will continue until at least 4 well volumes and three consecutive readings are within the ranges below. Water quality readings are to be taken at half-well-volume apart.
Well volume: 50mm (2") diameter - 2 L/metre; 100mm (4") diameter - 8 L/metre; 150mm (6") diameter - 18 L/metre

Stabilisation Criteria (3 readings within ranges)		Drawdown stable <0.1m	± 0.2 °C	± 0.1 pH unit	± 5%	± 10mv	± 10%	Comment
Time	Cumulative Volume purged (L)	Water Level (m bTOC)	Temp °C	pH Units	Sp. Cond µS/cm / mS/cm	ORP mV	DO mg/L / ppm / %	Turbidity, Colour, Odour, Sheen, etc
8:46	1.0	7.621	20.9	7.28	617	113	5.68	L-M silt, no odour
8:52	2.0	"	20.9	7.26	622	120.8	5.49	" "
8:57	3.0	7.674	20.9	7.19	686	124.4	5.57	" "
9:03	4.0	"	21.0	6.99	961	124.1	3.68	" "
9:10	5.0	"	20.9	6.82	1434	16.0	2.82	" "
9:16	6.0	"	20.9	6.62	2990	13.5	2.37	" "
9:23	7.0	"	21.0	6.60	3833	27.3	3.07	" "
9:34	8.0	"	20.9	6.64	4229	43.7	2.81	" "
9:41	9.0	"	20.8	6.67	4591	56.1	2.47	" " Sampled

Observations during Sampling:- eg. odours, sheens, turbidity, water colour, etc

Container Volume (L)	No of containers	Preservative
Glass amber (100-250ml)		none
Glass vial (40mL)		HCl
Plastic (60mL) - **metals***		HNO3
Plastic (60mL) - cyanide, **CrVI***		NaOH
Plastic (60mL) - nutrients		H2SO4
Plastic (500mL) - inorganics		none
Plastic ( )		
Plastic ( )		

Duplicates

Duplicate ID QC01

Triplicate ID QC01A

Blanks

Rinsate ID

Other Comments

*samples for dissolved metals to be filtered in the field prior to filling sampling container

Groundwater Sampling Record

GREENCAP
Going Further in Managing Risk

Client: Renewal SA	Job No: J154749	**Well ID**
Project: Groundwater Sampling	Sampled by: TF	MWS15_28
Location: Tonsley EMP	Date: 20/5/22	

WELL DETAILS		SAMPLING EQUIPMENT					*Other Sampling Equipment / Method
Well depth: ~~14.977~~	(m)	Device:	*micropurge*	*peristaltic*	*footvalve*	*bailer*	
Casing diameter:	(mm)	Method:	*low-flow*	*4-well-volume*	*purged dry*		
Casing type: PVC / steel / other		WQM Make:					
Depth to product	(m bTOC)	WL Meter:	*interface*	*non-interface*			
Depth to water: ~~7.183~~	(m bTOC)	Screen (from - to), m	12.5				
Product thickness	(m)	Pump Depth (m bTOC)					

Field observations: eg. well condition, nearby activities, weather, vegetation, etc

Purging instructions:

Low Flow: Start purging and stabilise the water level at ~ 0.1m drawdown. Once water level stabilises start taking water quality readings. Readings are to be taken every 3 minutes or every flow-through-cell volume (whichever is greater). Purging finishes when the three consecutive readings are within the ranges below.

4-well volume The purging will continue until at least 4 well volumes and three consecutive readings are within the ranges below. Water quality readings are to be taken at half-well-volume apart.
Well volume: 50mm (2") diameter - 2 L/metre; 100mm (4") diameter - 8 L/metre; 150mm (6") diameter - 18 L/metre

Stabilisation Criteria (3 readings within ranges)		Drawdown stable <0.1m	± 0.2 °C	± 0.1 pH unit	± 5%	± 10mv	± 10%	Comment
Time	Cumulative Volume purged (L)	Water Level (m bTOC)	Temp °C	pH Units	Sp. Cond µS/cm / mS/cm	ORP mV	DO mg/L / ppm / %	*Turbidity, Colour, Odour, Sheen, etc*
8:13	1.0	6.110	18.5	6.94	5794	-89.3	5.25	Rotten egg smell sheen on water L Silt
8:17	2.0	6.431	18.7	6.90	5565	-57.0	5.71	sheen on water less odour L Silt
8:22	3.0	6.571	18.3	6.89	5487	-27.4	5.64	" "
8:29	4.0	"	17.9	6.86	5525	-7.9	5.30	" " stable at 2CPM
8:37	5.0	"	18.2	6.89	5433	-2.3	6.03	sheen on water no odour
8:44	6.0	"	18.2	6.87	5444	-1.7	5.68	" "
8:52	7.0	"	18.4	6.87	5473	-0.8	5.65	
9:00	8.0	"	18.6	6.84	5537	-0.5	5.45	"sampled"
	9.0							

Observations during Sampling:- eg. odours, sheens, turbidity, water colour, etc

Container Volume (L)	No of containers	Preservative
Glass amber (100-250ml)		none
Glass vial (40mL)		HCl
Plastic (60mL) - **metals***		HNO3
Plastic (60mL) - cyanide, **CrVI***		NaOH
Plastic (60mL) - nutrients		H2SO4
Plastic (500mL) - inorganics		none
Plastic ( )		
Plastic ( )		

Duplicates
Duplicate ID
Triplicate ID

Blanks
Rinsate ID

*samples for dissolved metals to be filtered in the field prior to filling sampling container

Other Comments

7.127 DEPTH TO STANDING WATER LEVEL

TOTAL 11.72

return 10.50

Groundwater Sampling Record

GREENCAP
Going Further in Managing Risk

Client: RSA	Job No: J17	**Well ID**
Project: Tonsley EMP	Sampled by: JM / DS	MWS16_14
Location:	Date: 19/5/22	

WELL DETAILS		SAMPLING EQUIPMENT					*Other Sampling Equipment / Method
Well depth: 11.72	(m)	Device:	(micropurge)	peristaltic	footvalve	bailer	
Casing diameter:	(mm)	Method:	low-flow	4-well-volume	purged dry		
Casing type: PVC / steel / other		WQM Make:					
Depth to product	(m bTOC)	WL Meter:	interface	non-interface			
Depth to water:	(m bTOC)	Screen (from - to), m					
Product thickness	(m)	Pump Depth (m bTOC)					

Field observations: eg. well condition, nearby activities, weather, vegetation, etc

Purging instructions:

Low Flow: Start purging and stabilise the water level at ~ 0.1m drawdown. Once water level stabilises start taking water quality readings. Readings are to be taken every 3 minutes or every flow-through-cell volume (whichever is greater). Purging finishes when the three consecutive readings are within the ranges below.

4-well volume The purging will continue until at least 4 well volumes and three consecutive readings are within the ranges below. Water quality readings are to be taken at half-well-volume apart.
Well volume: 50mm (2") diameter - 2 L/metre; 100mm (4") diameter - 8 L/metre; 150mm (6") diameter - 18 L/metre

Stabilisation Criteria (3 readings within ranges)		Drawdown stable <0.1m	± 0.2 °C	± 0.1 pH unit	± 5%	± 10mv	± 10%	Comment
Time	Cumulative Volume purged (L)	Water Level (m bTOC)	Temp °C	pH Units	Sp. Cond (µS/cm) / mS/cm	ORP mV	DO mg/L / ppm / %	*Turbidity, Colour, Odour, Sheen, etc*
7.30	—	7.127	—	—	—	—	—	
7.41	1	7.370	20.7	6.80	5080	-36.8	1.86	clear.
	2	7.370	20.6	6.82	4943	-50.1	1.97	
	3	7.370	20.7	6.83	4843	-66.4	1.89	
	4	7.370	20.6	6.84	4806	-77.0	1.96	
	5	7.370	20.7	6.84	4811	-75.0	1.15	
	6	7.370	20.8	6.84	4808	-75.1	1.06	
		Sampled @ 6L						

Observations during Sampling:- eg. odours, sheens, turbidity, water colour, etc

Container Volume (L)	No of containers	Preservative
Glass amber (100-250ml)		none
Glass vial (40mL)		HCl
Plastic (60mL) - **metals***		HNO3
Plastic (60mL) - cyanide, **CrVI***		NaOH
Plastic (60mL) - nutrients		H2SO4
Plastic (500mL) - inorganics		none
Plastic ( )		
Plastic ( )		

Duplicates
Duplicate ID
Triplicate ID
Blanks
Rinsate ID

*samples for dissolved metals to be filtered in the field prior to filling sampling container

Other Comments
Pump @ 10.5m

Groundwater Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	RSA	Job No:	517
Project:	TOWNSEY EMP	Sampled by:	JM/LO
Location:		Date:	19-5-22

Well ID: ASG-12-15

WELL DETAILS		SAMPLING EQUIPMENT					*Other Sampling Equipment / Method
Well depth:	15.95 (m)	Device:	micropurge	peristaltic	footvalve	bailer	
Casing diameter:	(mm)	Method:	low-flow	4-well-volume	purged dry		
Casing type:	PVC / steel / other	WQM Make:					
Depth to product	(m bTOC)	WL Meter:	interface	non-interface			
Depth to water:	(m bTOC)	Screen (from - to), m					
Product thickness	(m)	Pump Depth (m bTOC)					

Field observations: eg. well condition, nearby activities, weather, vegetation, etc

Purging instructions:

Low Flow: Start purging and stabilise the water level at ~ 0.1m drawdown. Once water level stabilises start taking water quality readings. Readings are to be taken every 3 minutes or every flow-through-cell volume (whichever is greater). Purging finishes when the three consecutive readings are within the ranges below.

4-well volume The purging will continue until at least 4 well volumes and three consecutive readings are within the ranges below. Water quality readings are to be taken at half-well-volume apart.
Well volume: 50mm (2") diameter - 2 L/metre; 100mm (4") diameter - 8 L/metre; 150mm (6") diameter - 18 L/metre

Stabilisation Criteria (3 readings within ranges)		Drawdown stable <0.1m	± 0.2 °C	± 0.1 pH unit	± 5%	± 10mv	± 10%	Comment
Time	Cumulative Volume purged (L)	Water Level (m bTOC)	Temp °C	pH Units	Sp. Cond µS/cm / mS/cm	ORP mV	DO mg/L / ppm / %	*Turbidity, Colour, Odour, Sheen, etc*
	1	9.10	20.8	6.67	9038	33.4	77.5	
	2	9.15	20.7	6.69	8697	31.6	50.9	
	3	9.15	20.7	6.71	8403	28.6	3.88	
	4	9.15	20.4	6.72	8144	33.3	42.1	
	5	9.15	20.6	6.73	8077	39.5	40.1	
	6	9.15	20.6	6.73	8036	43.1	3.34	
	7	9.15	20.6	6.73	8006	47.3	47.3	

Observations during Sampling:- eg. odours, sheens, turbidity, water colour, etc

Container Volume (L)	No of containers	Preservative
Glass amber (100-250ml)		none
Glass vial (40mL)		HCl
Plastic (60mL) - **metals***		HNO3
Plastic (60mL) - cyanide, **CrVI***		NaOH
Plastic (60mL) - nutrients		H2SO4
Plastic (500mL) - inorganics		none
Plastic ( )		
Plastic ( )		

Duplicates

Duplicate ID

Triplicate ID

Blanks

Rinsate ID

*samples for dissolved metals to be filtered in the field prior to filling sampling container

Other Comments

Groundwater Sampling Record

GREENCAP
Going Further in Managing Risk

Client: RSA	Job No: 517	**Well ID**
Project: TOWNSLEY TMP	Sampled by: SM/DS	
Location:	Date: 17-5-22	AGW-12-14

WELL DETAILS		SAMPLING EQUIPMENT					
Well depth: 1575 (m)		Device:	microperge	peristaltic	footvalve	bailer	*Other Sampling Equipment / Method
Casing diameter: (mm)		Method:	low-flow	4-well-volume	purged dry		
Casing type: PVC / steel / other		WQM Make:					
Depth to product (m bTOC)		WL Meter:	interface	non-interface			
Depth to water: (m bTOC)		Screen (from - to), m					
Product thickness (m)		Pump Depth (m bTOC)					

Field observations: eg. well condition, nearby activities, weather, vegetation, etc

Purging instructions:

Low Flow: Start purging and stabilise the water level at ~ 0.1m drawdown. Once water level stabilises start taking water quality readings. Readings are to be taken every 3 minutes or every flow-through-cell volume (whichever is greater). Purging finishes when the three consecutive readings are within the ranges below.

4-well volume The purging will continue until at least 4 well volumes and three consecutive readings are within the ranges below. Water quality readings are to be taken at half-well-volume apart.
Well volume: 50mm (2") diameter - 2 L/metre; 100mm (4") diameter - 8 L/metre; 150mm (6") diameter - 18 L/metre

Stabilisation Criteria (3 readings within ranges)		Drawdown stable <0.1m	± 0.2 °C	± 0.1 pH unit	± 5%	± 10mv	± 10%	Comment
Time	Cumulative Volume purged (L)	Water Level (m bTOC)	Temp °C	pH Units	Sp. Cond µS/cm / mS/cm	ORP mV	DO mg/L / ppm / %	*Turbidity, Colour, Odour, Sheen, etc*
	1	9580	20.2	6.51	6072	-66.2	3.93	
	2	9730	20.3	6.48	6355	-34.0	40.3	
	3	9730	20.4	6.47	6364	-19.3	38.4	
	4	9740	20.4	6.48	6315	-6.9	37.7	
	5	9750	20.3	6.48	6314	4.8	36.5	
	6	9750	20.3	6.48	6312	8.6	37.5	

Observations during Sampling:- eg. odours, sheens, turbidity, water colour, etc

Container Volume (L)	No of containers	Preservative
Glass amber (100-250ml)		none
Glass vial (40mL)		HCl
Plastic (60mL) - **metals***		HNO3
Plastic (60mL) - cyanide, **CrVI***		NaOH
Plastic (60mL) - nutrients		H2SO4
Plastic (500mL) - inorganics		none
Plastic ( )		
Plastic ( )		

Duplicates

Duplicate ID

Triplicate ID

Blanks

Rinsate ID

*samples for dissolved metals to be filtered in the field prior to filling sampling container

Other Comments

Groundwater Sampling Record

GREENCAP
Going Further in Managing Risk

Water Depth 7040
Base 1510

Client:	RSA	Job No:	517
Project:	TOWNSEY TEMP	Sampled by:	SM/DS
Location:		Date:	

Well ID: DWS-15-27

WELL DETAILS		SAMPLING EQUIPMENT					
Well depth:	1510 (m)	Device:	micropurge	peristaltic	footvalve	bailer	*Other Sampling Equipment / Method
Casing diameter:	(mm)	Method:	low-flow	4-well-volume	purged dry		
Casing type:	PVC / steel / other	WQM Make:					
Depth to product	(m bTOC)	WL Meter:	interface	non-interface			
Depth to water:	(m bTOC)	Screen (from - to), m					
Product thickness	(m)	Pump Depth (m bTOC)					

Field observations: eg. well condition, nearby activities, weather, vegetation, etc

Purging instructions:

Low Flow: Start purging and stabilise the water level at ~ 0.1m drawdown. Once water level stabilises start taking water quality readings. Readings are to be taken every 3 minutes or every flow-through-cell volume (whichever is greater). Purging finishes when the three consecutive readings are within the ranges below.

4-well volume The purging will continue until at least 4 well volumes and three consecutive readings are within the ranges below. Water quality readings are to be taken at half-well-volume apart.
Well volume: 50mm (2") diameter - 2 L/metre; 100mm (4") diameter - 8 L/metre; 150mm (6") diameter - 18 L/metre

Stabilisation Criteria (3 readings within ranges)		Drawdown stable <0.1m	± 0.2 °C	± 0.1 pH unit	± 5%	± 10mv	± 10%	Comment
Time	Cumulative Volume purged (L)	Water Level (m bTOC)	Temp °C	pH Units	Sp. Cond ~~µS/cm~~ mS/cm	ORP mV	DO mg/L / ppm / %	*Turbidity, Colour, Odour, Sheen, etc*
	1	8010	19.7	6.54	14179	32.5	~~2.56~~	2.56
	2	8020	19.8	6.52	14216	34.4	~~2.02~~	2.02
	3	8033	19.9	6.52	14215	37.9	19.1	
	4	8035	19.9	6.52	14135	39.3	19.2	
	5	8035	19.8	6.52	14049	40.5	17.5	

Observations during Sampling:- eg. odours, sheens, turbidity, water colour, etc

Container Volume (L)	No of containers	Preservative
Glass amber (100-250ml)		none
Glass vial (40mL)		HCl
Plastic (60mL) - **metals***		HNO3
Plastic (60mL) - cyanide, **CrVI***		NaOH
Plastic (60mL) - nutrients		H2SO4
Plastic (500mL) - inorganics		none
Plastic ( )		
Plastic ( )		

Duplicates

Duplicate ID

Triplicate ID

Blanks

Rinsate ID

*samples for dissolved metals to be filtered in the field prior to filling sampling container

Other Comments

Groundwater Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Reneral SH	Job No:	0154 748
Project:	Groundwater Sampling	Sampled by:	TF
Location:	Tonsley EMP	Date:	19/5/22

Well ID: MWS15_29

WELL DETAILS		SAMPLING EQUIPMENT				
Well depth:	12.145 (m)	Device:	micropurge	peristaltic	footvalve	bailer
Casing diameter:	(mm)	Method:	low-flow	4-well-volume	purged dry	
Casing type:	PVC / steel / other	WQM Make:				
Depth to product	(m bTOC)	WL Meter:	interface	non-interface		
Depth to water:	(m bTOC)	Screen (from - to), m				
Product thickness	(m)	Pump Depth (m bTOC)				

*Other Sampling Equipment / Method:

Field observations: eg. well condition, nearby activities, weather, vegetation, etc

Purging instructions:

Low Flow: Start purging and stabilise the water level at ~ 0.1m drawdown. Once water level stabilises start taking water quality readings. Readings are to be taken every 3 minutes or every flow-through-cell volume (whichever is greater). Purging finishes when the three consecutive readings are within the ranges below.

4-well volume The purging will continue until at least 4 well volumes and three consecutive readings are within the ranges below. Water quality readings are to be taken at half-well-volume apart.
Well volume: 50mm (2") diameter - 2 L/metre; 100mm (4") diameter - 8 L/metre; 150mm (6") diameter - 18 L/metre

Stabilisation Criteria (3 readings within ranges)		Drawdown stable <0.1m	± 0.2 °C	± 0.1 pH unit	± 5%	± 10mv	± 10%	Comment
Time	Cumulative Volume purged (L)	Water Level (m bTOC)	Temp °C	pH Units	Sp. Cond µS/cm / mS/cm	ORP mV	DO mg/L / ppm / %	Turbidity, Colour, Odour, Sheen, etc
11:33	1.0	8.379	20.0	6.36	11658	1.9	4.89	not stable - drop head
11:40	2.0	8.731	19.7	6.38	10292	-9.3	4.47	" "
11:51	3.0	9.189	19.9	6.50	7913	-45.0	4.15	continue to drop head
12:04	4.0	9.550	19.2	6.61	6377	-53.4	4.05	Dropped - 15+11 pump lower head drop
12:21	5.0	9.641	19.6	6.50	7762	-53.1	3.25	Still dropping (less than)
12:36	6.0	9.923	20.5	6.57	6149	-44.7	2.99	+head dropping no odour grey/grey colour
12:35	7.0	10.07	20.4	6.75	4239	-42.3	2.95	" "
12:38	8.0	10.22	20.5	6.76	4401	-56.5	2.89	" "
12:50	9.0	10.48	20.5	6.60	6395	-73.2	2.61	" "

Observations during Sampling:- eg. odours, sheens, turbidity, water colour, etc * Dropped dipped to 10m and pump to CPM

Container Volume (L)	No of containers	Preservative
Glass amber (100-250ml)		none
Glass vial (40mL)		HCl
Plastic (60mL) - **metals***		HNO3
Plastic (60mL) - cyanide, **CrVI***		NaOH
Plastic (60mL) - nutrients		H2SO4
Plastic (500mL) - inorganics		none
Plastic ( )		
Plastic ( )		

Duplicates
Duplicate ID
Triplicate ID
Blanks
Rinsate ID

Other Comments

*samples for dissolved metals to be filtered in the field prior to filling sampling container

1:45	10	10.57	19.5	6.43	6077	-61.6	1.00	[illegible] recharge 12.45m
1:52	11	"	19.1	6.38	10329	-61.2	1.40	green/grey no odour extremely slow recharge
2:17	12	"	19.1	6.37	10854	-55.3	1.10	" " Sampled

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003842-9003846 - INTERFACE METER

Plant Number: 235275 **Serial Number:** 268021

Probe Length: 60m

ITEM	TEST	PASS	COMMENTS
Battery	Compartment / Capacity	☑ 8.9v	9v
Probe	Clean / Operation	☑	
Earth Lead	Check if equipped	☑	
Tape Check	Cleaned / Checked for cuts	☑	
Function test	At surface level	☑	

Checked By: Dylan Buchanan Date: 13/05/22 Signed: _____

Accessories List:

Interface Meter	Tape Guide	Decon 90 Solution
Brush	Spare 9v Battery	Transport Box

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION (YSI PRO PLUS)

Plant Number: 1088646 **Serial Number:** 21J102880

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	330737 380327	☑
Conductivity	12.88 mS/cm	12.88 mS/cm	—	343265	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	10175	☑
ORP	240mV @ 20°C	240mV	—	337308 338782	☑

Battery Status 100 %	Temperature 18,4 °C
Electrodes Cleaned and Checked	

Note: Calibration solution traceability information is available upon request.

Checked By: Wilma Fouché Date: 13/5/22 Signed: _____

Accessories List:

User's Manual	pH Sensor	Conductivity/ Temp Sensor
Dissolved Oxygen Sensor	Redox (ORP) Sensor	Flow Cell
User Guide	Stainless Steel Restrictor	Spare Batteries
Calibration Cup		

Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

Appendix B: Soil Vapour Sampling Field Records & Equipment Calibration Certificates

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	Job No:	J154748
Project:	Tonsley EMP	Sampled by:	JB
Location:	Tonsley Site	Date:	13/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP12_2.5		Canister No:	12388	13:12	14:48	
	Well diameter: 0.25in	Restrictor No:	280			
	Screen Length: 0.5m	Initial Pressure		-30		
		Final Pressure		-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		98%		0%	YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	8.4	17.7	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		0	0	19.8	0	1
30		0.0	8.0	6.3	0	1
60	(1 min)	0.0	8.0	5.3	0	0
90		0.0	8.0	5.3	0	1
120	2 (min)	0.0	8.0	5.2	0	1
150		0.0	8.0	5.3	0	1
180	3 (min)	0.0	8.0	5.3	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)
Barometric:	1010	1010	1010

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
PID = 12/5/22

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	13/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP12-3.8		Canister No:	12376	13:13	14:49	
	Well diameter: 0.25in	Restrictor No:	108			
	Screen Length: 0.5m	Initial Pressure		-30+		
		Final Pressure		-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak	96%			0.0%	~~YES~~	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	15.7	199.0	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.0	0.1	19.8	0	1
30	1.7	10.6	0.4	0	0
60 (1 min)	2.1	10.6	0.0	0	1
90	2.7	10.4	0.0	0	1
120 2 (min)	4.6	10.0	0.0	0	0
150	4.7	10.0	0.0	0	0
180 3 (min)	5.0	10.0	0.0	0	0

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	13/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 12_6.0		Canister No:	12425	13:14	15:05	
	Well diameter: 0.25in	Restrictor No:	149			
	Screen Length: 0.5m		Initial Pressure	-30+		
			Final Pressure	-30+		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak	98%			0.0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	21.6	175.0	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		0.0	0.1	20.2	0	1
30		5.6	9.9	3.6	0	2
60	(1 min)	6.4	10.1	0.1	0	2
90		6.7	10.1	0.0	0	1
120	2 (min)	6.9	10.1	0.0	1	2
150		7.1	10.1	0.0	1	1
180	3 (min)	7.2	10.0	0.0	1	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	Job No:	J154748
Project:	Tonsley EMP	Sampled by:	JB
Location:	Tonsley Site	Date:	16/3/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 27_3.0		Canister No:	~~12440~~ 11.0243	~~10:41~~ 10:41	12:06 / 12:52	
	Well diameter: 0.25in	Restrictor No:	~~094~~ 099			
	Screen Length: 0.5m		Initial Pressure			
			Final Pressure			

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		98%		0.0%	YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	21.1		0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.0	0.0	20.7	0	0
30	0.0	11.6	9.4	0	2
60 (1 min)	0.0	11.6	8.8	0	1
90	0.0	11.6	8.9	0	0
120 2 (min)	0.0	11.4	9.1	0	1
150	0.0	11.2	9.4	0	0
180 3 (min)	0.0	11.1	9.5	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
12440 ~~Mean~~ Can ~~[redacted]~~.
New 5039 can, 099 reg. 10:41

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5/22

Vapour Point ID:	WELL DETAILS		SAMPLING			
VP 27_6.0	Depth of Probe:		Sampling device:	Summa Canister	Time On	Time Off	Run Time
			Canister No:	12449 / 11071	10:35	13:10	
	Well diameter:	0.25in	Restrictor No:	053			
	Screen Length:	0.5m	Initial Pressure		-30		
			Final Pressure		-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		99%		0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	255		0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		0.0	0.0	20.7	0	0
30		2.7	11.4	2.7	0	2
60	(1 min)	3.3	11.7	0.3	0	2
90		3.5	11.8	0.0	0	1
120	2 (min)	3.6	11.8	0.0	0	1
150		3.8	11.8	0.0	0	1
180	3 (min)	3.2	11.9	0.0	0	0

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	13/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 28_3.0		Canister No:	12348	13:18	14:47	
	Well diameter: 0.25in	Restrictor No:	129			
	Screen Length: 0.5m		Initial Pressure	-30+		
			Final Pressure	-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		98%		0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	9.8	6.0	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.0	0.1	20.5	0	1
30	0.0	8.3	9.1	0	0
60 (1 min)	0.0	8.3	8.2	0	1
90	0.0	8.3	8.2	0	1
120 2 (min)	0.0	8.3	8.1	0	1
150	0.0	8.3	8.1	0	1
180 3 (min)	0.0	8.3	8.1	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
PID reading 12/5

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	17/5

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 30		Canister No:	843	4:38	10:47	
	Well diameter: 0.25in	Restrictor No:	194			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure	-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		100%		0.0%	YES	NO

	Initial Pressure	Final Pressure (S	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

12/5

	Pre sampling	Post sampling	Background	Shroud gas
PID	7.0	6.0	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0	0	20.8	0	1
30	0.0	4.2	18.5	0	1
60 (1 min)	0.0	4.3	17.8	0	2
90	0.0	4.2	17.8	0	0
120 2 (min)	0.0	4.1	17.8	0	1
150	0.0	4.1	17.8	0	0
180 3 (min)	0.0	4.1	17.8	0	0

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	17/5

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 31		Canister No:	1303	9:36	11:02	
	Well diameter: 0.25in	Restrictor No:	048			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure	-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		96%		0.0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

12/5

	Pre sampling	Post sampling	Background	Shroud gas
PID	6.4	0.1	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.0	0.0	20.7	0	1
30	0.0	5.5	16.3	0	1
60 (1 min)	0.0	5.5	16.0	0	0
90	0.0	5.5	16.0	0	1
120 2 (min)	0.0	5.5	16.0	1	1
150	0.0	5.5	16.0	0	2
180 3 (min)	0.0	5.5	16.0	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further In Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	17/5

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 32		Canister No:	841	9:34	10:02	
	Well diameter: 0.25in	Restrictor No:	267			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure	-9		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		98%		0.0%	YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	11.7	0.7	0.0	n/a

17/5

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	% 0	% 0	% 21.3	ppm 0	ppm 0
Ambient (background)					
30	0.0	8.9	16.0	0	1
60 (1 min)	0.0	8.9	10.8	0	1
90	0.0	8.7	10.3	0	1
120 2 (min)	0.0	8.4	10.5	0	1
150	0.0	8.3	10.6	0	2
180 3 (min)	0.0	8.2	10.7	0	1

Pump fail had to clear out well tubing.

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP VP41_30		Canister No:	12365	14:06	15:20	
	Well diameter: 0.25in	Restrictor No:	092			
	Screen Length: 0.5m	Initial Pressure		-30		
		Final Pressure		-60		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak	98%			0.0%	YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

12/5

	Pre sampling	Post sampling	Background	Shroud gas
PID	7.1	5.0	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		0	0.0	20.7	0	0
30		0.8	12.1	6.6	0	0
60	(1 min)	0.0	12.9	3.5	0	2
90		0.0	13.7	1.6	0	1
120	2 (min)	0.0	13.8	1.1	0	1
150		0.0	13.8	0.9	0	1
180	3 (min)	0.0	13.9	0.7	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 41_6.0		Canister No:	1301	14:05	15:18	
	Well diameter: 0.25in	Restrictor No:	210			
	Screen Length: 0.5m	Initial Pressure		-30		
		Final Pressure		-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		97%		0.0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	21.9	Pid cutout	0.0	n/a

stalled PID after 20sec.

