Quarterly Water Quality Monitoring Results, Cabbage Tree Road Sand Quarry, NSW

August 2023 Monitoring Event

NCA23R158282

15 September 2023

KLEINFELDER
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15 September 2023
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Williamtown Sand Syndicate (WSS)
PO Box 898
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Attention: Darren Williams

Subject: Quarterly Water Quality Monitoring Results, Cabbage Tree Road Sand Quarry, NSW
August 2023 Monitoring Event

Please find enclosed the monthly water quality monitoring results for the August 2023 monitoring event undertaken by Kleinfelder Australia Pty Ltd (Kleinfelder) at the Cabbage Tree Road Sand Quarry, NSW (herein referred to as the 'site').

1 SCOPE OF WORK

The scope of work presented in this report includes the results from the quarterly water monitoring event undertaken in accordance with the NSW Environment Protection Authority (EPA) and Department of Planning and Environment (DPE) requirements for monthly water quality monitoring at the site. **Figure 1** of **Attachment 1** presents the groundwater and surface water sampling locations.

The scheduled quarterly 2023 monitoring event included gauging of all 14 available monitoring wells, recording of field parameters for groundwater and surface water, and sampling from 10 groundwater monitoring wells, 4 surface water locations, one Wash Plant Water (WPW) sample and one Wash Plant Fines (WPF) sample as outlined in the Soil and Water Management Plan (SWMP, 2021) for the site.

2 SITE WORK

The monthly monitoring round was conducted on the 14th of August 2023 and comprised:

- Gauging of all 14 available monitoring wells (BH1A, BH2, BH4, BH5, BH6, BH7, BH8, BH9, BH9A, BH10, BH11, BH12A, MW239S & MW239D). as summarised in **Table 4** and detailed in **Attachment 2.**
- Groundwater sampling from ten monitoring wells (BH1A, BH2, BH4, BH6, BH7, BH8, BH9A, BH11, BH12A & MW239S) as summarised in **Table 5** and detailed in **Attachment 2**.
- Surface water sampling from four locations (SW1, SW2, SW3 & SW4) as summarised in **Table 6** and detailed in **Attachment 2.**
- One WPW sample as summarised in **Table 7** and detailed in **Attachment 2.**
- One WPF samples as summarised in **Table 8** and detailed in **Attachment 2.**

Each well location was gauged using a water level meter to determine groundwater depth (relative to the top of the well casing) and the total depth of the well in order to determine potential sand/silt inundation and potential maintenance requirements. Following gauging, a HydraSleeve was placed into the well, ensuring the top of the sleeve was located below the water column to be sampled, and suspended in place while all remaining wells were gauged. Each HydraSleeve was then removed from the well and representative groundwater samples were taken.

Surface water and WPW samples were collected directly into laboratory supplied sample containers using a nitrile-gloved hand. Where access was deemed unsafe, a telescopic sampling pole was used.

The WPF sample was collected directly into a laboratory supplied container. All collected samples were placed into an ice chilled esky and submitted to a National Association of Testing Authorities (NATA) accredited laboratory under a chain of custody (COC) within specified holding times for the analytical schedule as per **Table 1**.

Table 1: Summary of Monthly Water Quality Analysis (August 2023)

Analysis	Number of Samples				
	Primary	Intra-lab (Duplicate)	Inter-lab (Triplicate)	Transport Blank	Rinsate Blank
TRH, BTEXN (Water)[1]	14	1	1	1	1
Metals[2] (Groundwater)	10	0	0	0	0
Metals[3] (Surface water)	4	1	1	1	1
Metals[4] (Wash plant water)	1	0	0	0	0
Metals[5] (Wash plant fines)	1	0	0	0	0
PFAS (28 analytes, standard level)	15 (Water), 1 (Soil)	1	1	1	1

[1] TRH (C6 – C40) & BTEXN, (Silica Gel Clean-up)
[2] 8 Metals (dissolved) for groundwater – As, Ba, Cr, Cu, Fe, Mg, Ni & Zn
[3] 10 Metals (dissolved) for Surface Water – As, B, Ba, Cr, Co, Cu, Fe, Mg, Ni & Zn
[4] 3 Metals (dissolved) for Wash plant water – As, Fe, Mn
[5] 8 Metals for wash plant fines - As, Ba, Cr, Cu, Fe, Mg, Ni & Zn

Table 2 provides a summary of the gauging data for August 2023. The full set of gauging data for each monitoring location is provided in **Table 13**, **Attachment 2**. Additionally, Watershed HydroGeo (2019) outlined a Trigger Action and Response Plan (TARP) to mitigate groundwater elevations that may potentially impact Cabbage Tree Road Sand Quarry operations (primarily sand excavation depths). Based on these recommendations, groundwater elevation has been shaded to correspond to triggers and actions outlined in **Table 3.** There were no instances of TARP Level Exceedances during the August monitoring event.

Table 2: Summary of Gauging Data (August 2023)

Well ID	Top of Casing (mAHD)	Depth to Water (mBTOC)	Ground-water Elevation (mAHD)	Well Total Depth Current (mBTOC)	Well Total Depth 2014 (mBTOC)	Inferred Max GW Elevation (mAHD)[1]	Difference Between Inferred Max and Measured GW Elevation (mAHD)	Comment
BH1A	8.98	5.479	3.501	12.150	N/A	4.5[2]	0.999	Clear, no odour, no sheen
BH2	7.79	5.208	2.582	8.825	9.45	3.8	1.218	Brown, no odour, no sheen
BH4	3.06	1.251	1.809	6.010	6.45	3.0[3]	1.191	Clear, low Sulphur odour, no sheen
BH5	7.36	5.347	2.013	8.700	9.28	4.0	