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.0	0.1	20.9	0	0
30	0.3	14.1	1.0	0	1
60 (1 min)	0.3	14.1	0.0	0	1
90	0.3	14.4	0.0	0	1
120 2 (min)	0.3	14.4	0.0	0	2
150	0.3	14.4	0.0	0	1
180 3 (min)	0.3	14.4	0.0	0	2

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
1 hr late PID didn't fail also read 97.0

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 42_4.5		Canister No:				
	Well diameter: 0.25in	Restrictor No:				
	Screen Length: 0.5m		Initial Pressure			
			Final Pressure			

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		96%		0.0%	(YES)	NO

	Initial Pressure	Final Pressure (S	Pass Shut-In Test ?	
Shut In	[illegible]	[illegible]	(YES)	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	18.3	10.2	0.0	n/a

12/5 PID stalled after 20sec,

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.1	0.0	21.0	0	0
30	0.1	10.9	4.1	0	1
60 (1 min)	0.1	11.3	3.0	0	0
90	0.2	11.6	2.6	0	0
120 2 (min)	~	pump fail	~	~	
150					
180 3 (min)					

12/5

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
PID didnt fail 1hr later;

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	13/5/22

Vapour Point ID:	WELL DETAILS	VP42 QV01	SAMPLING		
	Depth of Probe:	Sampling device: Summa Canister	Time On	Time Off	Run Time
VP 42_6.0		Canister No: 12444 / 5491	13:40	16:37	
	Well diameter: 0.25in	Restrictor No: 250 / 250			
	Screen Length: 0.5m	Initial Pressure	-30		
		Final Pressure	-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		94%		0.0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

12/5

	Pre sampling	Post sampling	Background	Shroud gas
PID	14.3	720	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		0	0.0	20.7	0	0
30	0.5	[illegible]	1.8	0.7	0	1
60	(1 min)	0.0	13.8	0.1	0	1
90		0.0	13.8	0.1	0	2
120	2 (min)	0.0	13.9	0.1	0	2
150		0.0	13.9	0.1	0	2
180	3 (min)	0.0	14.0	0.0	0	2

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)
Barometric:	1010	1010	1010

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	Job No:	J154748
Project:	Tonsley EMP	Sampled by:	JB
Location:	Tonsley Site	Date:	16/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP43_3.0		Canister No:	12371	12:14	13:48	
	Well diameter: 0.25in	Restrictor No:	160			
	Screen Length: 0.5m	Initial Pressure		-30		
		Final Pressure		-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak	94%			0%	YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID) ppm

	Pre sampling	Post sampling	Background	Shroud gas
12/5 PID	18.6	10.2	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5 Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.1	0.1	20.2	0	1
30	0.2	16.2	3.2	0	1
60 (1 min)	0.2	16.5	0.2	0	1
90	0.2	16.6	0.0	0	2
120 2 (min)	0.2	16.5	0.0	0	1
150	0.2	16.6	0.0	0	2
180 3 (min)	0.2	16.7	0.0	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)
Barometric:	1010	1010	1010

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
PID reading 12/5

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5/22.

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP43_6.0		Canister No:	12340	12:13	13:58	
	Well diameter: 0.25in	Restrictor No:	047			
	Screen Length: 0.5m	Initial Pressure		-30		
		Final Pressure		-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak	98%			0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID) ppm

	Pre sampling	Post sampling	Background	Shroud gas
12/5 PID	8.2	6.4	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.0	0.1	20.2	0	1
30	0.6	16.1	0.7	0	1
60 (1 min)	0.5	16.1	0.0	0	1
90	0.4	15.7	0.0	0	1
120 2 (min)	0.3	15.6	0.0	0	1
150	0.2	15.3	0.0	0	1
180 3 (min)	0.1	15	0.0	0	1

13/5

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
PID reading 12/5

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 45		Canister No:	869	VA:21	15:37	
	Well diameter: 0.25in	Restrictor No:	222			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure			

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		98%		0%	YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	1.6	0.9	0.0	n/a

Double check w/ LFG PID

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)						
30		0.0	16.0	3.4	0	2
60	(1 min)	0.0	16.2	2.1	0	2
90		0.0	15.7	9.6	0	1
120	2 (min)	0.0	14.9	13.5	0	1
150		0.0	15.2	11.9	0	1
180	3 (min)	0.0	15.1	11.6	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further In Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 45A		Canister No:	1289	13:30	15:28	
	Well diameter: 0.25in	Restrictor No:	034			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure	-20		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		100%		0.0%	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

12/5

	Pre sampling	Post sampling	Background	Shroud gas
PID	7.2	—	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

13/5

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		6.0	0.0	21.5	0	1
30		0.0	6.1	1.4	0	1
60	(1 min)	0.0	6.2	0.4	0	1
90		0.0	6.3	0.0	0	1
120	2 (min)	0.0	6.4	0.0	0	1
150		0.0	6.4	0.0	0	1
180	3 (min)	0.0	6.5	0.0	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
pulled can due to water

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5/22

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 46A		Canister No:	5037	13:32	15:52	
	Well diameter: 0.25in	Restrictor No:	010			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure	-11		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		99.1		0.1	(YES)	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	10.4	—	0.0	n/a

1215

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0	0	20.4	0	1
30	0.0	3.2	0.9	0	0
60 (1 min)	0.0	3.2	0.0	0	1
90	0.0	3.3	0.0	0	1
120 2 (min)	0.0	3.3	0.0	0	1
150	0.0	3.3	0.0	0	1
180 3 (min)	0.0	3.3	0.0	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:	1010	1010	1010	

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
VP46 PID failed, Water came up, Pulled can. Ild missing.

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	

Vapour Point ID:	WELL DETAILS	SAMPLING				
VP 47A	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
		Canister No:				
	Well diameter: 0.25in	Restrictor No:				
	Screen Length: 0.5m		Initial Pressure			
			Final Pressure			

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak					YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In			YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	7.2		0.0	n/a

1215 water ingress

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)					
30					
60 (1 min)					
90					
120 2 (min)					
150					
180 3 (min)					

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

VP47, water ingress, PID fail.

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	

Vapour Point ID:	WELL DETAILS	SAMPLING				
VP 48	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
		Canister No:				
	Well diameter: 0.25in	Restrictor No:				
	Screen Length: 0.5m		Initial Pressure			
			Final Pressure			

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak					YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In			YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID				n/a

Water ingress 12/5

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)					
30					
60 (1 min)					
90					
120 2 (min)					
150					
180 3 (min)					

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	18/5

Vapour Point ID:	WELL DETAILS		SAMPLING (QV07)			
	Depth of Probe:		Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 49			Canister No:	873 / 12447	11:06	14:38	
	Well diameter:	0.25in	Restrictor No:	144			
	Screen Length:	0.5m		Initial Pressure	-30		
				Final Pressure	-6		

Leak Tests

Helium Leak	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
		98%		0.0%	YES	NO

Shut In	Initial Pressure	Final Pressure	Pass Shut-In Test ?	
	-30	-30	YES	NO

Pre-Sampling (PID)

PID	Pre sampling	Post sampling	Background	Shroud gas
	4.8	4.4	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		0	0	20.7	0	0
30		0.0	7.0	1.6	0	1
60	(1 min)	0.0	7.0	1.6	0	1
90		0.0	7.0	1.3	0	1
120	2 (min)	0.0	7.0	1.2	0	1
150		0.0	7.2	1.2	0	1
180	3 (min)	0.0	7.4	1.0	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5/2022

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 50		Canister No:	12385	12:36	13:42	
	Well diameter: 0.25in	Restrictor No:	023			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure	-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		100%		0.01.	(YES)	NO

	Initial Pressure	Final Pressure (s	Pass Shut-In Test ?	
Shut In	-30	-30	YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID	2.2	2.8	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)	0.0	0.0	20.5	0	1
30	0.0	9.4	3.4	0	0
60 (1 min)	0.0	9.5	3.8	0	1
90	0.0	9.3	2.9	0	1
120 2 (min)	0.0	9.3	3.0	0	1
150	0.0	9.4	3.0	0	1
180 3 (min)	0.0	9.4	2.9	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

12.5

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
water in tube noticed after sampling.

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	16/5/2012

Vapour Point ID:	WELL DETAILS	SAMPLING				
	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
VP 51		Canister No:	5451	13:19	14:47	
	Well diameter: 0.25in	Restrictor No:	013			
	Screen Length: 0.5m		Initial Pressure	-30		
			Final Pressure	-10		

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak		100%		0.0	~~YES~~	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In	-30	-30	(YES)	NO

Pre-Sampling (PID)

12/5

	Pre sampling	Post sampling	Background	Shroud gas
PID	1.7	1.5	0.0	n/a

Pre-Sampling (Land Fill Gas Meter)

18/5

Monitoring Time (seconds)		CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units		%	%	%	ppm	ppm
Ambient (background)		0.0	0.0	20.4	0	1
30		~~10.0~~	10.8	3.7	0	1
60	(1 min)	0.0	10.8	2.8	0	1
90		0.0	10.9	2.5	0	1
120	2 (min)	0.0	10.9	2.5	0	1
150		0.0	10.8	2.4	0	2
180	3 (min)	0.0	10.9	2.4	0	1

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	

Vapour Point ID:	WELL DETAILS	SAMPLING				
VP 52	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
		Canister No:				
	Well diameter: 0.25in	Restrictor No:				
	Screen Length: 0.5m		Initial Pressure			
			Final Pressure			

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak					YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In			YES	NO

12/5 No Sample!

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID				n/a

Stalled PID immediately

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)					
30					
60 (1 min)					
90					
120 2 (min)					
150					
180 3 (min)					

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
Gas sampling failed also

Greencap Ltd
Vapour Sampling Record

GREENCAP
Going Further in Managing Risk

Client:	Renewal SA	**Job No:**	J154748
Project:	Tonsley EMP	**Sampled by:**	JB
Location:	Tonsley Site	**Date:**	

Vapour Point ID:	WELL DETAILS	SAMPLING				
VP 53	Depth of Probe:	Sampling device:	Summa Canister	Time On	Time Off	Run Time
		Canister No:				
	Well diameter: 0.25in	Restrictor No:				
	Screen Length: 0.5m		Initial Pressure			
			Final Pressure			

Leak Tests

	Shroud % He		Vapour Point % He		Pass He Leak Test? (<10% Shroud)	
Helium Leak					YES	NO

	Initial Pressure	Final Pressure (5	Pass Shut-In Test ?	
Shut In			YES	NO

Pre-Sampling (PID)

	Pre sampling	Post sampling	Background	Shroud gas
PID				n/a

Blocked ?
Stalled PID should work.

Pre-Sampling (Land Fill Gas Meter)

Monitoring Time (seconds)	CH_4 Methane	CO_2 Carbon Dioxide	O_2 Oxygen	H_2S Hydrogen Sulphide	CO Carbon Monoxide
Units	%	%	%	ppm	ppm
Ambient (background)					
30					
60 (1 min)					
90					
120 2 (min)					
150					
180 3 (min)					

RELATIVE PRESSURE READINGS	Ambient (Background)	Well Conditions (prior to pumping)	Well Conditions (during pumping)	
Barometric:				

Weather conditions
e.g. cloudy, sunny, windy etc

Observations / comments:
Checked was Gas sampling, also failed

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003827 GAS DETECTOR - PID

Plant Number: 235038 **Serial Number:** 592-916946

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
PID Isobutylene	100ppm	0	100ppm	Lot #	☑
		0.0	100.0	1484832	

Data Cleared ☑

Battery Status 100 (%)	Temperature ____ °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Checked/Changed

Note: Calibration traceability information is available upon request.

Checked By: Nilma Fouché Date: 30/3/22 Signed: _____

Accessories List:

User's Manual	Charger / Comms Adaptor	Wall Charger
2x Spare Air Filters	1x Spare Rechargeable Battery	Carry Transit Case
	Calibration Report	

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003823 GAS ANALYSER – LANDFILL GA5000 / GEM5000

Plant Number: 234884 **Serial Number:** G502368

SENSOR	CONCENTRATION	INSTRUMENT READING	TRACEABILITY	PASS
CH4	60%	60 %	Lot # 1327131	☑
CO2	40%	40 %	Lot # 1327131	☑
O2	20.9%	20,9 %	FRESH AIR	☑
CO	60ppm	60 ppm	Lot # 1338070	☑
H2S	20ppm	20 ppm	Lot # 1338070	☑

Data Cleared ☑

Battery Status 100 (%)	Temperature ____ °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Cleaned/Replaced

Note: Calibration traceability information is available upon request.

Checked By: Wilma Fouché Date: 30/3/22 Signed: Fouché

Accessories List:

User's Manual & USB	1x Gas Inlet Hoses	1X Gas Inlet Hose With Filter
1x Gas Inlet Hose & Clip Fitting	2x Spare Inlet Filters	1x Flow Through Desiccant
1x Wall Charger	Carry Pouch With Neck Strap	1x USB Comms Cable
Carry Transit Case	Calibration Certificate	

airmet
Work with Confidence

Calibration Certificate

AirMet Scientific P/L
7-11 Ceylon Street
Nunawading
VIC 3131, Australia
Tel: 03 8878 3300
Fax: 03 8878 3344

This document certifies that the instrument detailed has been calibrated to the parameters

Certificate Print Date: 15-Oct-2021
Calibration Date: 13-Oct-2021
Next Calibration Due: 13-Oct-2022

Call ID / Order No: 252638
Job No / Pack No: S2526380001

Customer: Kennards Test & Measure QLD-ID 403585 **Serial No:** 12-01308
Description: GasCheck 5000is (Intrinsically Safe) ATEX App

Calibration Summary

Frequency: Yearly **Temp:** 22°C **As Found:** Out of Tolerance **Result:** Pass
Humidity: 45% **Certificate:** S2526380001

Desc	As Found Actual	As Found Result	As Left (Cal Status) Actual	As Left (Cal Status) Result
5 E-4 Leak Rate	4.0	Fail	5.0	Pass

Standard Used			
Equip ID	Description	Valid Until	Cert
1063ME	HELIUM - HIGH PURITY 99.9% (Leak 5E-4cc/sec)	02/06/2022	256035

Completed By: Arun Francis **Signed:**

eDoc V1R0

Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

Appendix C: NATA Accredited Laboratory Results – Groundwater

Greencap SA P/L
12 Greenhill Road
Wayville
SA 5034

Attention: **Andrew Durand**

Report **890251-W**
Project name GROUNDWATER SAMPLING
Project ID J154748
Received Date May 20, 2022

Client Sample ID			**TB01**	**TB02**	**RB01**	**RB02**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M22-My0048961**	**M22-My0048962**	**M22-My0048963**	**M22-My0048964**
Date Sampled			**May 19, 2022**	**May 19, 2022**	**May 19, 2022**	**May 19, 2022**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	-	-
TRH C6-C10	0.02	mg/L	-	-	< 0.02	< 0.02
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	%	95	104	114	119

Client Sample ID			**QC01**	**MW12_13**	**MW12_14**	**MW15_27**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M22-My0048965**	**M22-My0048966**	**M22-My0048967**	**M22-My0048968**
Date Sampled			**May 19, 2022**	**May 19, 2022**	**May 19, 2022**	**May 20, 2022**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	0.02	0.02	0.05	< 0.02
TRH C10-C14	0.05	mg/L	0.15	0.30	0.13	0.14
TRH C15-C28	0.1	mg/L	0.2	0.3	0.1	0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.35	0.6	0.23	0.24
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	0.02	0.02	0.04	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.02	0.02	0.04	< 0.02
TRH >C10-C16	0.05	mg/L	0.16	0.34	0.14	0.15
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.16	0.34	0.14	0.15
TRH >C16-C34	0.1	mg/L	0.2	0.2	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	0.2	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.36	0.54	0.34	0.15

Client Sample ID			QC01	MW12_13	MW12_14	MW15_27
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M22-My0048965	M22-My0048966	M22-My0048967	M22-My0048968
Date Sampled			May 19, 2022	May 19, 2022	May 19, 2022	May 20, 2022
Test/Reference	LOR	Unit				
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	%	146	106	84	101
Volatile Organics (selected analytes by SIM)						
1.1-Dichloroethane (SIM)	0.00001	mg/L	0.0076	0.017	0.0042	0.0013
1.1-Dichloroethene	0.001	mg/L	0.025	0.055	< 0.001	0.005
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane (SIM)	0.00001	mg/L	0.0044	0.00074	0.0022	< 0.00001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene (SIM)	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene (SIM)	0.00001	mg/L	0.00021	0.00035	< 0.00001	< 0.00001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene (SIM)	0.00001	mg/L	0.0073	0.0034	0.00091	0.0016
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			QC01	MW12_13	MW12_14	MW15_27
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M22-My0048965	M22-My0048966	M22-My0048967	M22-My0048968
Date Sampled			May 19, 2022	May 19, 2022	May 19, 2022	May 20, 2022
Test/Reference	LOR	Unit				
Volatile Organics (selected analytes by SIM)						
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene chloride (SIM)	0.00002	mg/L	< 0.00002	< 0.00002	0.00002	< 0.00002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene (SIM)	0.00002	mg/L	0.00003	0.00004	< 0.00002	< 0.00002
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene (SIM)	0.00001	mg/L	0.014	0.012	0.00002	0.0013
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride (SIM)	0.00005	mg/L	0.0024	0.0057	< 0.00005	< 0.00005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Toluene-d8 (surr.)	1	%	90	108	100	97
4-Bromofluorobenzene (surr.)	1	%	146	106	84	101
Vic EPA IWRG 621 Other chlorinated hydrocarbons (Total)	0.005	mg/L	0.051	0.072	< 0.005	0.008
Vic EPA IWRG 621 Chlorinated hydrocarbons (Total)	0.005	mg/L	0.053	0.077	< 0.005	0.008
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Chlorinated Hydrocarbons						
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benzal chloride	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Benzotrichloride	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Tetrachloro-m-xylene (surr.)	1	%	115	65	77	62
Conductivity (at 25°C)	10	uS/cm	5000	9600	7500	17000
pH (at 25 °C)	0.1	pH Units	7.7	7.2	7.0	7.1
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	2700	4700	3700	9300

Client Sample ID			MW15_28	MW15_29	MW16_14	MW12_01A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M22-My0048969	M22-My0048970	M22-My0048971	M22-My0048972
Date Sampled			May 19, 2022	May 19, 2022	May 19, 2022	May 19, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	0.03	0.03
TRH C10-C14	0.05	mg/L	0.33	0.21	0.10	< 0.05
TRH C15-C28	0.1	mg/L	0.4	0.1	0.2	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	0.2	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.73	0.31	0.5	< 0.1
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	0.03	0.03
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	0.03	0.03
TRH >C10-C16	0.05	mg/L	0.36	0.19	0.18	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.36	0.19	0.18	< 0.05
TRH >C16-C34	0.1	mg/L	0.3	< 0.1	0.3	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	0.2	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.66	0.19	0.68	< 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	%	120	70	118	123
Volatile Organics (selected analytes by SIM)						
1.1-Dichloroethane (SIM)	0.00001	mg/L	0.0040	< 0.00001	0.0018	0.0080
1.1-Dichloroethene	0.001	mg/L	0.019	< 0.001	0.001	0.026
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane (SIM)	0.00001	mg/L	0.0051	< 0.00001	0.013	0.0047
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene (SIM)	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			MW15_28	MW15_29	MW16_14	MW12_01A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M22-My0048969	M22-My0048970	M22-My0048971	M22-My0048972
Date Sampled			May 19, 2022	May 19, 2022	May 19, 2022	May 19, 2022
Test/Reference	LOR	Unit				
Volatile Organics (selected analytes by SIM)						
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene (SIM)	0.00001	mg/L	0.00006	< 0.00001	< 0.00001	0.00018
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene (SIM)	0.00001	mg/L	0.0043	< 0.00001	0.0054	0.0077
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	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
Methylene chloride (SIM)	0.00002	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene (SIM)	0.00002	mg/L	< 0.00002	< 0.00002	< 0.00002	0.00004
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene (SIM)	0.00001	mg/L	0.0066	< 0.00001	0.00054	0.015
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride (SIM)	0.00005	mg/L	0.00096	< 0.00005	< 0.00005	0.0025
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Toluene-d8 (surr.)	1	%	100	100	94	102
4-Bromofluorobenzene (surr.)	1	%	120	70	118	123
Vic EPA IWRG 621 Other chlorinated hydrocarbons (Total)	0.005	mg/L	0.035	< 0.005	0.020	0.054
Vic EPA IWRG 621 Chlorinated hydrocarbons (Total)	0.005	mg/L	0.036	< 0.005	0.020	0.056
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Chlorinated Hydrocarbons						
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benzal chloride	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Benzotrichloride	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			MW15_28	MW15_29	MW16_14	MW12_01A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M22-My0048969	M22-My0048970	M22-My0048971	M22-My0048972
Date Sampled			May 19, 2022	May 19, 2022	May 19, 2022	May 19, 2022
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Tetrachloro-m-xylene (surr.)	1	%	72	50	54	75
Conductivity (at 25°C)	10	uS/cm	5800	14000	5400	5100
pH (at 25 °C)	0.1	pH Units	7.7	7.2	7.4	7.7
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	3100	6600	3000	2900

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
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	May 23, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 23, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 23, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	May 23, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons	Melbourne	May 23, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics (selected analytes by SIM)	Melbourne	May 23, 2022	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and Aqueous (SIM) (USEPA 8260)			
Chlorinated Hydrocarbons	Melbourne	May 23, 2022	7 Days
- Method: USEPA 8121 Chlorinated Hydrocarbons			
Conductivity (at 25°C)	Melbourne	May 23, 2022	28 Days
- Method: LTM-INO-4030 Conductivity			
pH (at 25 °C)	Melbourne	May 23, 2022	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Total Dissolved Solids Dried at 180°C ± 2°C	Melbourne	May 23, 2022	28 Days
- Method: LTM-INO-4170 Total Dissolved Solids in Water			

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Company Name: Greencap SA P/L
Address: 12 Greenhill Road
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SA 5034

Project Name: GROUNDWATER SAMPLING
Project ID: J154748

Order No.: 301921
Report #: 890251
Phone: 08 8299 9955
Fax: 08 8299 9954

Received: May 20, 2022 12:00 PM
Due: May 27, 2022
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Conductivity (at 25°C)	pH (at 25 °C)	TRH C6-C10	Chlorinated Hydrocarbons	BTEX	Volatile Organics (selected analytes by SIM)	BTEX and Naphthalene	Eurofins Suite B1	Total Dissolved Solids Dried at 180°C ± 2°C
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217														
Brisbane Laboratory - NATA # 1261 Site # 20794														
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	TB01	May 19, 2022		Water	M22-My0048961							X		
2	TB02	May 19, 2022		Water	M22-My0048962							X		
3	RB01	May 19, 2022		Water	M22-My0048963			X		X				
4	RB02	May 19, 2022		Water	M22-My0048964			X		X				
5	QC01	May 19, 2022		Water	M22-My0048965	X	X		X		X		X	X
6	MW12_13	May 19, 2022		Water	M22-	X	X		X		X		X	X

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Address: 12 Greenhill Road
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Project Name: GROUNDWATER SAMPLING
Project ID: J154748

Order No.: 301921
Report #: 890251
Phone: 08 8299 9955
Fax: 08 8299 9954

Received: May 20, 2022 12:00 PM
Due: May 27, 2022
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Conductivity (at 25°C)	pH (at 25 °C)	TRH C6-C10	Chlorinated Hydrocarbons	BTEX	Volatile Organics (selected analytes by SIM)	BTEX and Naphthalene	Eurofins Suite B1	Total Dissolved Solids Dried at 180°C ± 2°C
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217														
Brisbane Laboratory - NATA # 1261 Site # 20794														
Mayfield Laboratory - NATA # 1261 Site # 25079														
Perth Laboratory - NATA # 2377 Site # 2370														
External Laboratory														
					My0048966									
7	MW12_14	May 19, 2022		Water	M22-My0048967	X	X		X		X		X	X
8	MW15_27	May 20, 2022		Water	M22-My0048968	X	X		X		X		X	X
9	MW15_28	May 19, 2022		Water	M22-My0048969	X	X		X		X		X	X
10	MW15_29	May 19, 2022		Water	M22-My0048970	X	X		X		X		X	X
11	MW16_14	May 19, 2022		Water	M22-My0048971	X	X		X		X		X	X
12	MW12_01A	May 19, 2022		Water	M22-My0048972	X	X		X		X		X	X

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Company Name: Greencap SA P/L
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Project Name: GROUNDWATER SAMPLING
Project ID: J154748

Order No.: 301921
Report #: 890251
Phone: 08 8299 9955
Fax: 08 8299 9954

Received: May 20, 2022 12:00 PM
Due: May 27, 2022
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail	Conductivity (at 25°C)	pH (at 25 °C)	TRH C6-C10	Chlorinated Hydrocarbons	BTEX	Volatile Organics (selected analytes by SIM)	BTEX and Naphthalene	Eurofins Suite B1	Total Dissolved Solids Dried at 180°C ± 2°C
Melbourne Laboratory - NATA # 1261 Site # 1254	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217									
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
Test Counts	8	8	2	8	2	8	2	8	8

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

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.

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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	
Naphthalene	mg/L	< 0.01			0.01	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 (selected analytes by SIM)							
1.1-Dichloroethane (SIM)	mg/L	< 0.00001			0.00001	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 (SIM)	mg/L	< 0.00001			0.00001	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 (SIM)	mg/L	< 0.00001			0.00001	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 (SIM)	mg/L	< 0.00001			0.00001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloromethane	mg/L	< 0.005			0.005	Pass	
cis-1.2-Dichloroethene (SIM)	mg/L	< 0.00001			0.00001	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 (SIM)	mg/L	< 0.00002			0.00002	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene (SIM)	mg/L	< 0.00002			0.00002	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene (SIM)	mg/L	< 0.00001			0.00001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride (SIM)	mg/L	< 0.00005			0.00005	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Conductivity (at 25°C)	uS/cm	< 10			10	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	mg/L	< 10			10	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C10-C14	%	122			70-130	Pass	
Naphthalene	%	120			70-130	Pass	
TRH C6-C10	%	122			70-130	Pass	
TRH >C10-C16	%	125			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	80			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
Xylenes - Total*	%	95			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	%	78			75-125	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.4-Dichlorobenzene			%	82			70-130	Pass	
LCS - % Recovery									
Conductivity (at 25°C)			%	101			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C			%	103			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					
Naphthalene	M22-My0052032	NCP	%	116			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M22-My0052032	NCP	%	93			70-130	Pass	
Toluene	M22-My0052032	NCP	%	101			70-130	Pass	
Ethylbenzene	M22-My0052032	NCP	%	128			70-130	Pass	
m&p-Xylenes	M22-My0052032	NCP	%	102			70-130	Pass	
o-Xylene	M22-My0052032	NCP	%	101			70-130	Pass	
Xylenes - Total*	M22-My0052032	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C10	M22-My0052032	NCP	%	106			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	M22-My0068204	NCP	%	126			70-130	Pass	
TRH >C10-C16	M22-My0068204	NCP	%	117			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			
Naphthalene	M22-My0052031	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M22-My0052031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M22-My0052031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M22-My0052031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M22-My0052031	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M22-My0052031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M22-My0052031	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C10	M22-My0052031	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	M22-My0068267	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M22-My0068267	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M22-My0068267	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	M22-My0068267	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M22-My0068267	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M22-My0068267	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
Hexachlorobenzene	S22-My0048960	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Conductivity (at 25°C)	M22-My0048966	CP	uS/cm	9600	9600	<1	30%	Pass	
pH (at 25 °C)	M22-My0048966	CP	pH Units	7.2	7.2	pass	30%	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	M22-My0048966	CP	mg/L	4700	4500	4.6	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Dissolved Solids Dried at 180°C ± 2°C	M22-My0048972	CP	mg/L	2900	2800	3.6	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:

Harry Bacalis	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Edward Lee	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Organic
Joseph Edouard	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.

Chain of Custody - Greencap Adelaide
Ph. 8299 9955

GREENCAP
Going Further in Managing Risk

Client	:	Renewal SA	Date	:	19th and 20/05/2022
Project	:	Groundwater Sampling	Sampled by	:	Tomas Farrow
Project Manager	:	Andrew Durand	Sampler Mobile	:	0459945577
Job No.	:	J154748	Purchase Order	:	301921
Location	:	Tonsley EMP	T/Around		***STANDARD TAT***

Please email results to: Tomas.Farrow@greencap.com.au Andrew.Durand@greencap.com.au

Relinquished by:TF-20/05/2022	Recieved by: Pattanal	Relinquished by:	Received by:
Signature & date	*Signature & date* 20/05	*Signature & date*	*Signature & date*

Field ID	Depth	Sampled	Matrix (Soil, Water, Vapour, etc)	Sample Containers: 250ml Soil Jar	40ml Vials (HCL preserved)	100ml Glass Amber (semi-volatile)	60ml Plastic (Nitric Acid Preserved)	60ml Plastic Nturients (h_2SO4)	250ml Plastic (unpreserved)	60ml Ferrous Iron (HCL)	60ml Plastic - Cyanide/Hex Cr (NaOH)	250ml Plastic (PFOS/PFOA)	Testing: B1 : TRH, BTEXN	M8 : Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	B6 TRH/ BTEXN/ Metals (8)	B7 TRH/ BTEXN/ PAH/ Metals (8)		Semi - Vol CHC	VOC (Ultra trace)	pH, TDS, EC	TRH (C6-C10) & BTEX	BTEXN	R21: NEPM Screen for Soil Classification Screen	Hold
TB01		19/05/2022	W		2																	1		
TB02		19/05/2022	W		2																	1		
RB01		19/05/20222	W		2	1															1			
RB02		19/05/20222	W		2	1															1			
QC01		19/05/20212	W		4	1			1				1					1	1	1				
MW12_13		19/05/2022	W		4	1			1				1					1	1	1				
MW12_14		19/05/2022	W		4	1			1				1					1	1	1				
MW15_27		20/05/2022	W		4	1			1				1					1	1	1				
MW15_28		19/05/2022	W		4	1			1				1					1	1	1				
MW15_29		19/05/2022	W		4	1			1				1					1	1	1				
MW16_14		19/05/2022	W		4	1			1				1					1	1	1				
MW12_01A		19/05/2022	W		4	1			1				1					1	1	1				
Totals				0	40	10	0	0	8	0	0	0	8	0	1	0	0	8	8	8	2	2	0	0

As Per Quote: 210421GRES

890251 Pattanal

10.8°C − 0.4°C = 10.4°C on ice.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2209614**	Page	: 1 of 7
Client	: **GREENCAP-NAA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR ANDREW DURAND	Contact	: Peter Ravlic
Address	:	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 08 8299 9955	Telephone	: +6138549 9645
Project	: J154748	Date Samples Received	: 24-May-2022 10:10
Order number	: 301922	Date Analysis Commenced	: 25-May-2022
C-O-C number	: ----	Issue Date	: 31-May-2022 15:50
Sampler	: TF		
Site	: Tonsley EMP		
Quote number	: EN/333 - secondary work only		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

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

Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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

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

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

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

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

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

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

- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP125: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP080: Particular sample EM2209614_001 shows positive hit of C6-C9 band due to Trichloroethylene.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC01A	----	----	----	----
				19-May-2022 00:00	----	----	----	----
				EM2209614-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.56**	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**5490**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**2920**	----	----	----	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	----	----	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	----	----	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	----	----	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	----	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	----	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	----	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	----	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	**50**	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	**40**	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	**40**	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC01A	----	----	----	----
				19-May-2022 00:00	----	----	----	----
				EM2209614-001	--------	--------	--------	--------
				Result	----	----	----	----
EP080: BTEXN - Continued								
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP125A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.05	µg/L	**0.44**	----	----	----	----
Toluene	108-88-3	0.5	µg/L	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.05	µg/L	<0.05	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.10	µg/L	<0.10	----	----	----	----
Styrene	100-42-5	0.05	µg/L	<0.05	----	----	----	----
ortho-Xylene	95-47-6	0.05	µg/L	<0.05	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.05	µg/L	<0.05	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.05	µg/L	<0.05	----	----	----	----
Sum of Xylenes	1330-20-7	0.05	µg/L	<0.05	----	----	----	----
EP125D: Fumigants								
1.2-Dichloropropane	78-87-5	0.1	µg/L	<0.1	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.1	µg/L	<0.1	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.1	µg/L	<0.1	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.1	µg/L	<0.1	----	----	----	----
EP125E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	0.5	µg/L	<0.5	----	----	----	----
Vinyl chloride	75-01-4	0.3	µg/L	**5.4**	----	----	----	----
Bromomethane	74-83-9	0.5	µg/L	<0.5	----	----	----	----
Chloroethane	75-00-3	0.5	µg/L	<0.5	----	----	----	----
Trichlorofluoromethane	75-69-4	0.5	µg/L	<0.5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.1	µg/L	**44.2**	----	----	----	----
Dichloromethane	75-09-2	1.0	µg/L	<1.0	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.1	µg/L	**0.2**	----	----	----	----
1.1-Dichloroethane	75-34-3	0.1	µg/L	**9.0**	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.1	µg/L	**8.8**	----	----	----	----
Bromochloromethane	74-97-5	0.5	µg/L	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC01A	----	----	----	----
				19-May-2022 00:00	----	----	----	----
				EM2209614-001	--------	--------	--------	--------
				Result	----	----	----	----
EP125E: Halogenated Aliphatic Compounds - Continued								
1.2-Dichloroethane	107-06-2	0.1	µg/L	**6.8**	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.1	µg/L	<0.1	----	----	----	----
Carbon Tetrachloride	56-23-5	0.05	µg/L	<0.05	----	----	----	----
Trichloroethene	79-01-6	0.05	µg/L	**27.6**	----	----	----	----
Tetrachloroethene	127-18-4	0.05	µg/L	**0.45**	----	----	----	----
Hexachlorobutadiene	87-68-3	0.04	µg/L	<0.04	----	----	----	----
1,2-Dichloroethene (sum cis & trans)	----	0.10	µg/L	**9.00**	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.10	µg/L	<0.10	----	----	----	----
EP125F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.10	µg/L	**0.21**	----	----	----	----
Bromobenzene	108-86-1	0.10	µg/L	<0.10	----	----	----	----
Benzylchloride	100-44-7	0.2	µg/L	<0.2	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.10	µg/L	<0.10	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.10	µg/L	<0.10	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.10	µg/L	<0.10	----	----	----	----
2-Chlorotoluene	95-49-8	0.1	µg/L	<0.1	----	----	----	----
4-Chlorotoluene	106-43-4	0.1	µg/L	<0.1	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.1	µg/L	<0.1	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.1	µg/L	<0.1	----	----	----	----
^ Trichlorobenzenes (Sum)	----	0.1	µg/L	<0.1	----	----	----	----
EP125G: Trihalomethanes								
Chloroform	67-66-3	0.10	µg/L	**0.15**	----	----	----	----
Bromodichloromethane	75-27-4	0.10	µg/L	<0.10	----	----	----	----
Dibromochloromethane	124-48-1	0.10	µg/L	<0.10	----	----	----	----
Bromoform	75-25-2	0.10	µg/L	<0.10	----	----	----	----
^ Total Trihalomethanes	----	0.10	µg/L	**0.15**	----	----	----	----
EP125H: Naphthalene								
Naphthalene	91-20-3	0.05	µg/L	<0.05	----	----	----	----
EP125L: Methyl t-butyl ether								
Methyl tert-butyl ether (MTBE)	1634-04-4	0.1	µg/L	<0.1	----	----	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	**29.6**	----	----	----	----
Phenol-d6	13127-88-3	2	%	**16.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%	**62.9**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				QC01A	----	----	----	----
				19-May-2022 00:00	----	----	----	----
				EM2209614-001	--------	--------	--------	--------
				Result	----	----	----	----
EP075S: Acid Extractable Surrogates - Continued								
2.4.6-Tribromophenol	118-79-6	2	%	**74.6**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	**76.1**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	**62.9**	----	----	----	----
2-Fluorobiphenyl	321-60-8	2	%	**81.5**	----	----	----	----
Anthracene-d10	1719-06-8	2	%	**84.9**	----	----	----	----
4-Terphenyl-d14	1718-51-0	2	%	**89.0**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**101**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**111**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**102**	----	----	----	----
EP125S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**94.9**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	**101**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**89.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
		Low	High
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	6	83
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	22	112
2.4.6-Tribromophenol	118-79-6	22	125
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	37	115
1.2-Dichlorobenzene-D4	2199-69-1	32	99
2-Fluorobiphenyl	321-60-8	39	116
Anthracene-d10	1719-06-8	49	123
4-Terphenyl-d14	1718-51-0	47	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP125S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	130
Toluene-D8	2037-26-5	68	128
4-Bromofluorobenzene	460-00-4	71	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2209614**	Page	: 1 of 9
Client	: **GREENCAP-NAA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR ANDREW DURAND	Contact	: Peter Ravlic
Address	:	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 08 8299 9955	Telephone	: +6138549 9645
Project	: J154748	Date Samples Received	: 24-May-2022
Order number	: 301922	Date Analysis Commenced	: 25-May-2022
C-O-C number	: ----	Issue Date	: 31-May-2022
Sampler	: TF		
Site	: Tonsley EMP		
Quote number	: EN/333 - secondary work only		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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

Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 4361588)									
EM2209593-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.31	8.38	0.8	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 4361583)									
EM2209212-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1600	1620	1.1	0% - 20%
EM2209533-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2350	2370	0.6	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 4358823)									
EM2209475-009	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	168	156	7.4	0% - 50%
EM2209529-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1490	1460	2.2	0% - 20%
EM2209581-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	73	66	9.6	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4363684)									
EM2209076-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EM2209526-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4363684)									
EM2209076-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EM2209526-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 4363684)									
EM2209076-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EM2209526-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 4363684) - continued									
EM2209526-003	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP125A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4363932)									
EB2214384-001	Anonymous	EP125: Benzene	71-43-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: Ethylbenzene	100-41-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: meta- & para-Xylene	108-38-3 106-42-3	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: Styrene	100-42-5	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: ortho-Xylene	95-47-6	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: 1.3.5-Trimethylbenzene	108-67-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: 1.2.4-Trimethylbenzene	95-63-6	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: Sum of Xylenes	1330-20-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: Toluene	108-88-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
EM2209701-002	Anonymous	EP125: Benzene	71-43-2	0.05	µg/L	43.4	41.9	3.6	0% - 20%
		EP125: Ethylbenzene	100-41-4	0.05	µg/L	20.4	24.4	17.5	0% - 20%
		EP125: meta- & para-Xylene	108-38-3 106-42-3	0.05	µg/L	34.0	41.2	19.1	0% - 20%
		EP125: Styrene	100-42-5	0.05	µg/L	0.06	0.06	0.0	No Limit
		EP125: ortho-Xylene	95-47-6	0.05	µg/L	9.16	9.12	0.4	0% - 20%
		EP125: 1.3.5-Trimethylbenzene	108-67-8	0.05	µg/L	3.79	3.97	4.7	0% - 20%
		EP125: 1.2.4-Trimethylbenzene	95-63-6	0.05	µg/L	6.21	6.90	10.4	0% - 20%
		EP125: Sum of Xylenes	1330-20-7	0.05	µg/L	43.2	50.3	15.3	0% - 20%
		EP125: Toluene	108-88-3	0.5	µg/L	15.8	15.5	2.0	0% - 20%
EP125D: Fumigants (QC Lot: 4363932)									
EB2214384-001	Anonymous	EP125: 1.2-Dichloropropane	78-87-5	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: cis-1.3-Dichloropropylene	10061-01-5	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: trans-1.3-Dichloropropylene	10061-02-6	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.2-Dibromoethane (EDB)	106-93-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EM2209701-002	Anonymous	EP125: 1.2-Dichloropropane	78-87-5	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: cis-1.3-Dichloropropylene	10061-01-5	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: trans-1.3-Dichloropropylene	10061-02-6	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.2-Dibromoethane (EDB)	106-93-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP125E: Halogenated Aliphatic Compounds (QC Lot: 4363932)									
EB2214384-001	Anonymous	EP125: Hexachlorobutadiene	87-68-3	0.04	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: Carbon Tetrachloride	56-23-5	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: Trichloroethene	79-01-6	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP125E: Halogenated Aliphatic Compounds (QC Lot: 4363932) - continued									
EB2214384-001	Anonymous	EP125: Tetrachloroethene	127-18-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: 1.1-Dichloroethene	75-35-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: trans-1.2-Dichloroethene	156-60-5	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.1-Dichloroethane	75-34-3	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: cis-1.2-Dichloroethene	156-59-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.2-Dichloroethane	107-06-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.1.1-Trichloroethane	71-55-6	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1,2-Dichloroethene (sum cis & trans)	----	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: 1.2-Dibromo-3-chloropropane	96-12-8	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: Vinyl chloride	75-01-4	0.3	µg/L	<0.3	<0.3	0.0	No Limit
		EP125: Dichlorodifluoromethane	75-71-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Bromomethane	74-83-9	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Chloroethane	75-00-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Trichlorofluoromethane	75-69-4	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Bromochloromethane	74-97-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Dichloromethane	75-09-2	1	µg/L	<1.0	<1.0	0.0	No Limit
EM2209701-002	Anonymous	EP125: Hexachlorobutadiene	87-68-3	0.04	µg/L	<0.04	<0.04	0.0	No Limit
		EP125: Carbon Tetrachloride	56-23-5	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: Trichloroethene	79-01-6	0.05	µg/L	0.08	0.07	0.0	No Limit
		EP125: Tetrachloroethene	127-18-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP125: 1.1-Dichloroethene	75-35-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: trans-1.2-Dichloroethene	156-60-5	0.1	µg/L	0.2	0.2	0.0	No Limit
		EP125: 1.1-Dichloroethane	75-34-3	0.1	µg/L	0.6	0.6	0.0	No Limit
		EP125: cis-1.2-Dichloroethene	156-59-2	0.1	µg/L	0.5	0.5	0.0	No Limit
		EP125: 1.2-Dichloroethane	107-06-2	0.1	µg/L	0.2	0.2	0.0	No Limit
		EP125: 1.1.1-Trichloroethane	71-55-6	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1,2-Dichloroethene (sum cis & trans)	----	0.1	µg/L	0.70	0.70	0.0	No Limit
		EP125: 1.2-Dibromo-3-chloropropane	96-12-8	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: Vinyl chloride	75-01-4	0.3	µg/L	<0.3	<0.3	0.0	No Limit
		EP125: Dichlorodifluoromethane	75-71-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Bromomethane	74-83-9	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Chloroethane	75-00-3	0.5	µg/L	4.8	4.6	3.5	No Limit
		EP125: Trichlorofluoromethane	75-69-4	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Bromochloromethane	74-97-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP125: Dichloromethane	75-09-2	1	µg/L	<1.0	<1.0	0.0	No Limit
EP125F: Halogenated Aromatic Compounds (QC Lot: 4363932)									
EB2214384-001	Anonymous	EP125: Chlorobenzene	108-90-7	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: Bromobenzene	108-86-1	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: 1.3-Dichlorobenzene	541-73-1	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: 1.4-Dichlorobenzene	106-46-7	0.1	µg/L	<0.10	<0.10	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP125F: Halogenated Aromatic Compounds (QC Lot: 4363932) - continued									
EB2214384-001	Anonymous	EP125: 1.2-Dichlorobenzene	95-50-1	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: 2-Chlorotoluene	95-49-8	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 4-Chlorotoluene	106-43-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.2.4-Trichlorobenzene	120-82-1	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.2.3-Trichlorobenzene	87-61-6	0.1	µg/L	<1.0	<1.0	0.0	No Limit
		EP125: Trichlorobenzenes (Sum)	----	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: Benzylchloride	100-44-7	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EM2209701-002	Anonymous	EP125: Chlorobenzene	108-90-7	0.1	µg/L	20.1	21.7	7.8	0% - 20%
		EP125: Bromobenzene	108-86-1	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: 1.3-Dichlorobenzene	541-73-1	0.1	µg/L	1.16	1.13	2.7	0% - 50%
		EP125: 1.4-Dichlorobenzene	106-46-7	0.1	µg/L	1.14	1.10	3.2	0% - 50%
		EP125: 1.2-Dichlorobenzene	95-50-1	0.1	µg/L	0.42	0.41	2.7	No Limit
		EP125: 2-Chlorotoluene	95-49-8	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 4-Chlorotoluene	106-43-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.2.4-Trichlorobenzene	120-82-1	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: 1.2.3-Trichlorobenzene	87-61-6	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: Trichlorobenzenes (Sum)	----	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP125: Benzylchloride	100-44-7	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EP125G: Trihalomethanes (QC Lot: 4363932)									
EB2214384-001	Anonymous	EP125: Chloroform	67-66-3	0.1	µg/L	0.41	0.40	0.0	No Limit
		EP125: Bromodichloromethane	75-27-4	0.1	µg/L	0.40	0.40	0.0	No Limit
		EP125: Dibromochloromethane	124-48-1	0.1	µg/L	0.56	0.54	3.1	No Limit
		EP125: Bromoform	75-25-2	0.1	µg/L	1.38	1.23	11.6	0% - 50%
		EP125: Total Trihalomethanes	----	0.1	µg/L	2.75	2.57	6.8	0% - 20%
EM2209701-002	Anonymous	EP125: Chloroform	67-66-3	0.1	µg/L	0.11	<0.10	0.0	No Limit
		EP125: Bromodichloromethane	75-27-4	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: Dibromochloromethane	124-48-1	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: Bromoform	75-25-2	0.1	µg/L	<0.10	<0.10	0.0	No Limit
		EP125: Total Trihalomethanes	----	0.1	µg/L	0.11	<0.10	9.5	No Limit
EP125H: Naphthalene (QC Lot: 4363932)									
EB2214384-001	Anonymous	EP125: Naphthalene	91-20-3	0.05	µg/L	<1.00	<1.00	0.0	No Limit
EM2209701-002	Anonymous	EP125: Naphthalene	91-20-3	0.05	µg/L	0.82	0.84	1.9	0% - 50%
EP125L: Methyl t-butyl ether (QC Lot: 4363932)									
EB2214384-001	Anonymous	EP125: Methyl tert-butyl ether (MTBE)	1634-04-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EM2209701-002	Anonymous	EP125: Methyl tert-butyl ether (MTBE)	1634-04-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 4361588)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	9 pH Unit	100	99.3	101
EA010P: Conductivity by PC Titrator (QCLot: 4361583)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	100	85.0	119
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 4358823)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	105	91.0	110
				<10	2460 mg/L	99.4	81.7	118
				<10	293 mg/L	109	91.0	110
EP075G: Chlorinated Hydrocarbons (QCLot: 4359565)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	81.0	43.2	104
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	83.8	42.7	103
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	76.0	44.4	104
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	69.9	41.5	105
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	71.4	46.1	107
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	84.4	41.4	109
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	84.3	43.9	108
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	62.8	14.6	133
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	76.8	53.3	109
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	79.2	48.4	116
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4359561)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4000 µg/L	73.1	47.2	122
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16900 µg/L	80.8	52.9	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8090 µg/L	84.3	50.4	127
EP071: C10 - C36 Fraction (sum)	----	50	µg/L	<50	28990 µg/L	80.8	51.5	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4363684)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	112	66.2	134
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4359561)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5830 µg/L	78.3	49.1	125
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	21700 µg/L	86.4	51.6	128
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1560 µg/L	77.9	47.2	130
EP071: >C10 - C40 Fraction (sum)	----	100	µg/L	<100	29090 µg/L	84.2	51.2	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4363684)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	112	66.2	132

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 4363684)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	106	68.8	127
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	109	72.9	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	109	71.7	130
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	117	72.3	136
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	114	75.9	134
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	102	68.3	131
EP125A: Monocyclic Aromatic Hydrocarbons (QCLot: 4363932)								
EP125: Benzene	71-43-2	0.05	µg/L	<0.05	1 µg/L	104	88.0	114
EP125: Toluene	108-88-3	0.5	µg/L	<0.5	1 µg/L	99.4	82.0	118
EP125: Ethylbenzene	100-41-4	0.05	µg/L	<0.05	1 µg/L	94.4	79.0	121
EP125: meta- & para-Xylene	108-38-3 106-42-3	0.05	µg/L	<0.05	2 µg/L	90.2	79.0	119
EP125: Styrene	100-42-5	0.05	µg/L	<0.05	1 µg/L	82.2	82.0	116
EP125: ortho-Xylene	95-47-6	0.05	µg/L	<0.05	1 µg/L	92.3	82.0	116
EP125: 1.3.5-Trimethylbenzene	108-67-8	0.05	µg/L	<0.05	1 µg/L	82.3	78.0	120
EP125: 1.2.4-Trimethylbenzene	95-63-6	0.05	µg/L	<0.05	1 µg/L	91.9	77.0	119
EP125: Sum of Xylenes	1330-20-7	0.05	µg/L	<0.05	----	----	----	----
EP125D: Fumigants (QCLot: 4363932)								
EP125: 1.2-Dichloropropane	78-87-5	0.1	µg/L	<0.1	1 µg/L	105	84.0	120
EP125: cis-1.3-Dichloropropylene	10061-01-5	0.1	µg/L	<0.1	1 µg/L	102	82.0	120
EP125: trans-1.3-Dichloropropylene	10061-02-6	0.1	µg/L	<0.1	1 µg/L	115	77.0	125
EP125: 1.2-Dibromoethane (EDB)	106-93-4	0.1	µg/L	<0.1	1 µg/L	103	78.0	128
EP125E: Halogenated Aliphatic Compounds (QCLot: 4363932)								
EP125: Dichlorodifluoromethane	75-71-8	0.5	µg/L	<0.5	10 µg/L	108	71.0	133
EP125: Vinyl chloride	75-01-4	0.3	µg/L	<0.3	10 µg/L	102	75.0	129
EP125: Bromomethane	74-83-9	0.5	µg/L	<0.5	10 µg/L	91.5	56.0	136
EP125: Chloroethane	75-00-3	0.5	µg/L	<0.5	10 µg/L	106	68.0	134
EP125: Trichlorofluoromethane	75-69-4	0.5	µg/L	<0.5	10 µg/L	107	77.0	129
EP125: 1.1-Dichloroethene	75-35-4	0.1	µg/L	<0.1	1 µg/L	106	81.0	123
EP125: Dichloromethane	75-09-2	1	µg/L	<1.0	1 µg/L	109	70.0	130
EP125: trans-1.2-Dichloroethene	156-60-5	0.1	µg/L	<0.1	1 µg/L	104	85.0	119
EP125: 1.1-Dichloroethane	75-34-3	0.1	µg/L	<0.1	1 µg/L	107	84.0	122
EP125: cis-1.2-Dichloroethene	156-59-2	0.1	µg/L	<0.1	1 µg/L	107	85.0	119
EP125: Bromochloromethane	74-97-5	0.5	µg/L	<0.5	1 µg/L	107	78.0	132
EP125: 1.2-Dichloroethane	107-06-2	0.1	µg/L	<0.1	1 µg/L	106	76.0	132
EP125: 1.1.1-Trichloroethane	71-55-6	0.1	µg/L	<0.1	1 µg/L	106	82.0	122
EP125: Carbon Tetrachloride	56-23-5	0.05	µg/L	<0.05	1 µg/L	108	79.0	125

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP125E: Halogenated Aliphatic Compounds (QCLot: 4363932) - continued								
EP125: Trichloroethene	79-01-6	0.05	µg/L	<0.05	1 µg/L	108	79.0	125
EP125: Tetrachloroethene	127-18-4	0.05	µg/L	<0.05	1 µg/L	124	75.0	131
EP125: Hexachlorobutadiene	87-68-3	0.04	µg/L	<0.04	1 µg/L	130	63.0	137
EP125: 1,2-Dichloroethene (sum cis & trans)	----	0.1	µg/L	<0.10	----	----	----	----
EP125: 1.2-Dibromo-3-chloropropane	96-12-8	0.1	µg/L	<0.10	1 µg/L	87.9	76.0	132
EP125F: Halogenated Aromatic Compounds (QCLot: 4363932)								
EP125: Chlorobenzene	108-90-7	0.1	µg/L	<0.10	1 µg/L	99.4	87.0	113
EP125: Bromobenzene	108-86-1	0.1	µg/L	<0.10	1 µg/L	99.1	80.0	118
EP125: Benzylchloride	100-44-7	0.2	µg/L	<0.2	1 µg/L	76.8	62.0	124
EP125: 1.3-Dichlorobenzene	541-73-1	0.1	µg/L	<0.10	1 µg/L	89.9	84.0	114
EP125: 1.4-Dichlorobenzene	106-46-7	0.1	µg/L	<0.10	1 µg/L	86.1	83.0	113
EP125: 1.2-Dichlorobenzene	95-50-1	0.1	µg/L	<0.10	1 µg/L	99.7	90.0	112
EP125: 2-Chlorotoluene	95-49-8	0.1	µg/L	<0.1	1 µg/L	95.7	82.0	116
EP125: 4-Chlorotoluene	106-43-4	0.1	µg/L	<0.1	1 µg/L	89.0	80.0	116
EP125: 1.2.4-Trichlorobenzene	120-82-1	0.1	µg/L	<0.1	1 µg/L	85.3	83.0	117
EP125: 1.2.3-Trichlorobenzene	87-61-6	0.1	µg/L	<0.1	1 µg/L	116	82.0	118
EP125: Trichlorobenzenes (Sum)	----	0.1	µg/L	<0.1	----	----	----	----
EP125G: Trihalomethanes (QCLot: 4363932)								
EP125: Chloroform	67-66-3	0.1	µg/L	<0.10	1 µg/L	108	83.0	125
EP125: Bromodichloromethane	75-27-4	0.1	µg/L	<0.10	1 µg/L	107	80.0	128
EP125: Dibromochloromethane	124-48-1	0.1	µg/L	<0.10	1 µg/L	106	78.0	130
EP125: Bromoform	75-25-2	0.1	µg/L	<0.10	1 µg/L	104	74.0	132
EP125: Total Trihalomethanes	----	0.1	µg/L	<0.10	----	----	----	----
EP125H: Naphthalene (QCLot: 4363932)								
EP125: Naphthalene	91-20-3	0.05	µg/L	<0.05	1 µg/L	98.9	89.0	113
EP125L: Methyl t-butyl ether (QCLot: 4363932)								
EP125: Methyl tert-butyl ether (MTBE)	1634-04-4	0.1	µg/L	<0.1	1 µg/L	94.9	81.0	123

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4363684)							
EM2209076-005	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	77.7	33.9	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4363684)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4363684) - continued							
EM2209076-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	77.8	34.0	122
EP080: BTEXN (QCLot: 4363684)							
EM2209076-005	Anonymous	EP080: Benzene	71-43-2	20 µg/L	96.9	56.3	133
		EP080: Toluene	108-88-3	20 µg/L	94.6	60.4	132
EP125A: Monocyclic Aromatic Hydrocarbons (QCLot: 4363932)							
EB2214490-002	Anonymous	EP125: Benzene	71-43-2	10 µg/L	119	71.0	133
		EP125: Toluene	108-88-3	10 µg/L	114	70.0	128
EP125E: Halogenated Aliphatic Compounds (QCLot: 4363932)							
EB2214490-002	Anonymous	EP125: 1.1-Dichloroethene	75-35-4	10 µg/L	# 132	54.0	130
		EP125: Trichloroethene	79-01-6	10 µg/L	# 118	57.0	100
EP125F: Halogenated Aromatic Compounds (QCLot: 4363932)							
EB2214490-002	Anonymous	EP125: Chlorobenzene	108-90-7	10 µg/L	112	75.0	129

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2209614**	Page	: 1 of 6
Client	: **GREENCAP-NAA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR ANDREW DURAND	Telephone	: +6138549 9645
Project	: J154748	Date Samples Received	: 24-May-2022
Site	: Tonsley EMP	Issue Date	: 31-May-2022
Sampler	: TF	No. of samples received	: 1
Order number	: 301922	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

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

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP125E: Halogenated Aliphatic Compounds	EB2214490--002	Anonymous	**1.1-Dichloroethene**	75-35-4	132 %	54.0-130%	**Recovery greater than upper data quality objective**
EP125E: Halogenated Aliphatic Compounds	EB2214490--002	Anonymous	**Trichloroethene**	79-01-6	118 %	57.0-100%	**Recovery greater than upper data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural QC01A	----	----	----	26-May-2022	19-May-2022	**7**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Semivolatile Organic Compounds	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Semivolatile Organic Compounds	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) QC01A	**19-May-2022**	**----**	----	----	**26-May-2022**	19-May-2022	×

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
QC01A	**19-May-2022**	**----**	----	----	**26-May-2022**	16-Jun-2022	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
QC01A	**19-May-2022**	**----**	----	----	**25-May-2022**	26-May-2022	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075)							
QC01A	**19-May-2022**	**25-May-2022**	26-May-2022	✓	**26-May-2022**	04-Jul-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC01A	**19-May-2022**	**25-May-2022**	26-May-2022	✓	**26-May-2022**	04-Jul-2022	✓
Clear glass VOC vial - HCl (EP080)							
QC01A	**19-May-2022**	**27-May-2022**	02-Jun-2022	✓	**27-May-2022**	02-Jun-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC01A	**19-May-2022**	**25-May-2022**	26-May-2022	✓	**26-May-2022**	04-Jul-2022	✓
Clear glass VOC vial - HCl (EP080)							
QC01A	**19-May-2022**	**27-May-2022**	02-Jun-2022	✓	**27-May-2022**	02-Jun-2022	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QC01A	**19-May-2022**	**27-May-2022**	02-Jun-2022	✓	**27-May-2022**	02-Jun-2022	✓
EP125A: Monocyclic Aromatic Hydrocarbons							
Clear glass VOC vial - HCl (EP125)							
QC01A	**19-May-2022**	**----**	----	----	**27-May-2022**	02-Jun-2022	✓
EP125D: Fumigants							
Clear glass VOC vial - HCl (EP125)							
QC01A	**19-May-2022**	**----**	----	----	**27-May-2022**	02-Jun-2022	✓
EP125E: Halogenated Aliphatic Compounds							
Clear glass VOC vial - HCl (EP125)							
QC01A	**19-May-2022**	**----**	----	----	**27-May-2022**	02-Jun-2022	✓
EP125F: Halogenated Aromatic Compounds							
Clear glass VOC vial - HCl (EP125)							
QC01A	**19-May-2022**	**----**	----	----	**27-May-2022**	02-Jun-2022	✓
EP125G: Trihalomethanes							
Clear glass VOC vial - HCl (EP125)							
QC01A	**19-May-2022**	**----**	----	----	**27-May-2022**	02-Jun-2022	✓
EP125H: Naphthalene							
Clear glass VOC vial - HCl (EP125)							
QC01A	**19-May-2022**	**----**	----	----	**27-May-2022**	02-Jun-2022	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP125L: Methyl t-butyl ether							
Clear glass VOC vial - HCl (EP125)							
QC01A	**19-May-2022**	**----**	----	----	**27-May-2022**	02-Jun-2022	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Conductivity by Auto Titrator	EA010-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOC by HS GCMS in SIM Mode	EP125	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	28	**10.71**	**7.50**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOC by HS GCMS in SIM Mode	EP125	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOC by HS GCMS in SIM Mode	EP125	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Semivolatile Organic Compounds	EP075	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOC by HS GCMS in SIM Mode	EP125	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
VOC by HS GCMS in SIM Mode	EP125	WATER	In house: A sample is saturated with sodium chloride and achieving thermodynamic equilibrium between the water and gas phase in a closed thermostatted vessel. A reproducible headspace gas is extracted from the vial and injected into a gas chromatograph and the analyte of interest is seperated by means of gas/liquid partition chromatography and quantified using automated static headspace GCMS in SIM mode.

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

Chain of Custody - Greencap Adelaide
Ph. 8299 9955

GREENCAP

Client	: Renewal SA		Date	:	19th and 20/05/2022
Project	: Groundwater Sampling		Sampled by	:	Tomas Farrow
Project Manager	: Andrew Durand		Sampler Mobile	:	0459945577
Job No.	: J154748		Purchase Order	:	301922
Location	: Tonsley EMP		T/Around		***STANDARD TAT***
Please email results to:		Tomas.Farrow@greencap.com.au			Andrew.Durand@greencap.com.au
Relinquished byTF-20/05/2022 *Signature & date*		Recieved by: *Signature & date* 20/5/22 4.5°c	Relinquished by: *Signature & date* 23/5/22		Received by: *Signature & date*

Field ID	Depth	Sampled	Matrix (Soil, Water, Vapour, etc)	Sample Containers: 250ml Soil Jar	40ml Vials (HCL preserved)	100ml Glass Amber (semi-volatile)	60ml Plastic (Nitric Acid Preserved)	60ml Plastic Nturients (h_2SO4)	250ml Plastic (unpreserved)	60ml Ferrous Iron (HCL)	60ml Plastic - Cyanide/Hex Cr (NaOH)	250ml Plastic (PFOS/PFOA)	Testing: S-4 : TRH, BTEXN	S-2 : Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	S-5 TRH/ BTEXN/ Metals (8)	S-26 TRH/ BTEXN/ PAH/ Metals (8)	S-16 : TRH (C6-C40)/BTEXNPAH/OC/OP/PCB, 8 M	ph, TDS, EC	VOC (Ultra trace)	Semi Vol CHC	S-18: TRH (C6-C10) & BTEX	BTEXN	P-22: NEPM Screen for Soil Classification Screen	Hold
(1) QC01A		19/05/2022			4	1			1				1					1	1	1				
Totals				0	4	1	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0

Environmental Division
Melbourne
Work Order Reference
EM2209614

Telephone : + 61-3-8549 9600

Received: 20/5, 10:10 Carrier: TNT
C/note: EEN 01260750
Temp: 6.7°C Seal: Y / N
Y / Icebricks / NA

Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

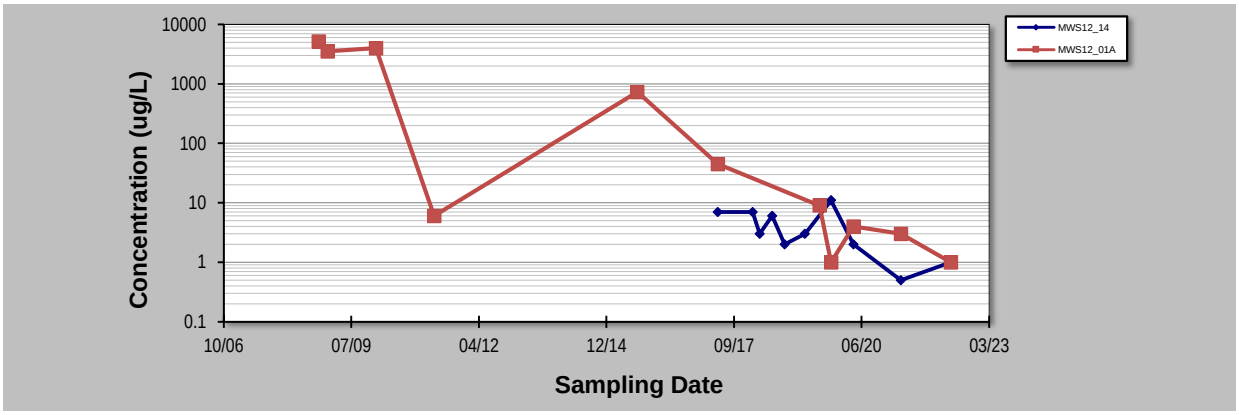
Appendix D: Mann-Kendall Trend Analysis – Groundwater

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **Benzene**
Concentration Units: **ug/L**

Sampling Point ID:	MWS12_14	MWS12_01A					
Sampling Event	Sampling Date	BENZENE CONCENTRATION (ug/L)						
1	23-Oct-08		5160					
2	2-Jan-09		3510					
3	15-Jan-10		4000					
4	18-Apr-11		6					
5	18-Sep-14							
6	26-Aug-15		730					
7	18-May-17	7	45					
8	15-Feb-18	7						
9	12-Apr-18	3						
10	19-Jul-18	6						
11	24-Oct-18	2						
12	2-Apr-19	3						
13	24-Jul-19		9					
14	23-Oct-19	11	1					
15	17-Apr-20	2	4					
16	23-Apr-21	0.5	3					
17	19-May-22	1	1					
18								
19								
20								
Coefficient of Variation:		0.79	1.61					
Mann-Kendall Statistic (S):		-24	-42					
Confidence Factor:		98.2%	>99.9%					
Concentration Trend:		Decreasing	Decreasing					



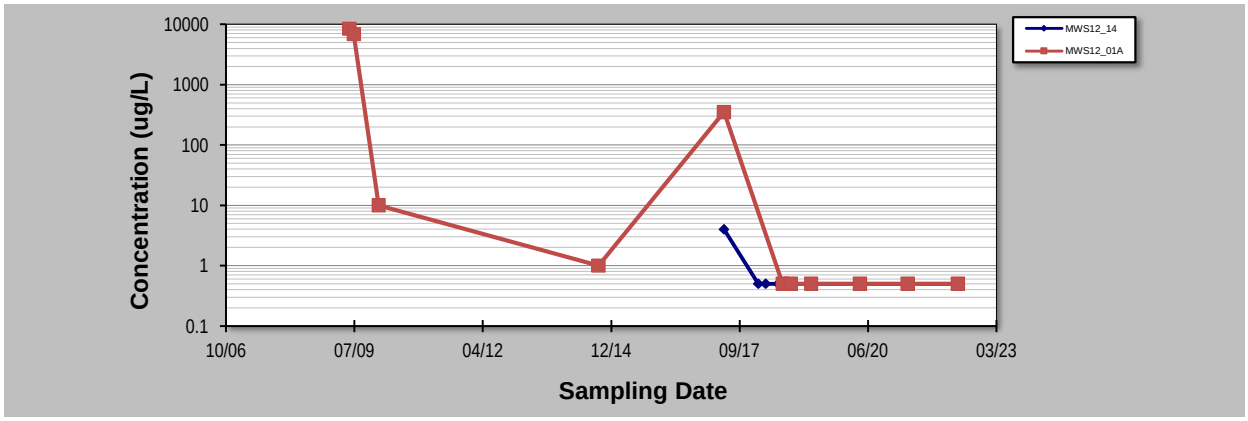
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	Ethylbenzene
Conducted By:	AS	Concentration Units:	ug/L

Sampling Point ID:	MWS12_14	MWS12_01A					
Sampling Event	Sampling Date	ETHYLBENZENE CONCENTRATION (ug/L)					
1	27-May-09		8470				
2	1-Jul-09		6870				
3	11-Jan-10		10				
4	18-Sep-14		*1*				
5	20-Aug-15						
6	23-May-17	4	350				
7	14-Feb-18	*0.5*					
8	12-Apr-18	*0.5*					
9	19-Jul-18	*0.5*					
10	23-Aug-18		*0.5*				
11	25-Oct-18	*0.5*	*0.5*				
12	2-Apr-19	*0.5*	*0.5*				
13	17-Apr-20	*0.5*	*0.5*				
14	23-Apr-21	0.5	0.5				
15	19-May-22	0.5	0.5				
16							
17							
18							
19							
20							
Coefficient of Variation:		**1.31**	**2.18**				
Mann-Kendall Statistic (S):		**-8**	**-36**				
Confidence Factor:		**76.2%**	**99.8%**				
Concentration Trend:		No Trend	Decreasing				



Notes:

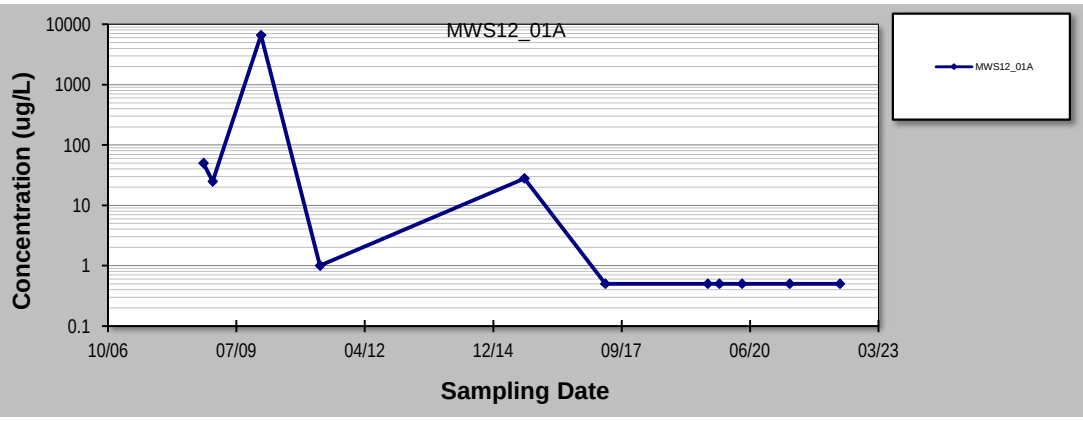
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	Toluene
Conducted By:	AS	Concentration Units:	ug/L

Sampling Point ID: **MWS12_01A**

Sampling Event	Sampling Date	TOLUENE CONCENTRATION (ug/L)
1	23-Oct-08	*50*
2	2-Jan-09	*25*
3	15-Jan-10	6610
4	18-Apr-11	*1*
5	18-Sep-14	
6	26-Aug-15	28
7	18-May-17	*0.5*
8	24-Jul-19	*0.5*
9	23-Oct-19	*0.5*
10	17-Apr-20	*0.5*
11	23-Apr-21	0.5
12	19-May-22	0.5
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		**3.26**
Mann-Kendall Statistic (S):		**-32**
Confidence Factor:		**99.4%**
Concentration Trend:		Decreasing



Notes:

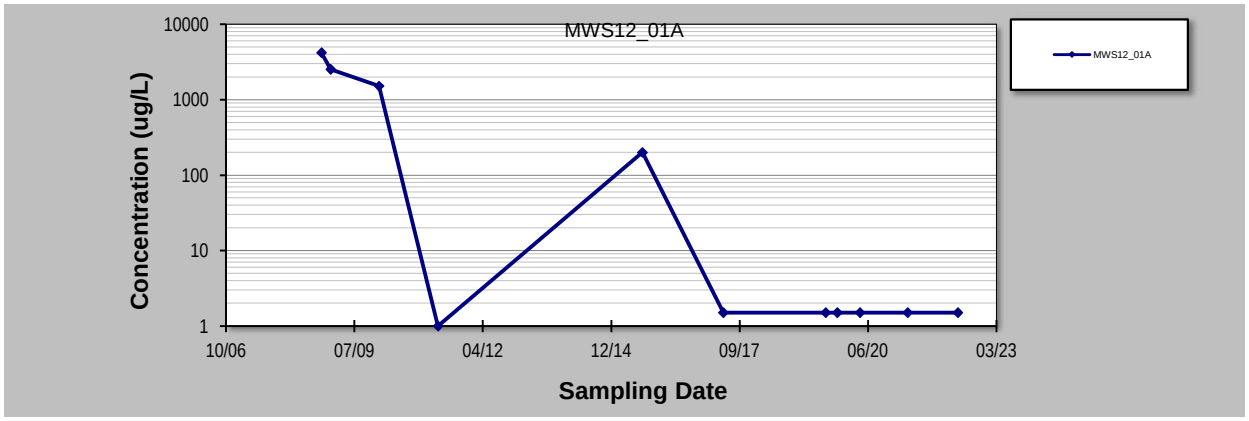
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	Xylenes
Conducted By:	AS	Concentration Units:	ug/L

Sampling Point ID: **MWS12_01A**

Sampling Event	Sampling Date	XYLENES CONCENTRATION (ug/L)
1	23-Oct-08	4212
2	2-Jan-09	2538
3	15-Jan-10	1520
4	18-Apr-11	*1*
5	18-Sep-14	
6	26-Aug-15	*200*
7	18-May-17	*1.5*
8	24-Jul-19	*1.5*
9	23-Oct-19	*1.5*
10	17-Apr-20	*1.5*
11	23-Apr-21	1.5
12	19-May-22	1.5
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		**1.83**
Mann-Kendall Statistic (S):		**-26**
Confidence Factor:		**97.5%**
Concentration Trend:		Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

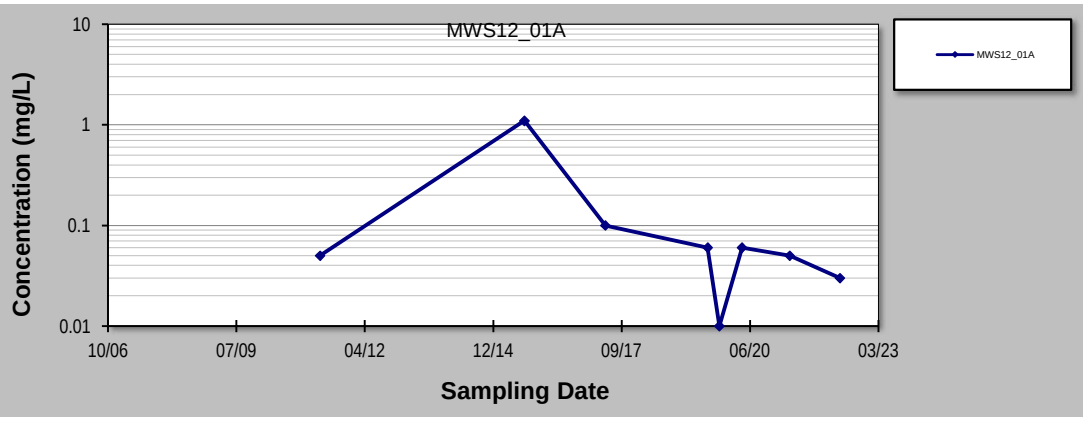
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **C6-C10 less BTEX (F1)**
Concentration Units: **mg/L**

Sampling Point ID: **MWS12_01A**

Sampling Event	Sampling Date	C6-C10 LESS BTEX (F1) CONCENTRATION (mg/L)
1	23-Oct-08	
2	2-Jan-09	
3	15-Jan-10	
4	18-Apr-11	0.05
5	18-Sep-14	
6	26-Aug-15	1.1
7	18-May-17	0.1
8	24-Jul-19	0.06
9	23-Oct-19	*0.01*
10	17-Apr-20	0.06
11	23-Apr-21	0.05
12	19-May-22	0.03
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		**2.04**
Mann-Kendall Statistic (S):		**-12**
Confidence Factor:		**91.1%**
Concentration Trend:		Prob. Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

Groundwater and Soil Vapour Monitoring Event (May 2022)

Renewal SA

Appendix E: NATA Accredited Laboratory Results – Soil Vapour

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EN2204789**	Page	: 1 of 28
Amendment	: **1**		
Client	: **GREENCAP-NAA PTY LTD**	Laboratory	: Environmental Division Newcastle
Contact	: MR ANDREW DURAND	Contact	: Kieren Burns
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Telephone	: +61 08 8299 9955	Telephone	: +61881625130
Project	: J154748	Date Samples Received	: 20-May-2022 09:00
Order number	: PO300673	Date Analysis Commenced	: 24-May-2022
C-O-C number	: ----	Issue Date	: 15-Jun-2022 11:58
Sampler	: JAKE BERMINGHAM		
Site	: ----		
Quote number	: AD/033/22 V2		
No. of samples received	: 25		
No. of samples analysed	: 25		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

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

Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, NSW

General Comments

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

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

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

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

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

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

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

- Amendment (15/06/2022): This report has been amended to allow the distribution of ESDAT not previously provided. All analysis results are as per the previous report.
- EP101: Particular samples required dilution due to the presence of high level hydrocarbons. Where applicable, LOR values have been adjusted accordingly.
- EP101: ALS quality procedures (QWI-EN/38) permit, for organic trace analysis, that the recoveries of 20% of target compounds may lie outside of established control limits as long as these remain within acceptable ranges defined within referenced USEPA methods.
- EP101, EP103: Results reported in mg/m³ are calculated from PPMV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- CAN-001: Results for Pressure - As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an Absolute Pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere taken at the time of measurement.
- CAN-001: Results for Pressure - Gauge as Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure

Analytical Results

Sub-Matrix: SOIL GAS
(Matrix: AIR)

				VP12_2.5 C12388_S280	VP12_3.8 C12376_S108	VP12_6.0 C12425_S149	VP27_3.0 C5039_S099	VP27_6.0 C12449_S053
				13-May-2022 00:00	13-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-001	EN2204789-002	EN2204789-003	EN2204789-004	EN2204789-005
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	<0.250	<0.250	<0.250	<0.250	<0.250
Chloromethane	74-87-3	0.100	mg/m³	<0.100	<0.100	**0.244**	<0.100	<0.100
Freon 114	76-14-2	0.350	mg/m³	<0.350	<0.350	<0.350	<0.350	<0.350
Vinyl chloride	75-01-4	0.0051	mg/m³	<0.0051	<0.128	<0.128	<0.0051	<0.128
Bromomethane	74-83-9	0.190	mg/m³	<0.190	<0.190	<0.190	<0.190	<0.190
Chloroethane	75-00-3	0.130	mg/m³	<0.130	<0.130	**0.148**	<0.130	<0.130
Freon 11	75-69-4	0.280	mg/m³	<0.280	<0.280	<0.280	<0.280	<0.280
1.1-Dichloroethene	75-35-4	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Dichloromethane	75-09-2	0.170	mg/m³	<0.170	<0.170	<0.170	<0.170	<0.170
Freon 113	76-13-1	0.380	mg/m³	<0.380	<0.380	<0.380	<0.380	<0.380
1.1-Dichloroethane	75-34-3	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	<0.0200	<0.200	<0.200	<0.0200	<0.200
Chloroform	67-66-3	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
1.2-Dichloroethane	107-06-2	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	<0.270	<0.270	<0.270	<0.270	<0.270
Benzene	71-43-2	0.100	mg/m³	<0.100	<0.160	<0.160	<0.100	<0.160
Carbon Tetrachloride	56-23-5	0.310	mg/m³	<0.310	<0.310	<0.310	<0.310	<0.310
1.2-Dichloropropane	78-87-5	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
Trichloroethene	79-01-6	0.0054	mg/m³	<0.0054	<0.270	<0.270	<0.0054	<0.270
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	<0.270	<0.270	<0.270	<0.270	<0.270
Toluene	108-88-3	0.190	mg/m³	<0.190	<0.190	<0.190	<0.190	<0.190
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	<0.380	<0.380	<0.380	<0.380	<0.380
Tetrachloroethene	127-18-4	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
Chlorobenzene	108-90-7	0.230	mg/m³	<0.230	<0.230	**0.616**	<0.230	<0.230
Ethylbenzene	100-41-4	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³	<0.430	<0.430	<0.430	<0.430	<0.430
Styrene	100-42-5	0.210	mg/m³	<0.210	<0.210	<0.210	<0.210	<0.210
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
ortho-Xylene	95-47-6	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
4-Ethyltoluene	622-96-8	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
Total Xylenes	----	0.650	mg/m³	<0.650	<0.650	<0.650	<0.650	<0.650
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP12_2.5 C12388_S280	VP12_3.8 C12376_S108	VP12_6.0 C12425_S149	VP27_3.0 C5039_S099	VP27_6.0 C12449_S053
				13-May-2022 00:00	13-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-001	EN2204789-002	EN2204789-003	EN2204789-004	EN2204789-005
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued								
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
Benzylchloride	100-44-7	0.260	mg/m³	<0.260	<0.260	<0.260	<0.260	<0.260
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³	<0.370	<0.370	<0.370	<0.370	<0.370
Hexachlorobutadiene	87-68-3	0.530	mg/m³	<0.530	<0.530	<0.530	<0.530	<0.530
Acetone	67-64-1	0.120	mg/m³	<0.120	<0.120	<0.120	<0.120	<0.120
Bromodichloromethane	75-27-4	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
1.3-Butadiene	106-99-0	0.110	mg/m³	<0.110	<0.110	<0.110	<0.110	<0.110
Carbon disulfide	75-15-0	0.160	mg/m³	<0.160	<0.160	<0.160	<0.160	<0.160
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³	<0.160	<0.160	<0.160	<0.160	<0.160
Cyclohexane	110-82-7	0.170	mg/m³	<0.170	**0.333**	<0.170	<0.170	**6.98**
Dibromochloromethane	124-48-1	0.430	mg/m³	<0.430	<0.430	<0.430	<0.430	<0.430
1.4-Dioxane	123-91-1	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Ethylacetate	9002-89-5	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Heptane	142-82-5	0.200	mg/m³	<0.200	**0.256**	<0.200	<0.200	**2.99**
Hexane	110-54-3	0.180	mg/m³	<0.180	**1.21**	**0.641**	<0.180	**10.4**
Isooctane	540-84-1	0.230	mg/m³	**2.09**	**72.8**	**77.5**	<0.230	**65.8**
Isopropyl Alcohol	67-63-0	0.120	mg/m³	<0.120	<0.120	<0.120	<0.120	<0.120
2-Butanone (MEK)	78-93-3	0.150	mg/m³	<0.150	<0.150	<0.150	<0.150	<0.150
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³	<0.200	**1.75**	**1.54**	<0.200	**4.38**
2-Hexanone (MBK)	591-78-6	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Propene	115-07-1	0.0900	mg/m³	<0.0900	<0.0900	<0.0900	<0.0900	<0.0900
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Tetrahydrofuran	109-99-9	0.150	mg/m³	<0.150	<0.150	<0.150	<0.150	<0.150
Bromoform	75-25-2	0.520	mg/m³	<0.520	<0.520	<0.520	<0.520	<0.520
Vinyl Acetate	108-05-4	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Vinyl bromide	593-60-2	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
Naphthalene	91-20-3	0.100	mg/m³	<0.100	<0.260	<0.260	<0.100	<0.260
EP101: VOCs by USEPA Method TO15r								
Freon 12	75-71-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP12_2.5 C12388_S280	VP12_3.8 C12376_S108	VP12_6.0 C12425_S149	VP27_3.0 C5039_S099	VP27_6.0 C12449_S053
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				EN2204789-001	EN2204789-002	EN2204789-003	EN2204789-004	EN2204789-005
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Chloromethane	74-87-3	0.0500	ppmv	<0.0500	<0.0500	**0.118**	<0.0500	<0.0500
Freon 114	76-14-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl chloride	75-01-4	0.0020	ppmv	<0.0020	<0.0500	<0.0500	<0.0020	<0.0500
Bromomethane	74-83-9	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chloroethane	75-00-3	0.0500	ppmv	<0.0500	<0.0500	**0.0561**	<0.0500	<0.0500
Freon 11	75-69-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1-Dichloroethene	75-35-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Dichloromethane	75-09-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Freon 113	76-13-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1-Dichloroethane	75-34-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv	<0.0050	<0.0500	<0.0500	<0.0050	<0.0500
Chloroform	67-66-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichloroethane	107-06-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Benzene	71-43-2	0.0300	ppmv	<0.0300	<0.0500	<0.0500	<0.0300	<0.0500
Carbon Tetrachloride	56-23-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichloropropane	78-87-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Trichloroethene	79-01-6	0.0010	ppmv	<0.0010	<0.0500	<0.0500	<0.0010	<0.0500
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Toluene	108-88-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Tetrachloroethene	127-18-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chlorobenzene	108-90-7	0.0500	ppmv	<0.0500	<0.0500	**0.134**	<0.0500	<0.0500
Ethylbenzene	100-41-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv	<0.100	<0.100	<0.100	<0.100	<0.100
Styrene	100-42-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ortho-Xylene	95-47-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-Ethyltoluene	622-96-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP12_2.5 C12388_S280	VP12_3.8 C12376_S108	VP12_6.0 C12425_S149	VP27_3.0 C5039_S099	VP27_6.0 C12449_S053
				13-May-2022 00:00	13-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-001	EN2204789-002	EN2204789-003	EN2204789-004	EN2204789-005
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Benzylchloride	100-44-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Hexachlorobutadiene	87-68-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Acetone	67-64-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Bromodichloromethane	75-27-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3-Butadiene	106-99-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Carbon disulfide	75-15-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cyclohexane	110-82-7	0.0500	ppmv	<0.0500	**0.0968**	<0.0500	<0.0500	**2.03**
Dibromochloromethane	124-48-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.4-Dioxane	123-91-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Ethylacetate	9002-89-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Heptane	142-82-5	0.0500	ppmv	<0.0500	**0.0625**	<0.0500	<0.0500	**0.731**
Hexane	110-54-3	0.0500	ppmv	<0.0500	**0.344**	**0.182**	<0.0500	**2.96**
Isooctane	540-84-1	0.0500	ppmv	**0.447**	**15.6**	**16.6**	<0.0500	**14.1**
Isopropyl Alcohol	67-63-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-Butanone (MEK)	78-93-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv	<0.0500	**0.428**	**0.375**	<0.0500	**1.07**
2-Hexanone (MBK)	591-78-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Propene	115-07-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Tetrahydrofuran	109-99-9	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Bromoform	75-25-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl Acetate	108-05-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl bromide	593-60-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Naphthalene	91-20-3	0.0190	ppmv	<0.0190	<0.0500	<0.0500	<0.0190	<0.0500
EP103: Petroleum Hydrocarbons in Gaseous Samples								
C6 - C9 Fraction	----	5.00	ppmv	**12.6**	**722**	**647**	<5.00	**1100**
C10 - C14 Fraction	----	5.00	ppmv	<5.00	**15.1**	**43.1**	<5.00	**98.3**
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)								

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP12_2.5 C12388_S280	VP12_3.8 C12376_S108	VP12_6.0 C12425_S149	VP27_3.0 C5039_S099	VP27_6.0 C12449_S053
				13-May-2022 00:00	13-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-001	EN2204789-002	EN2204789-003	EN2204789-004	EN2204789-005
				Result	Result	Result	Result	Result
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc) - Continued								
C6 - C9 Fraction	----	20.0	mg/m³	**51.5**	**2950**	**2640**	<20.0	**4500**
C10 - C14 Fraction	----	35.0	mg/m³	<35.0	**105**	**299**	<35.0	**683**
EP103: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	5.00	ppmv	**8.31**	**507**	**478**	<5.00	**728**
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	5.00	ppmv	**8.31**	**507**	**478**	<5.00	**728**
>C10 - C16 Fraction	----	5.00	ppmv	<5.00	**6.70**	**27.8**	<5.00	**63.5**
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv	<5.00	**6.70**	**27.8**	<5.00	**63.5**
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)								
C6 - C10 Fraction	C6_C10	20.0	mg/m³	**34.0**	**2070**	**1950**	<20.0	**2980**
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³	**34.0**	**2070**	**1950**	<20.0	**2980**
>C10 - C16 Fraction	----	40.0	mg/m³	<40.0	**50.4**	**209**	<40.0	**478**
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³	<40.0	**50.4**	**209**	<40.0	**478**
Sampling Quality Assurance								
Pressure - As received	PRESSURE	0.1	kPaa	**62.7**	**75.8**	**77.0**	**67.8**	**70.0**
Pressure - Laboratory Atmosphere	----	0.1	kPaa	**100**	**100**	**100**	**100**	**100**
Temperature as Received	----	0.1	°C	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Vacuum - As received	----	0.03	Inches Hg	**11.1**	**7.26**	**6.91**	**9.63**	**8.98**
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	460-00-4	0.5	%	**87.7**	**89.3**	**92.7**	**90.2**	**90.6**

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)

				VP28_3.0 C12346_S129	VP30_3.0 C843_S194	VP31_3.0 C1303_S048	VP32_3.0 C841_S267	VP41_3.0 C12365_S092
				13-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	16-May-2022 00:00
				EN2204789-006	EN2204789-007	EN2204789-008	EN2204789-009	EN2204789-010
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	<0.250	<0.250	<0.250	<0.250	<0.250
Chloromethane	74-87-3	0.100	mg/m³	<0.100	<0.100	<0.100	<0.100	<0.100
Freon 114	76-14-2	0.350	mg/m³	<0.350	<0.350	<0.350	<0.350	<0.350
Vinyl chloride	75-01-4	0.0051	mg/m³	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
Bromomethane	74-83-9	0.190	mg/m³	<0.190	<0.190	<0.190	<0.190	<0.190
Chloroethane	75-00-3	0.130	mg/m³	<0.130	<0.130	<0.130	<0.130	<0.130
Freon 11	75-69-4	0.280	mg/m³	<0.280	<0.280	<0.280	<0.280	<0.280
1.1-Dichloroethene	75-35-4	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Dichloromethane	75-09-2	0.170	mg/m³	<0.170	<0.170	<0.170	<0.170	<0.170
Freon 113	76-13-1	0.380	mg/m³	<0.380	<0.380	<0.380	<0.380	<0.380
1.1-Dichloroethane	75-34-3	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Chloroform	67-66-3	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
1.2-Dichloroethane	107-06-2	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	<0.270	<0.270	<0.270	<0.270	<0.270
Benzene	71-43-2	0.100	mg/m³	<0.100	<0.100	<0.100	<0.100	<0.100
Carbon Tetrachloride	56-23-5	0.310	mg/m³	<0.310	<0.310	<0.310	<0.310	<0.310
1.2-Dichloropropane	78-87-5	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
Trichloroethene	79-01-6	0.0054	mg/m³	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	<0.270	<0.270	<0.270	<0.270	<0.270
Toluene	108-88-3	0.190	mg/m³	<0.190	<0.190	<0.190	<0.190	<0.190
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	<0.380	<0.380	<0.380	<0.380	<0.380
Tetrachloroethene	127-18-4	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
Chlorobenzene	108-90-7	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
Ethylbenzene	100-41-4	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³	<0.430	<0.430	<0.430	<0.430	<0.430
Styrene	100-42-5	0.210	mg/m³	<0.210	<0.210	<0.210	<0.210	<0.210
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
ortho-Xylene	95-47-6	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
4-Ethyltoluene	622-96-8	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
Total Xylenes	----	0.650	mg/m³	<0.650	<0.650	<0.650	<0.650	<0.650
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP28_3.0 C12346_S129	VP30_3.0 C843_S194	VP31_3.0 C1303_S048	VP32_3.0 C841_S267	VP41_3.0 C12365_S092
				13-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	16-May-2022 00:00
				EN2204789-006	EN2204789-007	EN2204789-008	EN2204789-009	EN2204789-010
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued								
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
Benzylchloride	100-44-7	0.260	mg/m³	<0.260	<0.260	<0.260	<0.260	<0.260
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³	<0.370	<0.370	<0.370	<0.370	<0.370
Hexachlorobutadiene	87-68-3	0.530	mg/m³	<0.530	<0.530	<0.530	<0.530	<0.530
Acetone	67-64-1	0.120	mg/m³	<0.120	<0.120	<0.120	<0.120	<0.120
Bromodichloromethane	75-27-4	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
1.3-Butadiene	106-99-0	0.110	mg/m³	<0.110	<0.110	<0.110	<0.110	<0.110
Carbon disulfide	75-15-0	0.160	mg/m³	<0.160	<0.160	<0.160	<0.160	<0.160
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³	<0.160	<0.160	<0.160	<0.160	<0.160
Cyclohexane	110-82-7	0.170	mg/m³	<0.170	<0.170	<0.170	<0.170	<0.170
Dibromochloromethane	124-48-1	0.430	mg/m³	<0.430	<0.430	<0.430	<0.430	<0.430
1.4-Dioxane	123-91-1	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Ethylacetate	9002-89-5	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Heptane	142-82-5	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Hexane	110-54-3	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Isooctane	540-84-1	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
Isopropyl Alcohol	67-63-0	0.120	mg/m³	<0.120	<0.120	<0.120	<0.120	<0.120
2-Butanone (MEK)	78-93-3	0.150	mg/m³	<0.150	<0.150	<0.150	<0.150	<0.150
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
2-Hexanone (MBK)	591-78-6	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Propene	115-07-1	0.0900	mg/m³	<0.0900	<0.0900	<0.0900	<0.0900	<0.0900
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Tetrahydrofuran	109-99-9	0.150	mg/m³	<0.150	<0.150	<0.150	<0.150	<0.150
Bromoform	75-25-2	0.520	mg/m³	<0.520	<0.520	<0.520	<0.520	<0.520
Vinyl Acetate	108-05-4	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Vinyl bromide	593-60-2	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
Naphthalene	91-20-3	0.100	mg/m³	<0.100	<0.100	<0.100	<0.100	<0.100
EP101: VOCs by USEPA Method TO15r								
Freon 12	75-71-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP28_3.0 C12346_S129	VP30_3.0 C843_S194	VP31_3.0 C1303_S048	VP32_3.0 C841_S267	VP41_3.0 C12365_S092
				13-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	16-May-2022 00:00
				EN2204789-006	EN2204789-007	EN2204789-008	EN2204789-009	EN2204789-010
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Chloromethane	74-87-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Freon 114	76-14-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl chloride	75-01-4	0.0020	ppmv	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bromomethane	74-83-9	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chloroethane	75-00-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Freon 11	75-69-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1-Dichloroethene	75-35-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Dichloromethane	75-09-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Freon 113	76-13-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1-Dichloroethane	75-34-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloroform	67-66-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichloroethane	107-06-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Benzene	71-43-2	0.0300	ppmv	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300
Carbon Tetrachloride	56-23-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichloropropane	78-87-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Trichloroethene	79-01-6	0.0010	ppmv	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Toluene	108-88-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Tetrachloroethene	127-18-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chlorobenzene	108-90-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Ethylbenzene	100-41-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv	<0.100	<0.100	<0.100	<0.100	<0.100
Styrene	100-42-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ortho-Xylene	95-47-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-Ethyltoluene	622-96-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP28_3.0 C12346_S129	VP30_3.0 C843_S194	VP31_3.0 C1303_S048	VP32_3.0 C841_S267	VP41_3.0 C12365_S092
				13-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	16-May-2022 00:00
				EN2204789-006	EN2204789-007	EN2204789-008	EN2204789-009	EN2204789-010
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Benzylchloride	100-44-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Hexachlorobutadiene	87-68-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Acetone	67-64-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Bromodichloromethane	75-27-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3-Butadiene	106-99-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Carbon disulfide	75-15-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cyclohexane	110-82-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Dibromochloromethane	124-48-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.4-Dioxane	123-91-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Ethylacetate	9002-89-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Heptane	142-82-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Hexane	110-54-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Isooctane	540-84-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Isopropyl Alcohol	67-63-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-Butanone (MEK)	78-93-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-Hexanone (MBK)	591-78-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Propene	115-07-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Tetrahydrofuran	109-99-9	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Bromoform	75-25-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl Acetate	108-05-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl bromide	593-60-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Naphthalene	91-20-3	0.0190	ppmv	<0.0190	<0.0190	<0.0190	<0.0190	<0.0190
EP103: Petroleum Hydrocarbons in Gaseous Samples								
C6 - C9 Fraction	----	5.00	ppmv	<5.00	<5.00	<5.00	<5.00	<5.00
C10 - C14 Fraction	----	5.00	ppmv	<5.00	<5.00	<5.00	<5.00	<5.00
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)								

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP28_3.0 C12346_S129	VP30_3.0 C843_S194	VP31_3.0 C1303_S048	VP32_3.0 C841_S267	VP41_3.0 C12365_S092
				13-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	17-May-2022 00:00	16-May-2022 00:00
				EN2204789-006	EN2204789-007	EN2204789-008	EN2204789-009	EN2204789-010
				Result	Result	Result	Result	Result
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc) - Continued								
C6 - C9 Fraction	----	20.0	mg/m³	<20.0	<20.0	<20.0	<20.0	<20.0
C10 - C14 Fraction	----	35.0	mg/m³	<35.0	<35.0	<35.0	<35.0	<35.0
EP103: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	5.00	ppmv	<5.00	<5.00	<5.00	<5.00	<5.00
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	5.00	ppmv	<5.00	<5.00	<5.00	<5.00	<5.00
>C10 - C16 Fraction	----	5.00	ppmv	<5.00	<5.00	<5.00	<5.00	<5.00
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv	<5.00	<5.00	<5.00	<5.00	<5.00
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)								
C6 - C10 Fraction	C6_C10	20.0	mg/m³	<20.0	<20.0	<20.0	<20.0	<20.0
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³	<20.0	<20.0	<20.0	<20.0	<20.0
>C10 - C16 Fraction	----	40.0	mg/m³	<40.0	<40.0	<40.0	<40.0	<40.0
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³	<40.0	<40.0	<40.0	<40.0	<40.0
Sampling Quality Assurance								
Pressure - As received	PRESSURE	0.1	kPaa	**81.5**	**69.1**	**73.2**	**72.9**	**67.4**
Pressure - Laboratory Atmosphere	----	0.1	kPaa	**100**	**100**	**100**	**100**	**100**
Temperature as Received	----	0.1	°C	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Vacuum - As received	----	0.03	Inches Hg	**5.55**	**9.21**	**8.03**	**8.12**	**9.74**
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	460-00-4	0.5	%	**91.1**	**91.0**	**90.5**	**90.1**	**89.3**

Analytical Results

Sub-Matrix: SOIL GAS
(Matrix: AIR)

				VP41_6.0 C1301_S210	VP42_6.0 C12444_S250	VP43_3.0 C12371_S160	VP43_6.0 C12340_S047	VP45_3.7 C869_S222
				16-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-011	EN2204789-012	EN2204789-013	EN2204789-014	EN2204789-015
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	<0.250	<0.250	<0.250	<0.250	<0.250
Chloromethane	74-87-3	0.100	mg/m³	<0.100	<0.100	<0.100	<0.100	<0.100
Freon 114	76-14-2	0.350	mg/m³	<0.350	<0.350	<0.350	<0.350	<0.350
Vinyl chloride	75-01-4	0.0051	mg/m³	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
Bromomethane	74-83-9	0.190	mg/m³	<0.190	<0.190	<0.190	<0.190	<0.190
Chloroethane	75-00-3	0.130	mg/m³	<0.130	<0.130	<0.130	<0.130	<0.130
Freon 11	75-69-4	0.280	mg/m³	<0.280	<0.280	<0.280	<0.280	<0.280
1.1-Dichloroethene	75-35-4	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Dichloromethane	75-09-2	0.170	mg/m³	<0.170	<0.170	<0.170	<0.170	<0.170
Freon 113	76-13-1	0.380	mg/m³	<0.380	<0.380	<0.380	<0.380	<0.380
1.1-Dichloroethane	75-34-3	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Chloroform	67-66-3	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
1.2-Dichloroethane	107-06-2	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	<0.270	<0.270	<0.270	<0.270	<0.270
Benzene	71-43-2	0.100	mg/m³	<0.100	<0.100	**0.155**	<0.100	<0.100
Carbon Tetrachloride	56-23-5	0.310	mg/m³	<0.310	<0.310	<0.310	<0.310	<0.310
1.2-Dichloropropane	78-87-5	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
Trichloroethene	79-01-6	0.0054	mg/m³	<0.0054	<0.0054	<0.0108	<0.0108	<0.0054
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	<0.270	<0.270	<0.270	<0.270	<0.270
Toluene	108-88-3	0.190	mg/m³	<0.190	<0.190	<0.190	<0.190	<0.190
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	<0.380	<0.380	<0.380	<0.380	<0.380
Tetrachloroethene	127-18-4	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
Chlorobenzene	108-90-7	0.230	mg/m³	<0.230	<0.230	<0.230	<0.230	<0.230
Ethylbenzene	100-41-4	0.220	mg/m³	<0.220	**0.698**	**0.270**	<0.220	<0.220
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³	<0.430	**2.86**	<0.430	<0.430	<0.430
Styrene	100-42-5	0.210	mg/m³	<0.210	<0.210	<0.210	<0.210	<0.210
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
ortho-Xylene	95-47-6	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
4-Ethyltoluene	622-96-8	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240
Total Xylenes	----	0.650	mg/m³	<0.650	**2.86**	<0.650	<0.650	<0.650
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³	<0.240	<0.240	<0.240	<0.240	<0.240

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP41_6.0 C1301_S210	VP42_6.0 C12444_S250	VP43_3.0 C12371_S160	VP43_6.0 C12340_S047	VP45_3.7 C869_S222
				16-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-011	EN2204789-012	EN2204789-013	EN2204789-014	EN2204789-015
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued								
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³	<0.240	**0.678**	**0.658**	**0.447**	<0.240
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
Benzylchloride	100-44-7	0.260	mg/m³	<0.260	<0.260	<0.260	<0.260	<0.260
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³	<0.300	<0.300	<0.300	<0.300	<0.300
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³	<0.370	<0.370	<0.370	<0.370	<0.370
Hexachlorobutadiene	87-68-3	0.530	mg/m³	<0.530	<0.530	<0.530	<0.530	<0.530
Acetone	67-64-1	0.120	mg/m³	<0.120	<0.120	<0.120	<0.120	<0.120
Bromodichloromethane	75-27-4	0.340	mg/m³	<0.340	<0.340	<0.340	<0.340	<0.340
1.3-Butadiene	106-99-0	0.110	mg/m³	<0.110	<0.110	<0.110	<0.110	<0.110
Carbon disulfide	75-15-0	0.160	mg/m³	<0.160	<0.160	<0.160	<0.160	<0.160
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³	<0.160	<0.160	<0.160	<0.160	<0.160
Cyclohexane	110-82-7	0.170	mg/m³	<0.170	<0.170	<0.170	<0.170	<0.170
Dibromochloromethane	124-48-1	0.430	mg/m³	<0.430	<0.430	<0.430	<0.430	<0.430
1.4-Dioxane	123-91-1	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Ethylacetate	9002-89-5	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Heptane	142-82-5	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Hexane	110-54-3	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Isooctane	540-84-1	0.230	mg/m³	**2.87**	**1.40**	**4.72**	**3.41**	<0.230
Isopropyl Alcohol	67-63-0	0.120	mg/m³	<0.120	<0.120	<0.120	<0.120	<0.120
2-Butanone (MEK)	78-93-3	0.150	mg/m³	<0.150	<0.150	<0.150	<0.150	<0.150
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
2-Hexanone (MBK)	591-78-6	0.200	mg/m³	<0.200	<0.200	<0.200	<0.200	<0.200
Propene	115-07-1	0.0900	mg/m³	**0.0913**	<0.0900	<0.0900	<0.0900	<0.0900
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Tetrahydrofuran	109-99-9	0.150	mg/m³	<0.150	<0.150	<0.150	<0.150	<0.150
Bromoform	75-25-2	0.520	mg/m³	<0.520	<0.520	<0.520	<0.520	<0.520
Vinyl Acetate	108-05-4	0.180	mg/m³	<0.180	<0.180	<0.180	<0.180	<0.180
Vinyl bromide	593-60-2	0.220	mg/m³	<0.220	<0.220	<0.220	<0.220	<0.220
Naphthalene	91-20-3	0.100	mg/m³	<0.100	<0.100	<0.100	<0.100	<0.100
EP101: VOCs by USEPA Method TO15r								
Freon 12	75-71-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: SOIL GAS
(Matrix: AIR)

				VP41_6.0 C1301_S210	VP42_6.0 C12444_S250	VP43_3.0 C12371_S160	VP43_6.0 C12340_S047	VP45_3.7 C869_S222
				16-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-011	EN2204789-012	EN2204789-013	EN2204789-014	EN2204789-015
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Chloromethane	74-87-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Freon 114	76-14-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl chloride	75-01-4	0.0020	ppmv	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bromomethane	74-83-9	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chloroethane	75-00-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Freon 11	75-69-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1-Dichloroethene	75-35-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Dichloromethane	75-09-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Freon 113	76-13-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1-Dichloroethane	75-34-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloroform	67-66-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichloroethane	107-06-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Benzene	71-43-2	0.0300	ppmv	<0.0300	<0.0300	**0.0485**	<0.0300	<0.0300
Carbon Tetrachloride	56-23-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichloropropane	78-87-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Trichloroethene	79-01-6	0.0010	ppmv	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Toluene	108-88-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Tetrachloroethene	127-18-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chlorobenzene	108-90-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Ethylbenzene	100-41-4	0.0500	ppmv	<0.0500	**0.161**	**0.0623**	<0.0500	<0.0500
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv	<0.100	**0.659**	<0.100	<0.100	<0.100
Styrene	100-42-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ortho-Xylene	95-47-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-Ethyltoluene	622-96-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv	<0.0500	**0.138**	**0.134**	**0.0910**	<0.0500
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP41_6.0 C1301_S210	VP42_6.0 C12444_S250	VP43_3.0 C12371_S160	VP43_6.0 C12340_S047	VP45_3.7 C869_S222
				16-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-011	EN2204789-012	EN2204789-013	EN2204789-014	EN2204789-015
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Benzylchloride	100-44-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Hexachlorobutadiene	87-68-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Acetone	67-64-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Bromodichloromethane	75-27-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.3-Butadiene	106-99-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Carbon disulfide	75-15-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cyclohexane	110-82-7	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Dibromochloromethane	124-48-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1.4-Dioxane	123-91-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Ethylacetate	9002-89-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Heptane	142-82-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Hexane	110-54-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Isooctane	540-84-1	0.0500	ppmv	**0.615**	**0.301**	**1.01**	**0.730**	<0.0500
Isopropyl Alcohol	67-63-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-Butanone (MEK)	78-93-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-Hexanone (MBK)	591-78-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Propene	115-07-1	0.0500	ppmv	**0.0531**	<0.0500	<0.0500	<0.0500	<0.0500
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Tetrahydrofuran	109-99-9	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Bromoform	75-25-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl Acetate	108-05-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Vinyl bromide	593-60-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Naphthalene	91-20-3	0.0190	ppmv	<0.0190	<0.0190	<0.0190	<0.0190	<0.0190
EP103: Petroleum Hydrocarbons in Gaseous Samples								
C6 - C9 Fraction	----	5.00	ppmv	**40.3**	**16.4**	**72.9**	**40.8**	<5.00
C10 - C14 Fraction	----	5.00	ppmv	**16.4**	<5.00	**35.2**	**7.92**	<5.00
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)								

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP41_6.0 C1301_S210	VP42_6.0 C12444_S250	VP43_3.0 C12371_S160	VP43_6.0 C12340_S047	VP45_3.7 C869_S222
				16-May-2022 00:00	13-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-011	EN2204789-012	EN2204789-013	EN2204789-014	EN2204789-015
				Result	Result	Result	Result	Result
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc) - Continued								
C6 - C9 Fraction	----	20.0	mg/m³	**165**	**67.0**	**298**	**167**	<20.0
C10 - C14 Fraction	----	35.0	mg/m³	**114**	<35.0	**244**	**55.0**	<35.0
EP103: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	5.00	ppmv	**38.6**	**14.5**	**69.6**	**37.1**	<5.00
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	5.00	ppmv	**38.6**	**13.6**	**69.4**	**37.0**	<5.00
>C10 - C16 Fraction	----	5.00	ppmv	**11.5**	<5.00	**25.6**	<5.00	<5.00
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv	**11.5**	<5.00	**25.6**	<5.00	<5.00
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)								
C6 - C10 Fraction	C6_C10	20.0	mg/m³	**158**	**59.3**	**284**	**152**	<20.0
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³	**158**	**55.5**	**284**	**151**	<20.0
>C10 - C16 Fraction	----	40.0	mg/m³	**86.5**	<40.0	**192**	<40.0	<40.0
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³	**86.5**	<40.0	**192**	<40.0	<40.0
Sampling Quality Assurance								
Pressure - As received	PRESSURE	0.1	kPaa	**67.5**	**54.0**	**80.5**	**75.3**	**68.8**
Pressure - Laboratory Atmosphere	----	0.1	kPaa	**100**	**100**	**100**	**100**	**100**
Temperature as Received	----	0.1	°C	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Vacuum - As received	----	0.03	Inches Hg	**9.72**	**13.7**	**5.85**	**7.38**	**9.33**
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	460-00-4	0.5	%	**78.5**	**85.8**	**83.0**	**84.9**	**96.5**

Analytical Results

Sub-Matrix: **SOIL GAS**
(Matrix: **AIR**)

				VP45A C1289_S034	VP46A C5037_S010	VP49_3.7 C873_S144	VP50_3.7 C12385_S023	VP51_3.7 C5451_S013
				16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-016	EN2204789-017	EN2204789-018	EN2204789-019	EN2204789-020
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	----	----	<0.250	<0.250	<0.250
Chloromethane	74-87-3	0.100	mg/m³	----	----	<0.100	<0.100	<0.100
Freon 114	76-14-2	0.350	mg/m³	----	----	<0.350	<0.350	<0.350
Vinyl chloride	75-01-4	0.0051	mg/m³	----	----	<0.0051	<0.0051	<0.0051
Bromomethane	74-83-9	0.190	mg/m³	----	----	<0.190	<0.190	<0.190
Chloroethane	75-00-3	0.130	mg/m³	----	----	<0.130	<0.130	<0.130
Freon 11	75-69-4	0.280	mg/m³	----	----	<0.280	<0.280	<0.280
1.1-Dichloroethene	75-35-4	0.200	mg/m³	----	----	<0.200	<0.200	<0.200
Dichloromethane	75-09-2	0.170	mg/m³	----	----	<0.170	<0.170	<0.170
Freon 113	76-13-1	0.380	mg/m³	----	----	<0.380	<0.380	<0.380
1.1-Dichloroethane	75-34-3	0.200	mg/m³	----	----	<0.200	<0.200	<0.200
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	----	----	<0.0200	<0.0200	<0.0200
Chloroform	67-66-3	0.240	mg/m³	----	----	<0.240	<0.240	<0.240
1.2-Dichloroethane	107-06-2	0.200	mg/m³	----	----	<0.200	<0.200	<0.200
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	----	----	<0.270	<0.270	<0.270
Benzene	71-43-2	0.100	mg/m³	----	----	<0.100	<0.100	<0.100
Carbon Tetrachloride	56-23-5	0.310	mg/m³	----	----	<0.310	<0.310	<0.310
1.2-Dichloropropane	78-87-5	0.230	mg/m³	----	----	<0.230	<0.230	<0.230
Trichloroethene	79-01-6	0.0054	mg/m³	----	----	<0.0054	<0.0054	<0.0054
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	----	----	<0.230	<0.230	<0.230
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	----	----	<0.230	<0.230	<0.230
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	----	----	<0.270	<0.270	<0.270
Toluene	108-88-3	0.190	mg/m³	----	----	<0.190	<0.190	<0.190
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	----	----	<0.380	<0.380	<0.380
Tetrachloroethene	127-18-4	0.340	mg/m³	----	----	<0.340	<0.340	<0.340
Chlorobenzene	108-90-7	0.230	mg/m³	----	----	<0.230	<0.230	<0.230
Ethylbenzene	100-41-4	0.220	mg/m³	----	----	<0.220	<0.220	<0.220
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³	----	----	<0.430	<0.430	<0.430
Styrene	100-42-5	0.210	mg/m³	----	----	<0.210	<0.210	<0.210
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³	----	----	<0.340	<0.340	<0.340
ortho-Xylene	95-47-6	0.220	mg/m³	----	----	<0.220	<0.220	<0.220
4-Ethyltoluene	622-96-8	0.240	mg/m³	----	----	<0.240	<0.240	<0.240
Total Xylenes	----	0.650	mg/m³	----	----	<0.650	<0.650	<0.650
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³	----	----	<0.240	<0.240	<0.240

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP45A C1289_S034	VP46A C5037_S010	VP49_3.7 C873_S144	VP50_3.7 C12385_S023	VP51_3.7 C5451_S013
				16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-016	EN2204789-017	EN2204789-018	EN2204789-019	EN2204789-020
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued								
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³	----	----	<0.240	<0.240	<0.240
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³	----	----	<0.300	<0.300	<0.300
Benzylchloride	100-44-7	0.260	mg/m³	----	----	<0.260	<0.260	<0.260
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³	----	----	<0.300	<0.300	<0.300
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³	----	----	<0.300	<0.300	<0.300
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³	----	----	<0.370	<0.370	<0.370
Hexachlorobutadiene	87-68-3	0.530	mg/m³	----	----	<0.530	<0.530	<0.530
Acetone	67-64-1	0.120	mg/m³	----	----	<0.120	<0.120	<0.120
Bromodichloromethane	75-27-4	0.340	mg/m³	----	----	<0.340	<0.340	<0.340
1.3-Butadiene	106-99-0	0.110	mg/m³	----	----	<0.110	<0.110	<0.110
Carbon disulfide	75-15-0	0.160	mg/m³	----	----	<0.160	<0.160	<0.160
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³	----	----	<0.160	<0.160	<0.160
Cyclohexane	110-82-7	0.170	mg/m³	----	----	<0.170	<0.170	<0.170
Dibromochloromethane	124-48-1	0.430	mg/m³	----	----	<0.430	<0.430	<0.430
1.4-Dioxane	123-91-1	0.180	mg/m³	----	----	<0.180	<0.180	<0.180
Ethylacetate	9002-89-5	0.180	mg/m³	----	----	<0.180	<0.180	<0.180
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³	----	----	<0.200	<0.200	<0.200
Heptane	142-82-5	0.200	mg/m³	----	----	<0.200	<0.200	<0.200
Hexane	110-54-3	0.180	mg/m³	----	----	<0.180	<0.180	<0.180
Isooctane	540-84-1	0.230	mg/m³	----	----	**0.528**	<0.230	<0.230
Isopropyl Alcohol	67-63-0	0.120	mg/m³	----	----	<0.120	<0.120	<0.120
2-Butanone (MEK)	78-93-3	0.150	mg/m³	----	----	<0.150	<0.150	<0.150
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³	----	----	<0.200	<0.200	<0.200
2-Hexanone (MBK)	591-78-6	0.200	mg/m³	----	----	<0.200	<0.200	<0.200
Propene	115-07-1	0.0900	mg/m³	----	----	<0.0900	<0.0900	<0.0900
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³	----	----	<0.180	<0.180	<0.180
Tetrahydrofuran	109-99-9	0.150	mg/m³	----	----	<0.150	<0.150	<0.150
Bromoform	75-25-2	0.520	mg/m³	----	----	<0.520	<0.520	<0.520
Vinyl Acetate	108-05-4	0.180	mg/m³	----	----	<0.180	<0.180	<0.180
Vinyl bromide	593-60-2	0.220	mg/m³	----	----	<0.220	<0.220	<0.220
Naphthalene	91-20-3	0.100	mg/m³	----	----	<0.100	<0.100	<0.100
EP101: VOCs by USEPA Method TO15r								
Freon 12	75-71-8	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: **SOIL GAS**
(Matrix: **AIR**)

				VP45A C1289_S034	VP46A C5037_S010	VP49_3.7 C873_S144	VP50_3.7 C12385_S023	VP51_3.7 C5451_S013
				16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-016	EN2204789-017	EN2204789-018	EN2204789-019	EN2204789-020
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Chloromethane	74-87-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Freon 114	76-14-2	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Vinyl chloride	75-01-4	0.0020	ppmv	----	----	<0.0020	<0.0020	<0.0020
Bromomethane	74-83-9	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Chloroethane	75-00-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Freon 11	75-69-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.1-Dichloroethene	75-35-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Dichloromethane	75-09-2	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Freon 113	76-13-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.1-Dichloroethane	75-34-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv	----	----	<0.0050	<0.0050	<0.0050
Chloroform	67-66-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.2-Dichloroethane	107-06-2	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Benzene	71-43-2	0.0300	ppmv	----	----	<0.0300	<0.0300	<0.0300
Carbon Tetrachloride	56-23-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.2-Dichloropropane	78-87-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Trichloroethene	79-01-6	0.0010	ppmv	----	----	<0.0010	<0.0010	<0.0010
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Toluene	108-88-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Tetrachloroethene	127-18-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Chlorobenzene	108-90-7	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Ethylbenzene	100-41-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv	----	----	<0.100	<0.100	<0.100
Styrene	100-42-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
ortho-Xylene	95-47-6	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
4-Ethyltoluene	622-96-8	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)

				VP45A C1289_S034	VP46A C5037_S010	VP49_3.7 C873_S144	VP50_3.7 C12385_S023	VP51_3.7 C5451_S013
				16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-016	EN2204789-017	EN2204789-018	EN2204789-019	EN2204789-020
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Benzylchloride	100-44-7	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Hexachlorobutadiene	87-68-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Acetone	67-64-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Bromodichloromethane	75-27-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.3-Butadiene	106-99-0	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Carbon disulfide	75-15-0	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Cyclohexane	110-82-7	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Dibromochloromethane	124-48-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
1.4-Dioxane	123-91-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Ethylacetate	9002-89-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Heptane	142-82-5	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Hexane	110-54-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Isooctane	540-84-1	0.0500	ppmv	----	----	**0.113**	<0.0500	<0.0500
Isopropyl Alcohol	67-63-0	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
2-Butanone (MEK)	78-93-3	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
2-Hexanone (MBK)	591-78-6	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Propene	115-07-1	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Tetrahydrofuran	109-99-9	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Bromoform	75-25-2	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Vinyl Acetate	108-05-4	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Vinyl bromide	593-60-2	0.0500	ppmv	----	----	<0.0500	<0.0500	<0.0500
Naphthalene	91-20-3	0.0190	ppmv	----	----	<0.0190	<0.0190	<0.0190
EP103: Petroleum Hydrocarbons in Gaseous Samples								
C6 - C9 Fraction	----	5.00	ppmv	----	----	<5.00	<5.00	<5.00
C10 - C14 Fraction	----	5.00	ppmv	----	----	<5.00	<5.00	<5.00
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)								

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				VP45A C1289_S034	VP46A C5037_S010	VP49_3.7 C873_S144	VP50_3.7 C12385_S023	VP51_3.7 C5451_S013
				16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00	16-May-2022 00:00
				EN2204789-016	EN2204789-017	EN2204789-018	EN2204789-019	EN2204789-020
				Result	Result	Result	Result	Result
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc) - Continued								
C6 - C9 Fraction	----	20.0	mg/m³	----	----	<20.0	<20.0	<20.0
C10 - C14 Fraction	----	35.0	mg/m³	----	----	<35.0	<35.0	<35.0
EP103: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	5.00	ppmv	----	----	<5.00	<5.00	<5.00
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	5.00	ppmv	----	----	<5.00	<5.00	<5.00
>C10 - C16 Fraction	----	5.00	ppmv	----	----	<5.00	<5.00	<5.00
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv	----	----	<5.00	<5.00	<5.00
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)								
C6 - C10 Fraction	C6_C10	20.0	mg/m³	----	----	<20.0	<20.0	<20.0
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³	----	----	<20.0	<20.0	<20.0
>C10 - C16 Fraction	----	40.0	mg/m³	----	----	<40.0	<40.0	<40.0
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³	----	----	<40.0	<40.0	<40.0
Sampling Quality Assurance								
Pressure - As received	PRESSURE	0.1	kPaa	**25.9**	**16.8**	**78.8**	**68.4**	**64.0**
Pressure - Laboratory Atmosphere	----	0.1	kPaa	**100**	**100**	**100**	**100**	**100**
Temperature as Received	----	0.1	°C	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Vacuum - As received	----	0.03	Inches Hg	**22.0**	**24.6**	**6.38**	**9.42**	**10.7**
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	**90.9**	**95.9**	**95.4**

Analytical Results

Sub-Matrix: SOIL GAS
(Matrix: AIR)

				QV01 C5491_S250	QV02 C12447_S144	Can Failed C12440	Unused C12351	Unused C12451
				13-May-2022 00:00	16-May-2022 00:00	[18-May-2022]	[18-May-2022]	[18-May-2022]
				EN2204789-021	EN2204789-022	EN2204789-023	EN2204789-024	EN2204789-025
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	<0.250	<0.250	----	----	----
Chloromethane	74-87-3	0.100	mg/m³	<0.100	<0.100	----	----	----
Freon 114	76-14-2	0.350	mg/m³	<0.350	<0.350	----	----	----
Vinyl chloride	75-01-4	0.0051	mg/m³	<0.0051	<0.0051	----	----	----
Bromomethane	74-83-9	0.190	mg/m³	<0.190	<0.190	----	----	----
Chloroethane	75-00-3	0.130	mg/m³	<0.130	<0.130	----	----	----
Freon 11	75-69-4	0.280	mg/m³	<0.280	<0.280	----	----	----
1.1-Dichloroethene	75-35-4	0.200	mg/m³	<0.200	<0.200	----	----	----
Dichloromethane	75-09-2	0.170	mg/m³	<0.170	<0.170	----	----	----
Freon 113	76-13-1	0.380	mg/m³	<0.380	<0.380	----	----	----
1.1-Dichloroethane	75-34-3	0.200	mg/m³	<0.200	<0.200	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	<0.0200	<0.0200	----	----	----
Chloroform	67-66-3	0.240	mg/m³	<0.240	<0.240	----	----	----
1.2-Dichloroethane	107-06-2	0.200	mg/m³	<0.200	<0.200	----	----	----
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	<0.270	<0.270	----	----	----
Benzene	71-43-2	0.100	mg/m³	<0.100	<0.100	----	----	----
Carbon Tetrachloride	56-23-5	0.310	mg/m³	<0.310	<0.310	----	----	----
1.2-Dichloropropane	78-87-5	0.230	mg/m³	<0.230	<0.230	----	----	----
Trichloroethene	79-01-6	0.0054	mg/m³	<0.0054	<0.0054	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	<0.230	<0.230	----	----	----
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	<0.230	<0.230	----	----	----
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	<0.270	<0.270	----	----	----
Toluene	108-88-3	0.190	mg/m³	<0.190	<0.190	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	<0.380	<0.380	----	----	----
Tetrachloroethene	127-18-4	0.340	mg/m³	<0.340	<0.340	----	----	----
Chlorobenzene	108-90-7	0.230	mg/m³	<0.230	<0.230	----	----	----
Ethylbenzene	100-41-4	0.220	mg/m³	**0.672**	<0.220	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³	**2.73**	<0.430	----	----	----
Styrene	100-42-5	0.210	mg/m³	<0.210	<0.210	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³	<0.340	<0.340	----	----	----
ortho-Xylene	95-47-6	0.220	mg/m³	<0.220	<0.220	----	----	----
4-Ethyltoluene	622-96-8	0.240	mg/m³	<0.240	<0.240	----	----	----
Total Xylenes	----	0.650	mg/m³	**2.73**	<0.650	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³	<0.240	<0.240	----	----	----

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				QV01 C5491_S250	QV02 C12447_S144	Can Failed C12440	Unused C12351	Unused C12451
				13-May-2022 00:00	16-May-2022 00:00	[18-May-2022]	[18-May-2022]	[18-May-2022]
				EN2204789-021	EN2204789-022	EN2204789-023	EN2204789-024	EN2204789-025
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued								
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³	**0.619**	<0.240	----	----	----
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³	<0.300	<0.300	----	----	----
Benzylchloride	100-44-7	0.260	mg/m³	<0.260	<0.260	----	----	----
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³	<0.300	<0.300	----	----	----
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³	<0.300	<0.300	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³	<0.370	<0.370	----	----	----
Hexachlorobutadiene	87-68-3	0.530	mg/m³	<0.530	<0.530	----	----	----
Acetone	67-64-1	0.120	mg/m³	<0.120	<0.120	----	----	----
Bromodichloromethane	75-27-4	0.340	mg/m³	<0.340	<0.340	----	----	----
1.3-Butadiene	106-99-0	0.110	mg/m³	<0.110	<0.110	----	----	----
Carbon disulfide	75-15-0	0.160	mg/m³	<0.160	<0.160	----	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³	<0.160	<0.160	----	----	----
Cyclohexane	110-82-7	0.170	mg/m³	<0.170	<0.170	----	----	----
Dibromochloromethane	124-48-1	0.430	mg/m³	<0.430	<0.430	----	----	----
1.4-Dioxane	123-91-1	0.180	mg/m³	<0.180	<0.180	----	----	----
Ethylacetate	9002-89-5	0.180	mg/m³	<0.180	<0.180	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³	<0.200	<0.200	----	----	----
Heptane	142-82-5	0.200	mg/m³	<0.200	<0.200	----	----	----
Hexane	110-54-3	0.180	mg/m³	<0.180	<0.180	----	----	----
Isooctane	540-84-1	0.230	mg/m³	**1.40**	**0.532**	----	----	----
Isopropyl Alcohol	67-63-0	0.120	mg/m³	<0.120	<0.120	----	----	----
2-Butanone (MEK)	78-93-3	0.150	mg/m³	<0.150	<0.150	----	----	----
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³	<0.200	<0.200	----	----	----
2-Hexanone (MBK)	591-78-6	0.200	mg/m³	<0.200	<0.200	----	----	----
Propene	115-07-1	0.0900	mg/m³	<0.0900	<0.0900	----	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³	<0.180	<0.180	----	----	----
Tetrahydrofuran	109-99-9	0.150	mg/m³	<0.150	<0.150	----	----	----
Bromoform	75-25-2	0.520	mg/m³	<0.520	<0.520	----	----	----
Vinyl Acetate	108-05-4	0.180	mg/m³	<0.180	<0.180	----	----	----
Vinyl bromide	593-60-2	0.220	mg/m³	<0.220	<0.220	----	----	----
Naphthalene	91-20-3	0.100	mg/m³	<0.100	<0.100	----	----	----
EP101: VOCs by USEPA Method TO15r								
Freon 12	75-71-8	0.0500	ppmv	<0.0500	<0.0500	----	----	----

Analytical Results

Sub-Matrix: **SOIL GAS** (Matrix: **AIR**)

				QV01 C5491_S250	QV02 C12447_S144	Can Failed C12440	Unused C12351	Unused C12451
				13-May-2022 00:00	16-May-2022 00:00	[18-May-2022]	[18-May-2022]	[18-May-2022]
				EN2204789-021	EN2204789-022	EN2204789-023	EN2204789-024	EN2204789-025
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Chloromethane	74-87-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Freon 114	76-14-2	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Vinyl chloride	75-01-4	0.0020	ppmv	<0.0020	<0.0020	----	----	----
Bromomethane	74-83-9	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Chloroethane	75-00-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Freon 11	75-69-4	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.1-Dichloroethene	75-35-4	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Dichloromethane	75-09-2	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Freon 113	76-13-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.1-Dichloroethane	75-34-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv	<0.0050	<0.0050	----	----	----
Chloroform	67-66-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.2-Dichloroethane	107-06-2	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Benzene	71-43-2	0.0300	ppmv	<0.0300	<0.0300	----	----	----
Carbon Tetrachloride	56-23-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.2-Dichloropropane	78-87-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Trichloroethene	79-01-6	0.0010	ppmv	<0.0010	<0.0010	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Toluene	108-88-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Tetrachloroethene	127-18-4	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Chlorobenzene	108-90-7	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Ethylbenzene	100-41-4	0.0500	ppmv	**0.155**	<0.0500	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv	**0.630**	<0.100	----	----	----
Styrene	100-42-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
ortho-Xylene	95-47-6	0.0500	ppmv	<0.0500	<0.0500	----	----	----
4-Ethyltoluene	622-96-8	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv	**0.126**	<0.0500	----	----	----
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				QV01 C5491_S250	QV02 C12447_S144	Can Failed C12440	Unused C12351	Unused C12451
				13-May-2022 00:00	16-May-2022 00:00	[18-May-2022]	[18-May-2022]	[18-May-2022]
				EN2204789-021	EN2204789-022	EN2204789-023	EN2204789-024	EN2204789-025
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued								
Benzylchloride	100-44-7	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Hexachlorobutadiene	87-68-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Acetone	67-64-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Bromodichloromethane	75-27-4	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.3-Butadiene	106-99-0	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Carbon disulfide	75-15-0	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Cyclohexane	110-82-7	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Dibromochloromethane	124-48-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
1.4-Dioxane	123-91-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Ethylacetate	9002-89-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Heptane	142-82-5	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Hexane	110-54-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Isooctane	540-84-1	0.0500	ppmv	**0.300**	**0.114**	----	----	----
Isopropyl Alcohol	67-63-0	0.0500	ppmv	<0.0500	<0.0500	----	----	----
2-Butanone (MEK)	78-93-3	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
2-Hexanone (MBK)	591-78-6	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Propene	115-07-1	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Tetrahydrofuran	109-99-9	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Bromoform	75-25-2	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Vinyl Acetate	108-05-4	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Vinyl bromide	593-60-2	0.0500	ppmv	<0.0500	<0.0500	----	----	----
Naphthalene	91-20-3	0.0190	ppmv	<0.0190	<0.0190	----	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples								
C6 - C9 Fraction	----	5.00	ppmv	**16.4**	<5.00	----	----	----
C10 - C14 Fraction	----	5.00	ppmv	<5.00	<5.00	----	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)								

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				QV01 C5491_S250	QV02 C12447_S144	Can Failed C12440	Unused C12351	Unused C12451
				13-May-2022 00:00	16-May-2022 00:00	[18-May-2022]	[18-May-2022]	[18-May-2022]
				EN2204789-021	EN2204789-022	EN2204789-023	EN2204789-024	EN2204789-025
				Result	Result	Result	Result	Result
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc) - Continued								
C6 - C9 Fraction	----	20.0	mg/m³	**67.0**	<20.0	----	----	----
C10 - C14 Fraction	----	35.0	mg/m³	<35.0	<35.0	----	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	5.00	ppmv	**14.5**	<5.00	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	5.00	ppmv	**13.7**	<5.00	----	----	----
>C10 - C16 Fraction	----	5.00	ppmv	<5.00	<5.00	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv	<5.00	<5.00	----	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)								
C6 - C10 Fraction	C6_C10	20.0	mg/m³	**59.3**	<20.0	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³	**55.7**	<20.0	----	----	----
>C10 - C16 Fraction	----	40.0	mg/m³	<40.0	<40.0	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³	<40.0	<40.0	----	----	----
Sampling Quality Assurance								
Pressure - As received	PRESSURE	0.1	kPaa	**54.1**	**78.8**	**98.5**	<0.1	<0.1
Pressure - Laboratory Atmosphere	----	0.1	kPaa	**100**	**100**	**100**	**100**	**100**
Temperature as Received	----	0.1	°C	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Vacuum - As received	----	0.03	Inches Hg	**13.6**	**6.35**	**0.56**	**29.5**	**29.5**
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	460-00-4	0.5	%	**86.2**	**90.4**	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL GAS		Recovery Limits (%)	
		Low	High
USEPA Air Toxics Method TO15r Surrogates			
4-Bromofluorobenzene	460-00-4	84	117

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EN2204789**	Page	: 1 of 6
Amendment	: **1**		
Client	: **GREENCAP-NAA PTY LTD**	Laboratory	: Environmental Division Newcastle
Contact	: MR ANDREW DURAND	Telephone	: +61881625130
Project	: J154748	Date Samples Received	: 20-May-2022
Site	: ----	Issue Date	: 15-Jun-2022
Sampler	: JAKE BERMINGHAM	No. of samples received	: 25
Order number	: PO300673	No. of samples analysed	: 25

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **AIR**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP101: VOCs by USEPA Method TO15r	QC-4357281-002	----	**Dichloromethane**	75-09-2	129 %	72.2-117%	**Recovery greater than upper control limit**
EP101: VOCs by USEPA Method TO15r	QC-4357281-002	----	**1.2.4-Trichlorobenzene**	120-82-1	68.0 %	70.0-130%	**Recovery less than lower control limit**
EP101: VOCs by USEPA Method TO15r	QC-4357281-002	----	**Propene**	115-07-1	144 %	71.4-120%	**Recovery greater than upper control limit**
EP101: VOCs by USEPA Method TO15r	QC-4357281-002	----	**Naphthalene**	91-20-3	68.2 %	70.0-130%	**Recovery less than lower control limit**
Duplicate Control Spike (DCS) Recoveries							
EP101: VOCs by USEPA Method TO15r	QC-4357281-003	----	**Dichloromethane**	75-09-2	130 %	72.2-117%	**Recovery greater than upper control limit**
EP101: VOCs by USEPA Method TO15r	QC-4357281-003	----	**1.2.4-Trichlorobenzene**	120-82-1	68.8 %	70.0-130%	**Recovery less than lower control limit**
EP101: VOCs by USEPA Method TO15r	QC-4357281-003	----	**Propene**	115-07-1	143 %	71.4-120%	**Recovery greater than upper control limit**

Regular Sample Surrogates

Sub-Matrix: **SOIL GAS**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
USEPA Air Toxics Method TO15r Surrogates	EN2204789-011	VP41_6.0 C1301_S210	**4-Bromofluorobenzene**	460-00-4	78.5 %	83.8-117 %	**Recovery less than lower data quality objective**
USEPA Air Toxics Method TO15r Surrogates	EN2204789-013	VP43_3.0 C12371_S160	**4-Bromofluorobenzene**	460-00-4	83.0 %	83.8-117 %	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP101: VOCs by USEPA Method TO15r							
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) VP12_2.5 - C12388_S280, VP12_3.8 - C12376_S108, VP12_6.0 - C12425_S149, VP28_3.0 - C12346_S129, VP42_6.0 - C12444_S250, QV01 - C5491_S250	**13-May-2022**	**----**	----	----	**24-May-2022**	12-Jun-2022	✓
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) VP27_3.0 - C5039_S099, VP27_6.0 - C12449_S053, VP41_3.0 - C12365_S092, VP41_6.0 - C1301_S210, VP43_3.0 - C12371_S160, VP43_6.0 - C12340_S047, VP45_3.7 - C869_S222, VP49_3.7 - C873_S144, VP50_3.7 - C12385_S023, VP51_3.7 - C5451_S013, QV02 - C12447_S144	**16-May-2022**	**----**	----	----	**24-May-2022**	15-Jun-2022	✓
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) VP30_3.0 - C843_S194, VP31_3.0 - C1303_S048, VP32_3.0 - C841_S267	**17-May-2022**	**----**	----	----	**24-May-2022**	16-Jun-2022	✓
EP103: Petroleum Hydrocarbons in Gaseous Samples							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) VP12_2.5 - C12388_S280, VP12_3.8 - C12376_S108, VP12_6.0 - C12425_S149, VP28_3.0 - C12346_S129, VP42_6.0 - C12444_S250, QV01 - C5491_S250	**13-May-2022**	**----**	----	----	**24-May-2022**	12-Jun-2022	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) VP27_3.0 - C5039_S099, VP27_6.0 - C12449_S053, VP41_3.0 - C12365_S092, VP41_6.0 - C1301_S210, VP43_3.0 - C12371_S160, VP43_6.0 - C12340_S047, VP45_3.7 - C869_S222, VP49_3.7 - C873_S144, VP50_3.7 - C12385_S023, VP51_3.7 - C5451_S013, QV02 - C12447_S144	**16-May-2022**	**----**	----	----	**24-May-2022**	15-Jun-2022	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) VP30_3.0 - C843_S194, VP31_3.0 - C1303_S048, VP32_3.0 - C841_S267	**17-May-2022**	**----**	----	----	**24-May-2022**	16-Jun-2022	✓

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP103: Total Recoverable Hydrocarbons - NEPM 2013							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) VP12_2.5 - C12388_S280, VP12_3.8 - C12376_S108, VP12_6.0 - C12425_S149, VP28_3.0 - C12346_S129, VP42_6.0 - C12444_S250, QV01 - C5491_S250	**13-May-2022**	**----**	----	----	**24-May-2022**	12-Jun-2022	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) VP27_3.0 - C5039_S099, VP27_6.0 - C12449_S053, VP41_3.0 - C12365_S092, VP41_6.0 - C1301_S210, VP43_3.0 - C12371_S160, VP43_6.0 - C12340_S047, VP45_3.7 - C869_S222, VP49_3.7 - C873_S144, VP50_3.7 - C12385_S023, VP51_3.7 - C5451_S013, QV02 - C12447_S144	**16-May-2022**	**----**	----	----	**24-May-2022**	15-Jun-2022	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) VP30_3.0 - C843_S194, VP31_3.0 - C1303_S048, VP32_3.0 - C841_S267	**17-May-2022**	**----**	----	----	**24-May-2022**	16-Jun-2022	✓
Sampling Quality Assurance							
Gas Canister - ALS Stainless Steel Silonite (CAN-001) VP12_2.5 - C12388_S280, VP12_3.8 - C12376_S108, VP12_6.0 - C12425_S149, VP28_3.0 - C12346_S129, VP42_6.0 - C12444_S250, QV01 - C5491_S250	**13-May-2022**	**----**	----	----	**24-May-2022**	13-May-2023	✓
Gas Canister - ALS Stainless Steel Silonite (CAN-001) VP27_3.0 - C5039_S099, VP27_6.0 - C12449_S053, VP41_3.0 - C12365_S092, VP41_6.0 - C1301_S210, VP43_3.0 - C12371_S160, VP43_6.0 - C12340_S047, VP45_3.7 - C869_S222, VP45A - C1289_S034, VP46A - C5037_S010, VP49_3.7 - C873_S144, VP50_3.7 - C12385_S023, VP51_3.7 - C5451_S013, QV02 - C12447_S144	**16-May-2022**	**----**	----	----	**24-May-2022**	16-May-2023	✓
Gas Canister - ALS Stainless Steel Silonite (CAN-001) VP30_3.0 - C843_S194, VP31_3.0 - C1303_S048, VP32_3.0 - C841_S267	**17-May-2022**	**----**	----	----	**24-May-2022**	17-May-2023	✓
Gas Canister - ALS Stainless Steel Silonite (CAN-001) Can Failed - C12440, Unused - C12351, Unused - C12451	**18-May-2022**	**----**	----	----	**24-May-2022**	18-May-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Duplicates (DUP)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended Suite (mass/volume)	EP101-15X-MV	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)
Volatile TPH/TRH in Gaseous Samples	EP103-PC	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH and TPH/NEPM Schedule B(3) Fractions
Volatile TPH/TRH in Gaseous Samples (Calc Conc)	EP103-PC-MV	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH and TPH/NEPM Schedule B(3) Fractions, calculated from ppbv results based on given Temperature and Atmospheric Pressure and mid-range molecular weights

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EN2204789**	Page	: 1 of 7
Amendment	: **1**		
Client	: **GREENCAP-NAA PTY LTD**	Laboratory	: Environmental Division Newcastle
Contact	: MR ANDREW DURAND	Contact	: Kieren Burns
Address	: 12 GREENHILL RD WAYVILLE SA 5034	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: +61 08 8299 9955	Telephone	: +61881625130
Project	: J154748	Date Samples Received	: 20-May-2022
Order number	: PO300673	Date Analysis Commenced	: 24-May-2022
C-O-C number	: ----	Issue Date	: 15-Jun-2022
Sampler	: JAKE BERMINGHAM		
Site	: ----		
Quote number	: AD/033/22 V2		
No. of samples received	: 25		
No. of samples analysed	: 25		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report; Recovery and Acceptance Limits

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

Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, NSW

General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP101: VOCs by USEPA Method TO15r (QC Lot: 4357281)									
EN2204789-001	VP12_2.5 C12388_S280	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.0020 ppmv	<2.0	0.0	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.0050 ppmv	<5.0	0.0	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.0300 ppmv	<30.0	0.0	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0010 ppmv	<1.0	0.0	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 4357281) - continued									
EN2204789-001	VP12_2.5 C12388_S280	EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Isooctane	540-84-1	0.5	ppbv	0.447 ppmv	448	0.0	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190 ppmv	<19.0	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 4357281) - continued									
EN2204789-001	VP12_2.5 C12388_S280	EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<0.100 ppmv	<100	0.0	No Limit
EN2204789-011	VP41_6.0 C1301_S210	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.0020 ppmv	<2.0	0.0	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.0050 ppmv	<5.0	0.0	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.0300 ppmv	<30.0	0.0	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0010 ppmv	<1.0	0.0	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 4357281) - continued									
EN2204789-011	VP41_6.0 C1301_S210	EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Isooctane	540-84-1	0.5	ppbv	0.615 ppmv	601	2.2	0% - 50%
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	0.0531 ppmv	50.9	4.2	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190 ppmv	<19.0	0.0	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<0.100 ppmv	<100	0.0	No Limit
EP103: Petroleum Hydrocarbons in Gaseous Samples (QC Lot: 4357282)									
EN2204789-001	VP12_2.5 C12388_S280	EP103-PC: C6 - C9 Fraction	----	50	ppbv	12.6 ppmv	12200	3.4	No Limit
		EP103-PC: C10 - C14 Fraction	----	50	ppbv	<5.00 ppmv	<5000	0.0	No Limit
EN2204789-011	VP41_6.0 C1301_S210	EP103-PC: C6 - C9 Fraction	----	50	ppbv	40.3 ppmv	37800	6.3	No Limit
		EP103-PC: C10 - C14 Fraction	----	50	ppbv	16.4 ppmv	16000	2.6	No Limit
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 4357282)									
EN2204789-001	VP12_2.5 C12388_S280	EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	8.31 ppmv	8040	3.2	No Limit
		EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<5.00 ppmv	<5000	0.0	No Limit
EN2204789-011	VP41_6.0 C1301_S210	EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	38.6 ppmv	36300	6.2	No Limit
		EP103-PC: >C10 - C16 Fraction	----	50	ppbv	11.5 ppmv	11200	2.9	No Limit

Method Blank (MB), Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 4357281)											
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	111	111	82.2	118	20	----
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	122	122	70.0	122	20	----
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	108	109	84.1	118	20	----
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	109	110	78.2	119	20	----
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	103	104	79.5	118	20	----
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	107	108	78.7	119	20	----
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	106	107	83.5	115	20	----
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	93.9	95.2	84.2	112	20	----
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	# 129	# 130	72.2	117	20	----
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	89.9	90.5	86.1	116	20	----
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	109	110	82.2	116	20	----
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	96.5	97.6	83.6	113	20	----
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	107	107	82.8	113	20	----
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	110	110	78.4	113	20	----
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	105	105	81.2	113	20	----
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	99.2	100	81.4	109	20	----
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	105	105	80.9	119	20	----
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	110	110	75.6	117	20	----
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	94.4	94.8	84.2	111	20	----
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	101	102	75.4	115	20	----
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	98.6	100.0	70.0	116	20	----
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	93.4	93.6	82.3	118	20	----
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	86.8	88.9	77.4	116	20	----
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	89.8	90.0	80.6	117	20	----
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	83.1	83.4	77.6	119	20	----
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	88.7	88.6	80.6	117	20	----
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	86.0	87.0	75.3	117	20	----
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	88.6	89.0	74.5	119	20	----
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	75.0	76.4	70.0	123	20	----
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	100	99.9	70.0	130	20	----
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	89.7	90.1	73.5	122	20	----
EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.5	10 ppbv	87.1	87.0	70.0	122	20	----

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 4357281) - continued											
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	87.4	87.1	70.0	128	20	----
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	86.9	86.8	70.0	126	20	----
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	84.6	84.3	70.0	122	20	----
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	83.3	83.2	70.0	130	20	----
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	84.2	84.3	70.0	124	20	----
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	84.0	83.5	70.5	121	20	----
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	# 68.0	# 68.8	70.0	130	20	----
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	79.0	78.2	70.0	130	20	----
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	114	114	70.0	129	20	----
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	109	108	79.9	123	20	----
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	101	105	73.2	116	20	----
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	103	104	80.9	118	20	----
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	112	115	71.9	117	20	----
EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.5	10 ppbv	88.4	90.5	82.9	113	20	----
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	92.9	93.1	77.4	128	20	----
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	80.1	81.4	71.9	111	20	----
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	88.6	91.0	70.0	130	20	----
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	105	106	79.2	113	20	----
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	97.4	99.1	82.9	111	20	----
EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.5	10 ppbv	108	108	78.9	116	20	----
EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.5	10 ppbv	110	110	78.4	115	20	----
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	89.6	92.2	70.0	126	20	----
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	86.7	89.3	73.5	115	20	----
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	101	102	70.0	113	20	----
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	90.7	91.8	70.0	126	20	----
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	# 144	# 143	71.4	120	20	----
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	89.7	92.5	70.0	125	20	----
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	113	113	71.6	118	20	----
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	86.9	86.9	70.0	130	20	----
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	75.8	79.7	70.0	130	20	----
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	90.5	92.6	83.4	112	20	----
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	# 68.2	70.4	70.0	130	20	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (QCLot: 4357282)											
EP103-PC: C6 - C9 Fraction	----	50	ppbv	<50	2800 ppbv	109	108	76.4	114	25	25
EP103-PC: C10 - C14 Fraction	----	50	ppbv	<50	1200 ppbv	103	102	70.1	121	25	25
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 4357282)											
EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<50	3000 ppbv	106	106	74.3	116	25	25
EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<50	500 ppbv	102	101	70.8	115	25	25

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

TNT. ECN012664285

AIR CANISTER CHAIN OF CUSTODY

*If sourced from an ALS Laboratory: **please tick** →*

Client Supplied Canister(s)? Y / N

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 3 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 24 Westgate Road Scoresby VIC 3179 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 106 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.ma@alsglobal.com

NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

NOWRA 4/10 Bearb Place North Nowra NSW 2541 Ph: 61 4423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT:	Greencap	**TURNAROUND REQUIREMENTS :** (Standard TAT may be extended for multiple sequential analysis suites)	X Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE:	Adelaide		
PROJECT:	Tonsley EMP — **PROJECT NO:** J154748	**ALS QUOTE NO.:** AD/033/22	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
CANISTER REQUEST NO:	**PURCHASE ORDER NO.:** PO300673	**COUNTRY OF ORIGIN:** Australia	
PROJECT MANAGER:	Andrew Durand	**CONTACT PH:** 08 8299 9955	
SAMPLER:	Jake Bermingham	**SAMPLER MOBILE:** 0447 958 178	
COC Emailed to ALS?	Yes	**EDD FORMAT (or default):**	
Email Reports to	Andrew.durand@greencap.com.au & Jake Bermingham@greencap.com.au		
Email Invoice to	Andrew.durand@greencap.com.au & Jake Bermingham@greencap.com.au		

LABORATORY USE ONLY (Circle)
Custody seal intact upon arrival? Yes / No / N/A
Cooler/Sample/Canister temperature upon receipt? Yes / No / N/A
Valves closed? Yes / No / N/A
Receipt? Yes / No / N/A
Canister/Sample Complete and Not Damaged Yes / No
Other requirements: Temperature (°C)

RELINQUISHED BY: JB	RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
18/05/2022 (signature and date/time)	(signature and date/time)	(signature and date/time)	(signature and date/time)
RECEIVED BY: (signature and date/time)	RECEIVED BY: 20/5/22 9:00 (signature and date/time)	RECEIVED BY: (signature and date/time)	RECEIVED BY: (signature and date/time)

COMMENTS/SPECIAL HANDLING/REPLACEMENT OR RETURN INSTRUCTIONS:

GAS SAMPLE CONTAINER INFORMATION

Refer to Canister Verification Reports and COAs for pressures measured by the Lab

ANALYSES REQUESTED

Suite Codes must be listed to attract suite price

Additional Information

Container ID	CANISTER / SAMPLE DETAILS					Pre-Sampling	Post Sampling	Reporting Requirements					ANALYSES REQUESTED						Additional Information
								LORs			Units								
LAB ID	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (eg Air, Soil Gas)			Ambient Air	Soil Gas (NEPM)	Other / Indoor	ppbv, µg/m³	ppmv, mg/m³	SG-PH2 (as per ALS quote: AD/033/22)						
	12388	280	VP12_2.5	13/05/2022	SG	-30	-10		X			X	X						
	12376	108	VP12_3.8	13/05/2022	SG	-30	-10		X			X	X						
	12425	149	VP12_6.0	13/05/2022	SG	-30	-10		X			X	X						
	5039	99	VP27-3.0	16/05/2022	SG	-30	-10		X			X	X						
	12449	53	VP27_6.0	16/05/2022	SG	-30	-10		X			X	X						
	12348	129	VP28_3.0	13/05/2022	SG	-30	-10		X			X	X						
	194	843	VP30_3.0	17/05/2022	SG	-30	-10		X			X	X						
	1303	48	VP31_3.0	17/05/2022	SG	-30	-10		X			X	X						
	841	267	VP32_3.0	17/05/2022	SG	-30	-9		X			X	X						
	12365	92	VP41_3.0	16/05/2022	SG	-30	-10		X			X	X						
	1301	210	VP41_6.0	16/05/2022	SG	-30	-10		X			X	X						
	12444	250	VP42_6.0	13/05/2022	SG	-30	-10		X			X	X						
	12371	160	VP43_3.0	16/05/2022	SG	-30	-10		X			X	X						
	12340	47	VP43_6.0	16/05/22022	SG	-30	-10		X			X	X						
	869	222	VP45_3.7	16/05/2022	SG	-30	-20		X			X	X						
	1289	34	VP45A	16/05/2022	SG	-30	-10		X			X	X						possible water ingress
	5037	10	VP46A	16/05/2022	SG	-30	-11		X			X	X						possible water ingress
	873	144	VP49_3.7	16/05/2022	SG	-30	-10		X			X	X						
	12385	23	VP50_3.7	16/05/2022	SG	-30	-10		X			X	X						
	13	5451	VP51_3.7	16/05/2022	SG	-30	-10		X			X	X						
	5491	250	QV01	13/05/2022	SG	-30	-10		X			X	X						
	12447	144	QV02	16/05/2022	SG	-30	-10		X			X	X						
	12440		Can Failed		SG	-30	-10		X			X	X						

Job Specific Instructions:

Environmental Division
Newcastle
Work Order Reference
EN2204789

Telephone : + 61 2 4014 2500

GAS CANISTER SAMPLING EQUIPMENT DISPATCH RECORD

Inquiries: Client Services - Newcastle **Phone: +61 (02) 4014 2500** E-mail: alsenviro.newcastle@alsglobal.com

Dispatch to:		**ALS Use ONLY**	
Client / Office:	Greencap	**Request Received By:**	HW 21/4
Contact:	Andrew Durand	**Deliver By:**	2/5
Telephone:	0418 534 068	**Dispatched By:**	29/4
ALS Quotation:		**Workorder:**	
Delivery Address:	12 Greenhill Rd	**Agreed Rent Free Period:**	14 days
	Wayville SA 5034		

SPECIAL INSTRUCTIONS: .....

Equipment Request

CANISTERS

No.	Canister Type	Size	Gauge	Valve	Cap	Rental	No Returned	Analysis Initials & Date: Leak Checked	Certified OK
26	Minican™	1.4L	No	QT	Yes	$120 ea		HC 29/4/12	

CONNECTORS AND FLOW CONTROL DEVICES

No.	Equipment Type	Duration / min	Flow / min	T - Piece	Gauges	Certified	Sealed / Vacuum	Connection (Q = Quick Connect, S = Swagelok)	No. Returned	Rental
20	Soil Gas Sampling Train		12ml	No	Yes	Yes	Yes / Yes	Q		Incl Above
4	Duplicate Soil Gas Sampler		12ml	Yes	Yes	Yes	Yes / Yes	Q		Incl Above
24	Female QT Connectors	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Male QT Connector	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q		$250 ea. Replacement
	Sampling Kit Case -- Soil Gas	-	-	-	-	-	Yes	NA		$200 Replacement
	¼" Swagelok connectors and ferrules (spares)	-	-	-	-	-	-			$5 ea. Replacement

☐ **Other (specify)**

Refer to Acceptance of Terms

ALS use only			
Gauge Pressures on Included COC (Y / N)	Recorded by:	Leak Check OK (Y / N)	By:
Canister Sampling Guide Included (Y / N)	Packed by: Hugh	Dispatch Time / Date	
Number of Boxes:	3	Consignment Note Number:	331418489
Courier / Dispatcher:	TNT	Consignment Dispatched by:	JW

GAS CANISTER SAMPLING EQUIPMENT DISPATCH RECORD

ALS SUPPLIED EQUIPMENT

Item	Quantity	Item Description	Replacement Value	Serial Nos
	26	1.4 L Silonite Mini-Can with QT Valve	1303 ✓ 841 ✓ 12351 ✓ 12451 ✓ 12365 ✓ 12444 ✓ 5491 ✓ 869 ✓ 12376 ✓ 12425 ✓ 12346 ✓ 843 ✓ 5451 ✓ 12371 ✓ 1284 ✓ 5037 ✓ 12385 ✓ 1301 ✓ 12388 ✓ 12440 ✓ 873 ✓ 12449 ✓ 12340 ✓ 816	5039 ✓ 12447 ✓

rcvd:
13·5 cc

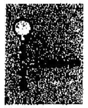
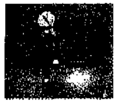
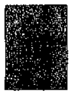
ENFMCDR1.1 11-05-11

RIGHT SOLUTIONS

Brisbane · Adelaide · Bendigo · Canberra · Geelong · Gladstone · Melbourne (Scoresby) · Melbourne (Springvale) · Mudgee · Newcastle · Nowra · Perth · Wollongong · Sydney · Townsville · Traralgon · Wangaratta

www.alsglobal.com

GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

Item	Quantity	Item Description	Replacement Value	Serial Nos
	20	Soil Gas Sampling Train (Compact) with QT Connections - 12ml/min	280✓ 149✓ 197✓ 222✓ 048✓ 129✓ 108✓ 267✓ 194✓ 200✓ 139✓ 264✓ 210✓ 047✓ 010✓ 160✓	034✓ 013✓ 023✓ 092✓
	4	Soil Gas Duplicate Sampling Train with QT Connections – 12ml/min	053✓ 144✓ 099✓ 250✓	
	1	Vacuum Gauge with female QT Connection	G-014✓	-31"Hg
	24	Female QT to ¼" tube connector	✓	
	1	Male QT to ¼" tube connector		

rec'd: 13/5

Missing

ENFMCDR1.1 11-05-11

RIGHT SOLUTIONS

GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

Acceptance of Terms:

Acceptance and use of the accompanying ALS Air Canisters and Canister Sampling Equipment constitutes acceptance of the following terms:

1. This equipment remains the property of ALS Laboratory Group.
2. Subject to the conditions below and unless stated otherwise in the relevant quotation, the supply and use of this equipment is included in the price of analysis.
3. No responsibility is accepted by ALS for equipment requirements that have been incorrectly or incompletely specified by the client. Interfacing of ALS equipment with other sampling equipment or structures is solely the client's responsibility.
4. Canisters and sampling equipment are configured and supplied based on client specified requirements. ALS will take all reasonable care to meet these specifications, but will not accept responsibility for changes in equipment calibration or failures during transit. Replacement equipment will be provided at no charge if required.
5. Equipment calibration records and canister verification reports are available for review on request. Verification reports can be provided with canisters by prior arrangement.
6. This canister sampling equipment is provided solely for the use of the nominated client. Responsibility for ensuring the equipment is not damaged and for returning this equipment to ALS remains with the nominated client until all equipment is returned to the ALS Group.
7. Unless otherwise agreed in writing, if equipment is not returned within the agreed rent free period after dispatch the quoted rental fees above will apply per week per unit thereafter. If equipment is returned unused, the quoted rental fees above will apply per week per unit from ALS dispatch.
8. Irreparably damaged equipment and any equipment not returned within 40 days will be charged to the client at a replacement cost per unit equal to 15 weeks rent, less rental costs already paid.
9. Cleaning costs will apply for equipment marked or defaced by the client. Please attach labels for sample identification and recording of field data.

If these conditions are not acceptable please return all equipment to ALS Newcastle immediately.

CANISTER SUPPLY AND LOGISTICS

Additional canisters and samplers can be ordered through any ALS Environmental Laboratory and supplied direct to your site or office by courier. For the fastest turnaround, canisters should be returned direct to Newcastle Laboratory.

ALS Environmental, Newcastle
5/585 Maitland Road
Mayfield West, NSW 2304

Note that Dangerous Goods Transport Regulations may apply after sampling if the cylinder is pressurised or contains hazardous materials.

ENFMCDR1.1 11-05-11

RIGHT SOLUTIONS

Greencap SA P/L
12 Greenhill Road
Wayville
SA 5034

NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Durand**

Report **890304-TO**
Project name TONSLEY EMP
Project ID J154748
Received Date May 20, 2022

Client Sample ID			**QV03**	**QV04**
Sample Matrix			**1L Passivated Canister**	**1L Passivated Canister**
Eurofins Sample No.			**T22-My0049229**	**T22-My0049230**
Date Sampled			**May 16, 2022**	**May 16, 2022**
Receipt Vac./Pressure (inHg)			**11**	**14**
Final Pressure (psi)			**15**	**15**
Test/Reference	LOR	Unit		
Dilution Factor	0.1		3.2	4.6
US EPA Compendium Methods TO-15				
1.1-Dichloroethane	2	ug/m3	100	500
1.1-Dichloroethene	2	ug/m3	< 6	< 9
1.1.1-Trichloroethane	2.7	ug/m3	< 9	< 12
1.1.2-Trichloroethane	2.7	ug/m3	< 9	< 12
1.1.2.2-Tetrachloroethane	3.4	ug/m3	< 11	< 16
1.2-Dibromoethane (EDB)	3.6	ug/m3	< 11	< 16
1.2-Dichlorobenzene	3	ug/m3	< 10	< 14
1.2-Dichloroethane	2	ug/m3	< 6	< 9
1.2-Dichloropropane	2.3	ug/m3	< 7	< 11
1.2.4-Trichlorobenzene	15	ug/m3	< 47	< 68
1.2.4-Trimethylbenzene	2.5	ug/m3	< 8	25
1.3-Butadiene	2.2	ug/m3	< 4	< 5
1.3-Dichlorobenzene	3	ug/m3	< 10	< 14
1.3.5-Trimethylbenzene	2.5	ug/m3	< 8	< 11
1.4-Dichlorobenzene	3	ug/m3	< 10	< 14
1.4-Dioxane	7.2	ug/m3	< 23	< 33
2-Butanone (Methyl Ethyl Ketone)	5.9	ug/m3	< 19	< 27
2-Hexanone	8.2	ug/m3	< 26	< 38
2.2.4-Trimethylpentane	9.3	ug/m3	< 29	18000
3-Chloropropene	1.6	ug/m3	< 20	< 29
4-Ethyltoluene	2.5	ug/m3	< 8	< 11
4-Methyl-2-Pentanone (MIBK)	2.1	ug/m3	< 6	< 9
Acetone	16.6	ug/m3	< 38	< 54
Benzene	1.6	ug/m3	< 5	59
Bromodichloromethane	3.4	ug/m3	< 11	< 15
Bromoform	5.2	ug/m3	< 16	< 24
Bromomethane	19.4	ug/m3	< 61	< 89
Carbon Disulfide	15.6	ug/m3	< 20	< 29
Carbon Tetrachloride	3.1	ug/m3	< 10	< 14
Chlorobenzene	2.3	ug/m3	< 7	< 11

Client Sample ID			QV03	QV04
Sample Matrix			1L Passivated Canister	1L Passivated Canister
Eurofins Sample No.			T22-My0049229	T22-My0049230
Date Sampled			May 16, 2022	May 16, 2022
Receipt Vac./Pressure (inHg)			11	14
Final Pressure (psi)			15	15
Test/Reference	LOR	Unit		
US EPA Compendium Methods TO-15				
Chloroethane	5.3	ug/m3	< 17	< 24
Chloroform	2.4	ug/m3	< 8	< 11
Chloromethane	10.3	ug/m3	< 33	< 47
Chlorotoluene (Benzyl Chloride)	2.6	ug/m3	< 8	< 12
cis-1.2-Dichloroethene	2	ug/m3	< 6	< 9
cis-1.3-Dichloropropene	2.3	ug/m3	< 7	< 10
Cyclohexane	3.5	ug/m3	< 5	< 8
Dibromochloromethane	4.3	ug/m3	< 13	< 20
Methylene Chloride	17.4	ug/m3	< 55	< 80
Ethanol	9.4	ug/m3	< 12	< 17
Ethylbenzene	2.2	ug/m3	< 7	< 10
Freon 11 (Trichlorofluoromethane)	2.8	ug/m3	< 9	< 13
Freon 113 (Trichlorotrifluoroethane)	3.8	ug/m3	< 12	< 18
Freon 114	3.5	ug/m3	< 11	< 16
Freon 12 (Dichlorodifluoromethane)	2.5	ug/m3	< 8	< 11
Heptane	2.1	ug/m3	< 6	2000
Hexachlorobutadiene	21.3	ug/m3	< 67	< 98
Hexane	5	ug/m3	< 6	5800
Isopropanol	50	ug/m3	< 155	< 225
m.p-Xylene	4.4	ug/m3	< 14	< 20
Xylenes - Total*	6.6	ug/m3	< 21	< 30
Methyl t-Butyl Ether (MTBE)	7.2	ug/m3	< 23	< 33
Naphthalene	10.5	ug/m3	< 34	< 49
o-Xylene	2.2	ug/m3	< 7	< 10
Propylene	8.6	ug/m3	< 11	< 16
Styrene	2.1	ug/m3	< 7	< 10
Tetrachloroethene	3.4	ug/m3	< 11	< 16
Tetrahydrofuran	1.5	ug/m3	< 5	< 7
Toluene	7.5	ug/m3	19	< 9
trans-1.2-Dichloroethene	2	ug/m3	< 6	< 9
trans-1.3-Dichloropropene	2.3	ug/m3	< 7	< 10
Trichloroethene	2.7	ug/m3	< 8	< 12
Vinyl Acetate	7.0	ug/m3	< 22	< 32
Vinyl Chloride	2.5	ug/m3	< 4	< 6
4-Bromofluorobenzene (surr.)	1	%	83	105
ASTM D1945/D1946				
1-Butene	0.03	mol %	< 0.09	< 0.11
1-Pentene	0.01	mol %	< 0.03	< 0.04
1.3-Butadiene	0.03	mol %	< 0.09	< 0.11
2-Methyl-2-Butene	0.01	mol %	< 0.03	< 0.04
Acetylene	0.01	mol %	< 0.03	< 0.04
Carbon Dioxide	0.03	mol %	9.9	6.1
Carbon Monoxide	0.02	mol %	< 0.06	< 0.08
cis-2-Pentene	0.01	mol %	< 0.03	< 0.04
Ethane	0.04	mol %	< 0.13	< 0.15
Ethene	0.02	mol %	< 0.06	< 0.08

Client Sample ID			QV03	QV04
Sample Matrix			1L Passivated Canister	1L Passivated Canister
Eurofins Sample No.			T22-My0049229	T22-My0049230
Date Sampled			May 16, 2022	May 16, 2022
Receipt Vac./Pressure (inHg)			11	14
Final Pressure (psi)			15	15
Test/Reference	LOR	Unit		
ASTM D1945/D1946				
Helium	0.05	mol %	< 0.16	3.1
Hydrogen	0.03	mol %	< 0.09	< 0.11
Isobutane	0.03	mol %	< 0.09	< 0.11
Isobutylene	0.03	mol %	< 0.09	< 0.11
Isopentane	0.01	mol %	< 0.03	< 0.04
Methane	0.05	mol %	< 0.16	0.52
Methyl Acetylene	0.01	mol %	< 0.03	< 0.04
n-Butane	0.03	mol %	< 0.09	< 0.11
n-Pentane	0.01	mol %	< 0.03	< 0.04
Nitrogen	0.1	mol %	76	68
Oxygen + Argon	0.1	mol %	14	22
Propadiene	0.01	mol %	< 0.03	< 0.04
Propane	0.02	mol %	< 0.06	< 0.08
Propylene	0.01	mol %	< 0.03	< 0.04
trans-2-Butene	0.03	mol %	< 0.09	< 0.11
trans-2-Pentene	0.01	mol %	< 0.03	< 0.04
CRC CARE TR 23 PVI				
>C6-C10	100	ug/m3	< 160	2770000
>C6-C10 TRH minus BTEX (F1)	100	ug/m3	< 160	2770000
>C10-C12 minus Naphthalene (mod F2)	100	ug/m3	< 160	360000
>C10-C12	100	ug/m3	< 160	360000

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
US EPA Compendium Methods TO-15	BrisbaneAir	May 20, 2022	30 Days
- Method: SOP #6 Analysis of Volatile Organic Compounds in Passivated Canisters EPA Method TO-15 And Modified EPA Method TO-14A			
ASTM D1945/D1946	BrisbaneAir	May 20, 2022	30 Days
- Method: SOP #8 Analysis of Oxygen, Nitrogen, Methane, Ethane, Ethene, Carbon Monoxide, Carbon Dioxide, Hydrogen and NMOC by Modified ASTM Method D1946			
CRC CARE TR 23 PVI	BrisbaneAir	May 20, 2022	30 Days
- Method: SOP #111 TPH, NMOC, and TVH Hydrocarbon Fractionation Calculations from EPA Methods TO-14A/TO-15			

eurofins | Environment Testing

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IANZ # 1290

Company Name: Greencap SA P/L
Address: 12 Greenhill Road
Wayville
SA 5034

Project Name: TONSLEY EMP
Project ID: J154748

Order No.: 301937
Report #: 890304
Phone: 08 8299 9955
Fax: 08 8299 9954

Received: May 20, 2022 2:31 PM
Due: May 27, 2022
Priority: 5 Day
Contact Name: Andrew Durand

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						Dilution Factor	Final Pressure (psi)	Receipt Vac./Pressure (in Hg)	AirToxics Extended Suite 1: US EPA Compendium Methods TO-14a TO-15/CRC
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217									
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	QV03	May 16, 2022		1L Passivated Canister	T22-My0049229	X	X	X	X
2	QV04	May 16, 2022		1L Passivated Canister	T22-My0049230	X	X	X	X
Test Counts						2	2	2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. Dilutions are performed on samples due to the presence of high level target species or the presence of high level non-target species.
3. Results are uncorrected for surrogate recoveries.
4. All QC limit exceedances and affected sample results are noted by flags. Each qualifying flag is defined below in section entitled 'Definition of Data Qualifying Flags' and additionally on individual sample results (where relevant).
5. "100% certification" is defined as evaluating the sampling system with humid zero air/N2 and humid calibration gases that pass through all active components of the sampling system. The system is "100% certified" if no significant additions or deletions (less than 0.2 ppbv each of target compounds) have occurred when challenged with the test gas stream.
6. The conversion equation from ppbv to g/m3 uses a temperature of 25 °C and an ambient sea level atmospheric pressure of 1 atmosphere (101.325 kPa) is assumed.
7. All canister samples are only analysed once temperature equilibrium with the laboratory has been achieved.
8. Safe Sampling Volume (SSV) - calculated by taking two-thirds of the breakthrough volume (direct method) and Appendix 1 of Method T0-17.
9. Samples were analysed on an 'as received' basis.
10. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
11. This report replaces any interim results previously issued.

Definition of Data Qualifying Flags

Qualifiers may have been used on the data analysis sheets and indicates as follows:

A01 Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

A02 Estimated value.

A03 Exceeds instrument calibration range.

A04 Saturated peak.

A05 Exceeds quality control limits.

A06 Compound analysed for but not detected above the Limit of Reporting (LOR). See data page for project specific U-flag definition.

A07 Non-detected compound associated with low bias in the CCV.

A08 The identification is based on presumptive evidence.

A09 SSV has been exceeded for this compound. It is likely that this compound has been underestimated.

A10 LORs cited do not take into account sample dilution due to canister pressurisation.

A11 Naphthalene elutes outside the >C10-C12 range on the system used for sample analysis. As a result, >C10-C12 TRH value is equivalent to the modified F2 value.

Holding Times

Under conditions of normal usage for sampling ambient air, most Volatile Organic Compounds (VOCs) can be recovered from canisters near their original concentrations after storage times of up to thirty days. For thermal desorption tubes (TDT) samples should be refrigerated at <4°C in a clean environment during storage and analysed within 30 days of sample collection (within one week for limonene, carene, bis-chloromethyl ether and labile sulfur or nitrogen containing volatiles).

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 Sample Receipt Advice.

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.

Units

ppbv: parts per billion by volume

ug/m3: micrograms per cubic metre

kPa: kilopascal

psig: pounds per square inch gauge

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
US EPA Compendium Methods TO-15							
1.1-Dichloroethane	ug/m3	< 2			2	Pass	
1.1-Dichloroethene	ug/m3	< 2			2	Pass	
1.1.1-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2.2-Tetrachloroethane	ug/m3	< 3.4			3.4	Pass	
1.2-Dibromoethane (EDB)	ug/m3	< 3.6			3.6	Pass	
1.2-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.2-Dichloroethane	ug/m3	< 2			2	Pass	
1.2-Dichloropropane	ug/m3	< 2.3			2.3	Pass	
1.2.4-Trichlorobenzene	ug/m3	< 15			15	Pass	
1.2.4-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.3-Butadiene	ug/m3	< 2.2			2.2	Pass	
1.3-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.3.5-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.4-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.4-Dioxane	ug/m3	< 7.2			7.2	Pass	
2-Butanone (Methyl Ethyl Ketone)	ug/m3	< 5.9			5.9	Pass	
2-Hexanone	ug/m3	< 8.2			8.2	Pass	
2.2.4-Trimethylpentane	ug/m3	< 9.3			9.3	Pass	
3-Chloropropene	ug/m3	< 1.6			1.6	Pass	
4-Ethyltoluene	ug/m3	< 2.5			2.5	Pass	
4-Methyl-2-Pentanone (MIBK)	ug/m3	< 2.1			2.1	Pass	
Acetone	ug/m3	< 16.6			16.6	Pass	
Benzene	ug/m3	< 1.6			1.6	Pass	
Bromodichloromethane	ug/m3	< 3.4			3.4	Pass	
Bromoform	ug/m3	< 5.2			5.2	Pass	
Bromomethane	ug/m3	< 19.4			19.4	Pass	
Carbon Disulfide	ug/m3	< 15.6			15.6	Pass	
Carbon Tetrachloride	ug/m3	< 3.1			3.1	Pass	
Chlorobenzene	ug/m3	< 2.3			2.3	Pass	
Chloroethane	ug/m3	< 5.3			5.3	Pass	
Chloroform	ug/m3	< 2.4			2.4	Pass	
Chloromethane	ug/m3	< 10.3			10.3	Pass	
Chlorotoluene (Benzyl Chloride)	ug/m3	< 2.6			2.6	Pass	
cis-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
cis-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Cyclohexane	ug/m3	< 3.5			3.5	Pass	
Dibromochloromethane	ug/m3	< 4.3			4.3	Pass	
Methylene Chloride	ug/m3	< 17.4			17.4	Pass	
Ethanol	ug/m3	< 9.4			9.4	Pass	
Ethylbenzene	ug/m3	< 2.2			2.2	Pass	
Freon 11 (Trichlorofluoromethane)	ug/m3	< 2.8			2.8	Pass	
Freon 113 (Trichlorotrifluoroethane)	ug/m3	< 3.8			3.8	Pass	
Freon 114	ug/m3	< 3.5			3.5	Pass	
Freon 12 (Dichlorodifluoromethane)	ug/m3	< 2.5			2.5	Pass	
Heptane	ug/m3	< 2.1			2.1	Pass	
Hexachlorobutadiene	ug/m3	< 21.3			21.3	Pass	
Hexane	ug/m3	< 5			5	Pass	
Isopropanol	ug/m3	< 50			50	Pass	
m.p-Xylene	ug/m3	< 4.4			4.4	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total*	ug/m3	< 6.6			6.6	Pass	
Methyl t-Butyl Ether (MTBE)	ug/m3	< 7.2			7.2	Pass	
Naphthalene	ug/m3	< 10.5			10.5	Pass	
o-Xylene	ug/m3	< 2.2			2.2	Pass	
Propylene	ug/m3	< 8.6			8.6	Pass	
Styrene	ug/m3	< 2.1			2.1	Pass	
Tetrachloroethene	ug/m3	< 3.4			3.4	Pass	
Tetrahydrofuran	ug/m3	< 1.5			1.5	Pass	
Toluene	ug/m3	< 7.5			7.5	Pass	
trans-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
trans-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Trichloroethene	ug/m3	< 2.7			2.7	Pass	
Vinyl Acetate	ug/m3	< 7			7.0	Pass	
Vinyl Chloride	ug/m3	< 2.5			2.5	Pass	
Method Blank							
ASTM D1945/D1946							
1-Butene	mol %	< 0.03			0.03	Pass	
1-Pentene	mol %	< 0.01			0.01	Pass	
1.3-Butadiene	mol %	< 0.03			0.03	Pass	
2-Methyl-2-Butene	mol %	< 0.01			0.01	Pass	
Acetylene	mol %	< 0.01			0.01	Pass	
Carbon Dioxide	mol %	< 0.03			0.03	Pass	
Carbon Monoxide	mol %	< 0.02			0.02	Pass	
cis-2-Pentene	mol %	< 0.01			0.01	Pass	
Ethane	mol %	< 0.04			0.04	Pass	
Ethene	mol %	< 0.02			0.02	Pass	
Helium	mol %	< 0.05			0.05	Pass	
Hydrogen	mol %	< 0.03			0.03	Pass	
Isobutane	mol %	< 0.03			0.03	Pass	
Isobutylene	mol %	< 0.03			0.03	Pass	
Isopentane	mol %	< 0.01			0.01	Pass	
Methane	mol %	< 0.05			0.05	Pass	
Methyl Acetylene	mol %	< 0.01			0.01	Pass	
n-Butane	mol %	< 0.03			0.03	Pass	
n-Pentane	mol %	< 0.01			0.01	Pass	
Oxygen + Argon	mol %	< 0.1			0.1	Pass	
Propadiene	mol %	< 0.01			0.01	Pass	
Propane	mol %	< 0.02			0.02	Pass	
Propylene	mol %	< 0.01			0.01	Pass	
trans-2-Butene	mol %	< 0.03			0.03	Pass	
trans-2-Pentene	mol %	< 0.01			0.01	Pass	
LCS - % Recovery							
US EPA Compendium Methods TO-15							
1.1-Dichloroethane	%	92			70-130	Pass	
1.1-Dichloroethene	%	91			70-130	Pass	
1.1.1-Trichloroethane	%	95			70-130	Pass	
1.1.2-Trichloroethane	%	112			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	116			70-130	Pass	
1.2-Dibromoethane (EDB)	%	105			70-130	Pass	
1.2-Dichlorobenzene	%	112			70-130	Pass	
1.2-Dichloroethane	%	106			70-130	Pass	
1.2-Dichloropropane	%	103			70-130	Pass	
1.2.4-Trichlorobenzene	%	84			70-130	Pass	
1.2.4-Trimethylbenzene	%	96			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.3-Butadiene	%	88			70-130	Pass	
1.3-Dichlorobenzene	%	110			70-130	Pass	
1.3.5-Trimethylbenzene	%	110			70-130	Pass	
1.4-Dichlorobenzene	%	110			70-130	Pass	
1.4-Dioxane	%	95			70-130	Pass	
2-Butanone (Methyl Ethyl Ketone)	%	88			70-130	Pass	
2-Hexanone	%	88			70-130	Pass	
2.2.4-Trimethylpentane	%	91			70-130	Pass	
3-Chloropropene	%	94			70-130	Pass	
4-Ethyltoluene	%	113			70-130	Pass	
4-Methyl-2-Pentanone (MIBK)	%	78			70-130	Pass	
Acetone	%	92			70-130	Pass	
Benzene	%	105			70-130	Pass	
Bromodichloromethane	%	109			70-130	Pass	
Bromoform	%	113			70-130	Pass	
Bromomethane	%	81			70-130	Pass	
Carbon Disulfide	%	98			70-130	Pass	
Carbon Tetrachloride	%	98			70-130	Pass	
Chlorobenzene	%	100			70-130	Pass	
Chloroethane	%	99			70-130	Pass	
Chloroform	%	99			70-130	Pass	
Chloromethane	%	85			70-130	Pass	
Chlorotoluene (Benzyl Chloride)	%	97			70-130	Pass	
cis-1.2-Dichloroethene	%	89			70-130	Pass	
cis-1.3-Dichloropropene	%	94			70-130	Pass	
Cyclohexane	%	83			70-130	Pass	
Dibromochloromethane	%	111			70-130	Pass	
Methylene Chloride	%	96			70-130	Pass	
Ethanol	%	74			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
Freon 11 (Trichlorofluoromethane)	%	104			70-130	Pass	
Freon 113 (Trichlorotrifluoroethane)	%	98			70-130	Pass	
Freon 114	%	102			70-130	Pass	
Freon 12 (Dichlorodifluoromethane)	%	91			70-130	Pass	
Heptane	%	101			70-130	Pass	
Hexachlorobutadiene	%	102			70-130	Pass	
Hexane	%	92			70-130	Pass	
Isopropanol	%	95			70-130	Pass	
m.p-Xylene	%	108			70-130	Pass	
Xylenes - Total*	%	113			70-130	Pass	
Methyl t-Butyl Ether (MTBE)	%	84			70-130	Pass	
Naphthalene	%	76			70-130	Pass	
o-Xylene	%	104			70-130	Pass	
Propylene	%	83			70-130	Pass	
Styrene	%	101			70-130	Pass	
Tetrachloroethene	%	106			70-130	Pass	
Tetrahydrofuran	%	77			70-130	Pass	
Toluene	%	99			70-130	Pass	
trans-1.2-Dichloroethene	%	91			70-130	Pass	
trans-1.3-Dichloropropene	%	99			70-130	Pass	
Trichloroethene	%	99			70-130	Pass	
Vinyl Acetate	%	75			70-130	Pass	
Vinyl Chloride	%	97			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
ASTM D1945/D1946							
1-Butene	%	97			70-130	Pass	
1-Pentene	%	99			70-130	Pass	
1.3-Butadiene	%	99			70-130	Pass	
2-Methyl-2-Butene	%	94			70-130	Pass	
Acetylene	%	97			70-130	Pass	
Carbon Dioxide	%	104			70-130	Pass	
Carbon Monoxide	%	102			70-130	Pass	
cis-2-Pentene	%	96			70-130	Pass	
Ethane	%	98			70-130	Pass	
Ethene	%	99			70-130	Pass	
Hydrogen	%	97			70-130	Pass	
Isobutane	%	99			70-130	Pass	
Isobutylene	%	97			70-130	Pass	
Isopentane	%	97			70-130	Pass	
Methane	%	98			70-130	Pass	
Methyl Acetylene	%	97			70-130	Pass	
n-Butane	%	98			70-130	Pass	
n-Pentane	%	97			70-130	Pass	
Propadiene	%	100			70-130	Pass	
Propane	%	99			70-130	Pass	
Propylene	%	98			70-130	Pass	
trans-2-Butene	%	96			70-130	Pass	
trans-2-Pentene	%	97			70-130	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
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

Authorised by:

Michael Cassidy	Analytical Services Manager
Isaac McArthur	Senior Analyst-Air

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.

SUMMA CANISTER
CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ **Sydney Laboratory** Unit F3 Bld.F, 16 Mars Rd, Lane Cove West, NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☑ **Brisbane Laboratory** Unit 1, 21 Smallwood Pl., Murarrie, QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2, 91 Leach Highway, Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 2 Kingston Town Close, Oakleigh, VIC 3166 03 8564 5000 EnviroSampleVic@eurofins.com

Company	Greencap	Project №	J154748	Project Manager	Andrew Durand
Address	12 Greenhill Road, Wayville, 5034	Project Name	Tonsley EMP	EDDs (Circle)	Esdat
Contact Name	Jake Bermingham				
Phone №	(08)8299 9955				
Special Direction					
Purchase Order	301937				
Quote ID №					

Handed over by: Jake Bermingham ___:___ 17 / 05 / 2022

Email for Results:

№	Client Sample ID	Date	Time	Analysis: AT1 = TO-15 / CRC Care TRH	Canister Vacuum/Pressure: Initial	Final	Laboratory Use ONLY: Receipt	Final (psig)	Canister ID (Barcode)	Containers: 1L Summa Canister	6L Summa Canister	Flow Controller	Soil Gas Manifold	Duplicate T-piece	Tedlar Bag	Female Quick Connect	Other	Sample Comments / DG Hazard Warning
1	QV03 (1L0243)	16/05/22		X	-30	-10				X		X						
2	QV04 (1L0171)	16/05/22		X	-30	-10				X		X						
3																		
4																		
5																		
6																		
7																		
8																		
9																		
	Total Counts			#						2		2						

Turn Around Requirements:
- ☐ Overnight (9am)*
- ☐ 1 Day* ☐ 2 Day*
- ☐ 3 Day* ☑ 5 Day
- ☐ Other ( ) * Surcharges apply

Method of Shipment	☐ Courier (#)	☑ Hand Delivered	☐ Postal	Name	Jake Bermingham	Signature		Date	17/5/2022	Time	___:___
Laboratory Use Only	Received By	Misha C	SYD | BNE | MEL | PER | ADL | NEW | DAR	Signature		Date	20/5/22	Time	2:30pm	Temperature	—
	Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Signature		Date	___/___/___	Time	___:___	Report №	890364

Groundwater and Soil Vapour Monitoring Event (May 2022)

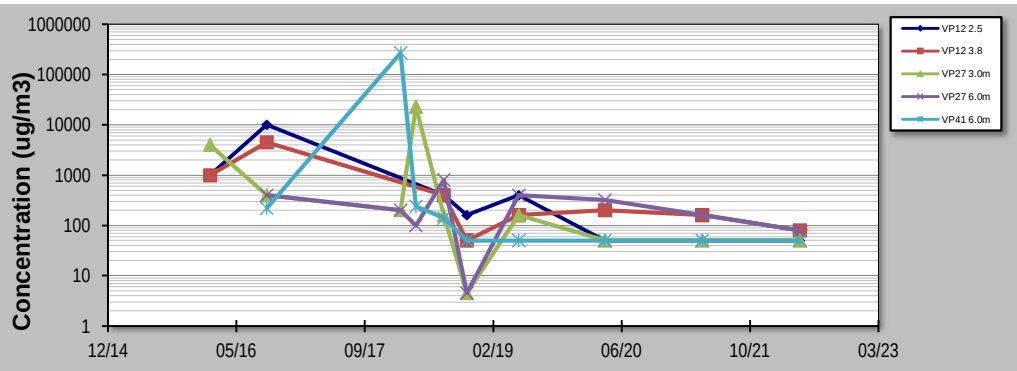
Renewal SA

Appendix F: Mann-Kendall Trend Analysis– Soil Vapour

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	Benzene
Conducted By:	AS	Concentration Units:	ug/m3

Sampling Point ID:	VP12 2.5	VP12 3.8	VP27 3.0m	VP27 6.0m	VP41 6.0m		
Sampling Event	Sampling Date	BENZENE CONCENTRATION (ug/m3)						
1	28-Jan-16	*1000*	*1000*	4000				
2	5-Sep-16	10000	4500	*400*	*400*	220		
3	9-Feb-18			*200*	*200*	270000		
4	9-Apr-18			23000	*100*	240		
5	26-Jul-18	*400*	*400*	*160*	*800*	140		
6	24-Oct-18	*160*	*50*	*4.5*	*4.5*	*50*		
7	15-May-19	*400*	*160*	*160*	*400*	*50*		
8	14-Apr-20	*50*	*200*	50	*320*	*50*		
9	28-Apr-21	*50*	*160*	*50*	*160*	50		
10	13-May-22	*50*	*80*	*50*	*80*	*50*		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		2.28	1.86	2.56	0.88	2.99		
Mann-Kendall Statistic (S):		-20	-15	-27	-11	-22		
Confidence Factor:		99.3%	95.8%	99.2%	84.6%	98.8%		
Concentration Trend:		Decreasing	Decreasing	Decreasing	Stable	Decreasing		



Notes:

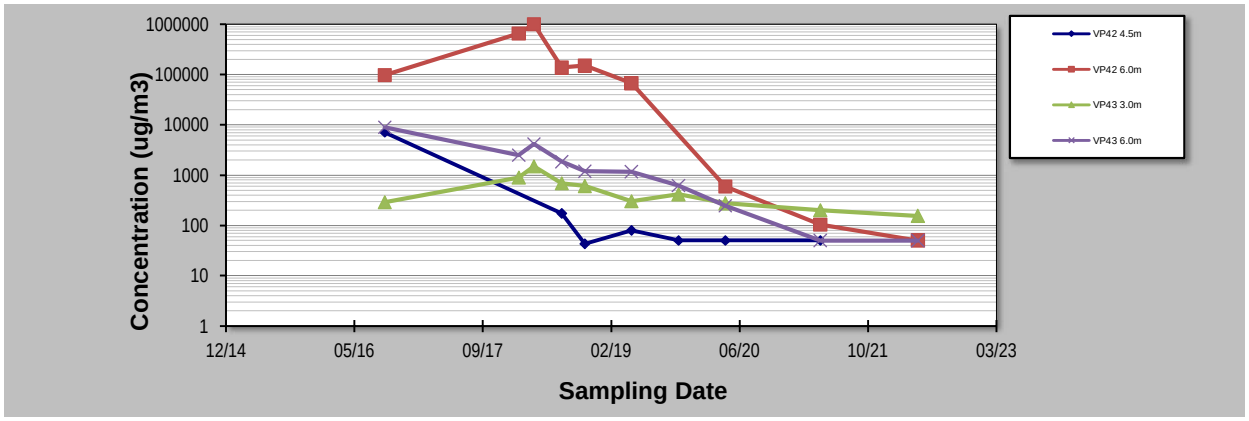
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **Benzene**
Concentration Units: **ug/m3**

Sampling Point ID:	VP42 4.5m	VP42 6.0m	VP43 3.0m	VP43 6.0m			
Sampling Event	Sampling Date	BENZENE CONCENTRATION (ug/m3)						
1	28-Jan-16							
2	5-Sep-16	7100	98000	290	8900			
3	9-Feb-18		660000	900	2500			
4	9-Apr-18		1000000	1500	4200			
5	26-Jul-18	173	138000	690	1860			
6	24-Oct-18	43	150000	610	1200			
7	24-Apr-19	*80*	67400	303	1170			
8	24-Oct-19	*50*		415	619			
9	23-Apr-20	*50*	597	276	246			
10	28-Apr-21	50	*104*	200	*50*			
11	13-May-22		*50*	155	*50*			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		**2.46**	**1.50**	**0.78**	**1.31**			
Mann-Kendall Statistic (S):		**-10**	**-24**	**-29**	**-42**			
Confidence Factor:		**90.7%**	**99.4%**	**99.5%**	**>99.9%**			
Concentration Trend:		Prob. Decreasing	Decreasing	Decreasing	Decreasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	Ethylbenzene
Conducted By:	AS	Concentration Units:	ug/m3

Sampling Point ID:	VP12 2.5m	VP12 3.8m	VP27 3.0m	VP27 6.0m	VP41 6.0m		
Sampling Event	Sampling Date	ETHYLBENZENE CONCENTRATION (ug/m3)						
1	28-Jan-16	*1350*	*1350*	*5500*				
2	5-Sep-16	360	180	2300	2300			
3	9-Feb-18			1000	700	1100		
4	9-Apr-18			210000	*270*	3300000		
5	26-Jul-18	*550*	*550*	*220*	*1100*	*110*		
6	22-Jul-19	937	*110*	*6*	320	38		
7	24-Oct-19	*550*	*220*	*220*	*550*	*110*		
8	14-Apr-20	*110*	*110*	*110*	*440*	*110*		
9	23-Apr-21	*110*	*220*	*110*	*220*	110		
10	13-May-22	*110*	*110*	*110*	*110*	*110*		
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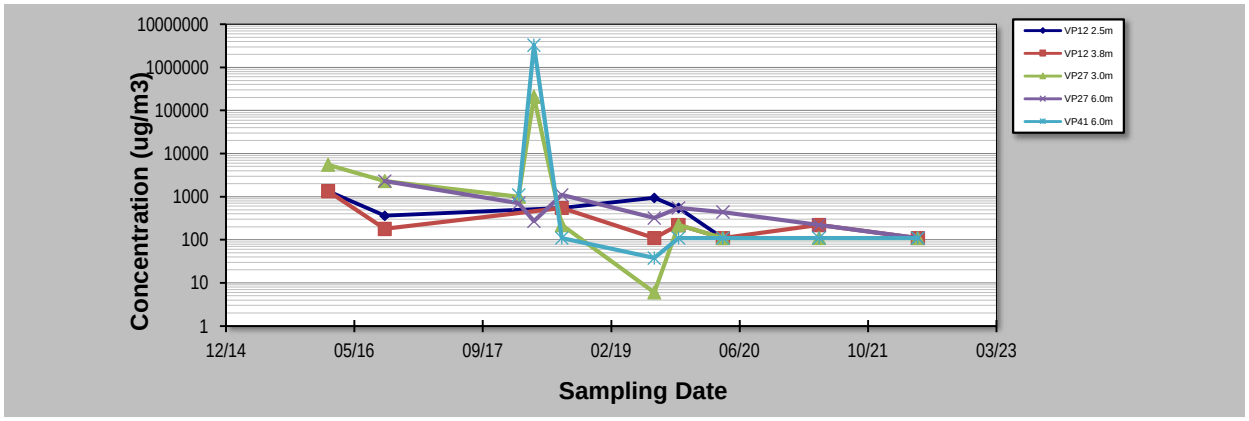
16								
17								
18								
19								
20								
Coefficient of Variation:		0.88	1.20	3.01	1.02	2.83		
Mann-Kendall Statistic (S):		-16	-12	-27	-22	-8		
Confidence Factor:		96.9%	91.1%	99.2%	98.8%	80.1%		
Concentration Trend:		Decreasing	Prob. Decreasing	Decreasing	Decreasing	No Trend		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **Ethylbenzene**
Concentration Units: **ug/m3**

Sampling Point ID:	VP42 4.5m	VP42 6.0m	VP43 3.0m	VP43 6.0m			
Sampling Event	Sampling Date	ETHYLBENZENE CONCENTRATION (ug/m3)						
1	28-Jan-16							
2	5-Sep-16	8700	1800000	3800	580000			
3	9-Feb-18		2400000	18000	110000			
4	9-Apr-18		150000	21000	160000			
5	26-Jul-18	555	2260000	17600	67200			
6	24-Oct-18	650	980000	7500	33000			
7	15-May-19	*110*	52900	3020	37400			
8	24-Oct-19	*110*		3920	20600			
9	23-Apr-20	*110*	5250	2240	7290			
10	28-Apr-21	110	*4050*	1260	*110*			
11	13-May-22		698	270	*110*			
12								
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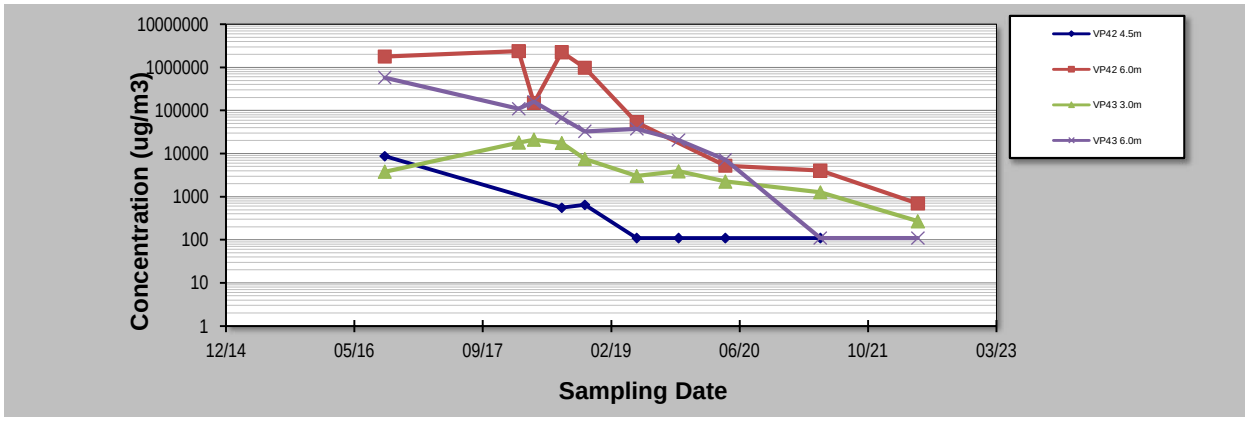
16								
17								
18								
19								
20								
Coefficient of Variation:		**2.16**	**1.22**	**1.00**	**1.73**			
Mann-Kendall Statistic (S):		**-13**	**-28**	**-31**	**-40**			
Confidence Factor:		**96.5%**	**99.9%**	**99.8%**	**>99.9%**			
Concentration Trend:		Decreasing	Decreasing	Decreasing	Decreasing			



Notes:

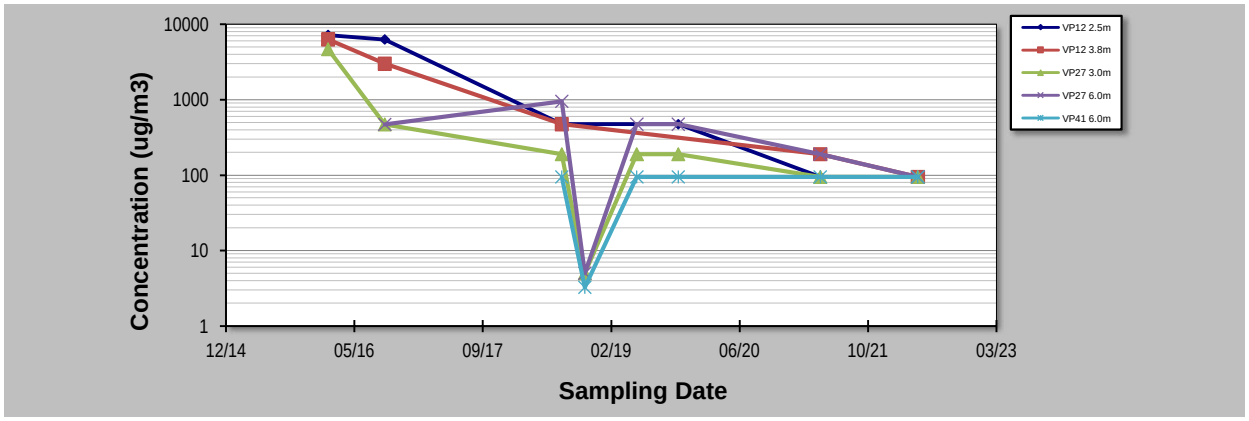
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **Toluene**
Concentration Units: **ug/m3**

Sampling Point ID:	VP12 2.5m	VP12 3.8m	VP27 3.0m	VP27 6.0m	VP41 6.0m		
Sampling Event	Sampling Date	TOLUENE CONCENTRATION (ug/m3)						
1	28-Jan-16	7200	6300	*4700*				
2	5-Sep-16	6300	3000	*470*	*470*			
3	9-Feb-18							
4	9-Apr-18							
5	26-Jul-18	*475*	*475*	*190*	*950*	*95*		
6	24-Oct-18			*5*	*5*	*3.25*		
7	15-May-19			*190*	*475*	*95*		
8	23-Oct-19	*475*		*190*	475	*95*		
9	23-Apr-20							
10	28-Apr-21	95	*190*	*95*	*190*	*95*		
11	13-May-22	*95*	*95*	*95*	*95*	*95*		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		**1.37**	**1.33**	**2.16**	**0.84**	**0.47**		
Mann-Kendall Statistic (S):		**-13**	**-10**	**-16**	**-6**	**3**		
Confidence Factor:		**99.2%**	**99.2%**	**96.9%**	**76.4%**	**64.0%**		
Concentration Trend:		Decreasing	Decreasing	Decreasing	Stable	No Trend		



Notes:

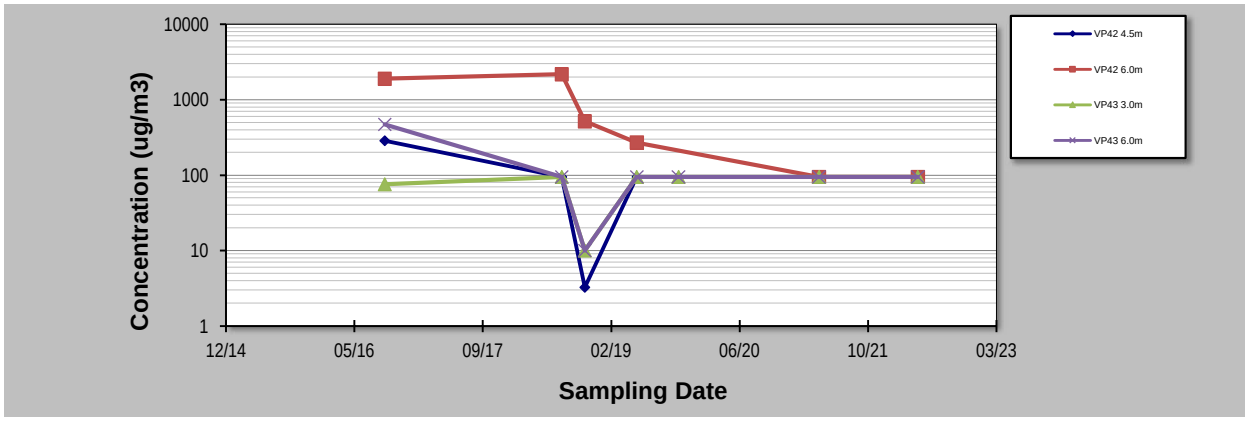
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **Toluene**
Concentration Units: **ug/m3**

Sampling Point ID:	VP42 4.5m	VP42 6.0m	VP43 3.0m	VP43 6.0m			
Sampling Event	Sampling Date	TOLUENE CONCENTRATION (ug/m3)						
1	28-Jan-16							
2	5-Sep-16	*285*	*1900*	76	*470*			
3	9-Feb-18							
4	9-Apr-18							
5	26-Jul-18	*95*	2180	*95*	*95*			
6	24-Oct-18	*3.25*	*518*	*10*	*10*			
7	15-May-19	*95*	270	*95*	*95*			
8	24-Oct-19	*95*		*95*	*95*			
9	23-Apr-21	*95*	*95*	*95*	*95*			
10	13-May-22	*95*	*95*	*95*	*95*			
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.78	1.12	0.40	1.10			
Mann-Kendall Statistic (S):		-3	-12	7	-3			
Confidence Factor:		61.4%	98.2%	80.9%	61.4%			
Concentration Trend:		Stable	Decreasing	No Trend	No Trend			



Notes:

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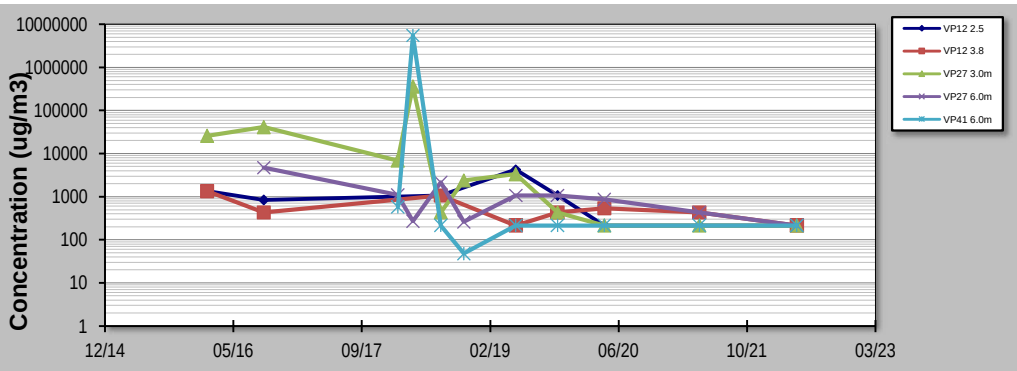
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	Xylenes
Conducted By:	AS	Concentration Units:	ug/m3

Sampling Point ID:	VP12 2.5	VP12 3.8	VP27 3.0m	VP27 6.0m	VP41 6.0m		
Sampling Event	Sampling Date	XYLENES CONCENTRATION (ug/m3)						
1	28-Jan-16	*1350*	*1350*	26000				
2	5-Sep-16	840	430	41000	4700			
3	9-Feb-18			6900	1100	580		
4	9-Apr-18			360000	*270*	5500000		
5	26-Jul-18	*1075*	*1075*	*430*	*2150*	*215*		
6	24-Oct-18			2400	260	48		
7	15-May-19	4240	*215*	3350	*1075*	*215*		
8	24-Oct-19	*1075*	*430*	*430*	*1075*	*215*		
9	23-Apr-20	*215*	*540*	*215*	*860*	*215*		
10	28-Apr-21	215	*430*	*215*	*430*	*215*		
11	13-May-22	*215*	*215*	*215*	*215*	*215*		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.15	0.70	2.67	1.12	3.00		
Mann-Kendall Statistic (S):		-14	-12	-37	-24	-9		
Confidence Factor:		94.6%	91.1%	99.8%	98.2%	79.2%		
Concentration Trend:		Prob. Decreasing	Prob. Decreasing	Decreasing	Decreasing	No Trend		



Notes:

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	Xylenes
Conducted By:	AS	Concentration Units:	ug/m3

Sampling Point ID:	VP42 4.5m	VP42 6.0m	VP43 3.0m	VP43 6.0m			
Sampling Event	Sampling Date	XYLENES CONCENTRATION (ug/m3)						
1	28-Jan-16							
2	5-Sep-16	76000	5700000	1500	130000			
3	9-Feb-18		4100000	5300	30000			
4	9-Apr-18		390000	6000	41000			
5	26-Jul-18	4140	4770000	5990	19800			
6	24-Oct-18	890	2430000	1900	10000			
7	15-May-19	469	220000	946	10200			
8	24-Oct-19	*215*		1050	4470			
9	23-Apr-20	*215*	37000	772	2230			
10	28-Apr-21	*215*	15600	616	469			
11	13-May-22		2860	*215*	*215*			
12								
13								
14								
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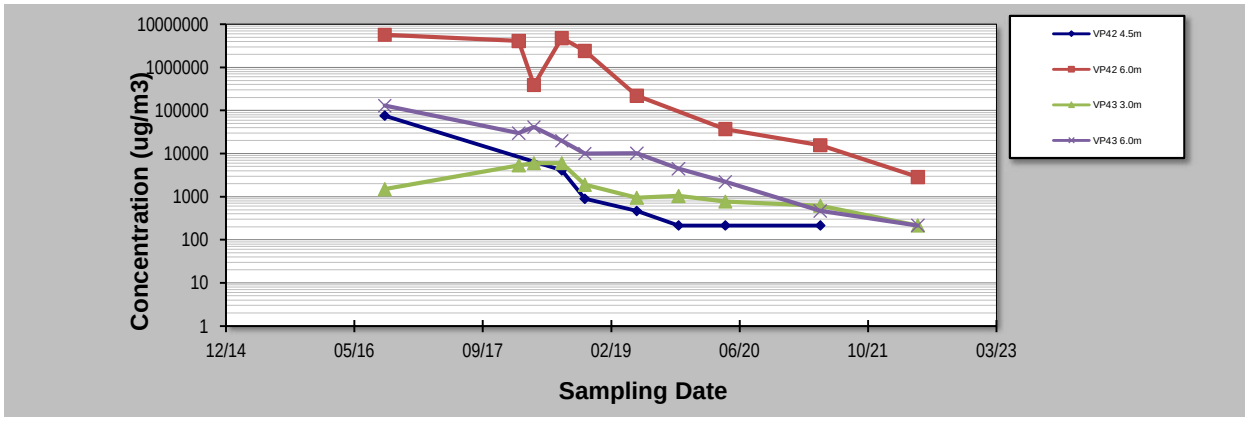
16								
17								
18								
19								
20								
Coefficient of Variation:		2.42	1.19	0.97	1.58			
Mann-Kendall Statistic (S):		-18	-30	-31	-41			
Confidence Factor:		99.7%	100.0%	99.8%	>99.9%			
Concentration Trend:		Decreasing	Decreasing	Decreasing	Decreasing			



Notes:

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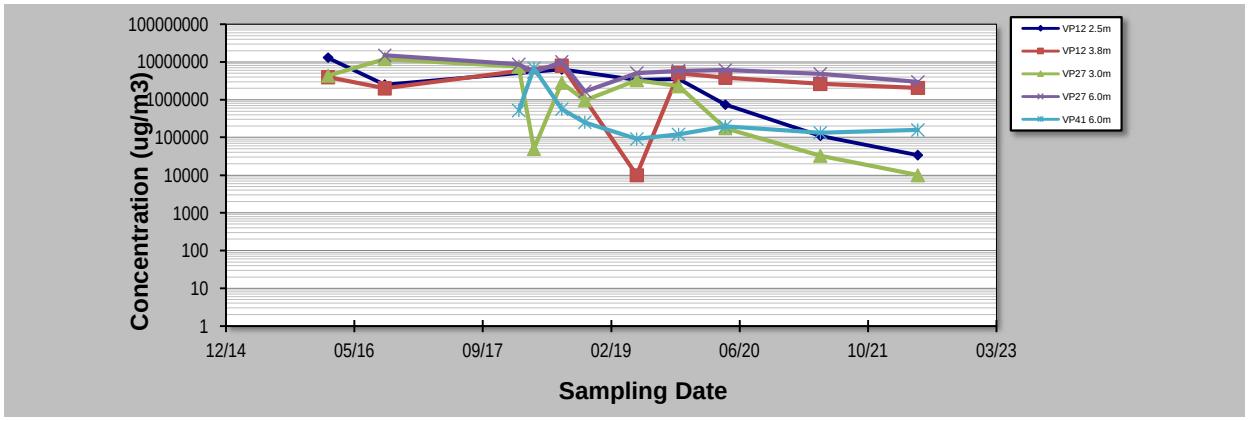
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	C6-C10 less BTEX (F1)
Conducted By:	AS	Concentration Units:	ug/m3

Sampling Point ID:	VP12 2.5m	VP12 3.8m	VP27 3.0m	VP27 6.0m	VP41 6.0m		
Sampling Event	Sampling Date	C6-C10 LESS BTEX (F1) CONCENTRATION (ug/m3)						
1	28-Jan-16	13000000	4000000	4300000				
2	5-Sep-16	2500000	2000000	12000000	15000000			
3	9-Feb-18			7600000	8700000	520000		
4	9-Apr-18			50000	5400000	6900000		
5	26-Jul-18	6420000	8010000	2820000	10100000	564000		
6	24-Oct-18			960000	1670000	250000		
7	15-May-19	3340000	*10000*	3270000	5070000	91600		
8	24-Oct-19	3570000	5110000	2300000	5800000	122000		
9	23-Apr-20	744000	3890000	175000	6130000	197000		
10	28-Apr-21	111000	2630000	32700	4900000	133000		
11	13-May-22	34000	2070000	*10000*	2980000	158000		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.16	0.69	1.24	0.58	2.24		
Mann-Kendall Statistic (S):		-20	-6	-35	-21	-16		
Confidence Factor:		99.3%	72.6%	99.7%	96.4%	94.0%		
Concentration Trend:		Decreasing	Stable	Decreasing	Decreasing	Prob. Decreasing		



Notes:

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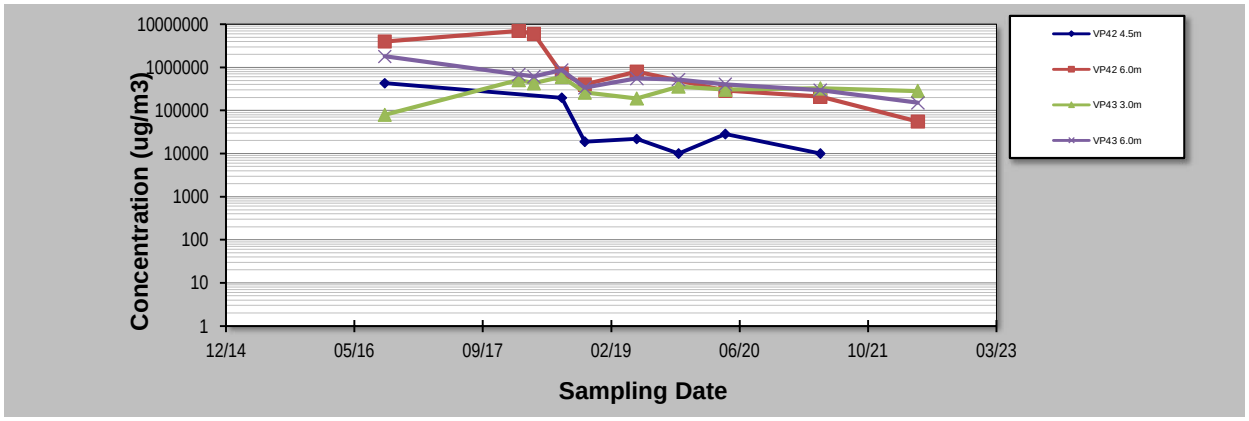
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **C6-C10 less BTEX (F1)**
Concentration Units: **ug/m3**

Sampling Point ID:	VP42 4.5m	VP42 6.0m	VP43 3.0m	VP43 6.0m			
Sampling Event	Sampling Date	C6-C10 LESS BTEX (F1) CONCENTRATION (ug/m3)						
1	28-Jan-16							
2	5-Sep-16	430000	4000000	80000	1800000			
3	9-Feb-18		7000000	510000	680000			
4	9-Apr-18		6000000	430000	620000			
5	26-Jul-18	198000	721000	604000	872000			
6	24-Oct-18	19000	400000	260000	340000			
7	15-May-19	21900	802000	191000	557000			
8	24-Oct-19	*10000*		358000	525000			
9	23-Apr-20	28400	290000	304000	404000			
10	28-Apr-21	*10000*	209000	326000	298000			
11	13-May-22		55500	284000	151000			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.56	1.27	0.45	0.74			
Mann-Kendall Statistic (S):		-12	-28	-5	-35			
Confidence Factor:		94.9%	99.9%	63.6%	100.0%			
Concentration Trend:		Prob. Decreasing	Decreasing	Stable	Decreasing			



Notes:

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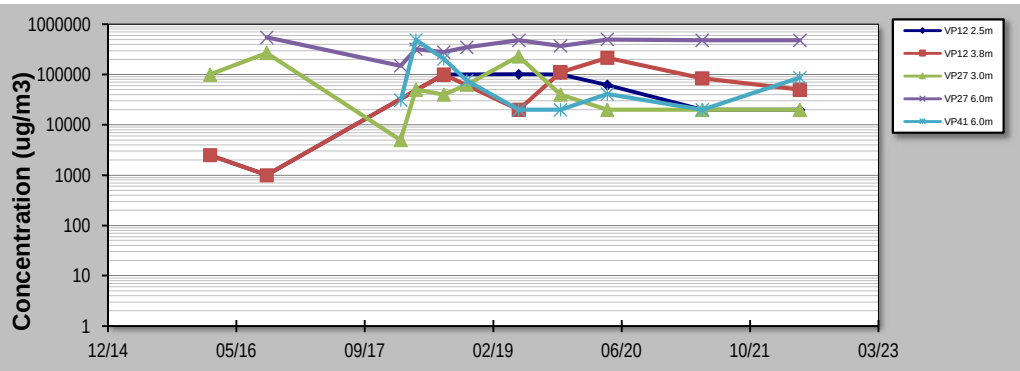
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	30-May-22	Job ID:	J154748
Facility Name:	Tonsley EMP	Constituent:	C10-C16 less Naphthalene (F2)
Conducted By:	AS	Concentration Units:	ug/m3

Sampling Point ID:	VP12 2.5m	VP12 3.8m	VP27 3.0m	VP27 6.0m	VP41 6.0m		
Sampling Event	Sampling Date	C10-C16 LESS NAPHTHALENE (F2) CONCENTRATION (ug/m3)						
1	28-Jan-16	*2500*	*2500*	*100000*				
2	5-Sep-16	*1000*	*1000*	270000	550000			
3	9-Feb-18			*5000*	150000	31000		
4	9-Apr-18			*50000*	320000	490000		
5	26-Jul-18	*100000*	*100000*	*40000*	279000	204000		
6	24-Oct-18			63000	350000	76000		
7	15-May-19	102000	*20000*	231000	480000	*20000*		
8	24-Oct-19	*100000*	111000	*40000*	371000	*20000*		
9	23-Apr-20	62300	216000	*20,000*	502000	40900		
10	28-Apr-21	*20000*	*84200*	*20000*	478000	*20000*		
11	13-May-22	*20000*	50400	*20000*	478000	86500		
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.89	0.98	1.15	0.31	1.40		
Mann-Kendall Statistic (S):		0	10	-21	14	-9		
Confidence Factor:		45.2%	86.2%	94.0%	87.3%	79.2%		
Concentration Trend:		Stable	No Trend	Prob. Decreasing	No Trend	No Trend		



Notes:

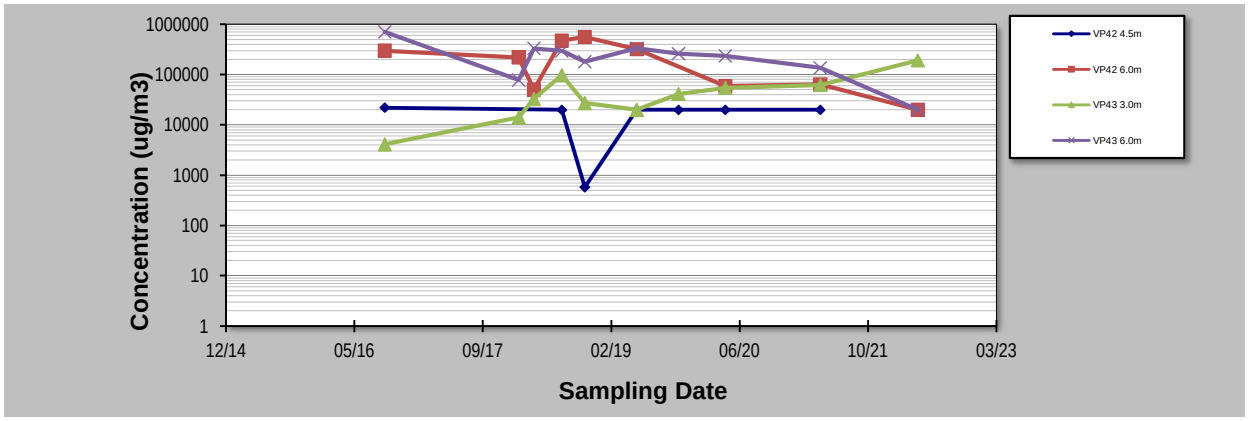
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **30-May-22**
Facility Name: **Tonsley EMP**
Conducted By: **AS**

Job ID: **J154748**
Constituent: **C10-C16 less Naphthalene (F2)**
Concentration Units: **ug/m3**

Sampling Point ID:	VP42 4.5m	VP42 6.0m	VP43 3.0m	VP43 6.0m			
Sampling Event	Sampling Date	C10-C16 LESS NAPHTHALENE (F2) CONCENTRATION (ug/m3)						
1	28-Jan-16							
2	5-Sep-16	22000	300000	4100	710000			
3	9-Feb-18		220000	14000	78000			
4	9-Apr-18		*50000*	33000	330000			
5	26-Jul-18	*20000*	476000	97600	295000			
6	24-Oct-18	580	560000	27000	180000			
7	15-May-19	*20000*	321000	*20000*	334000			
8	24-Oct-19	*20000*		41300	262000			
9	23-Apr-20	*20000*	59200	54500	235000			
10	28-Apr-21	*20000*	63400	62500	136000			
11	13-May-22		*20000*	192000	*20000*			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.43	0.86	1.01	0.74			
Mann-Kendall Statistic (S):		-3	-10	29	-21			
Confidence Factor:		61.4%	82.1%	99.5%	96.4%			
Concentration Trend:		Stable	Stable	Increasing	Decreasing			



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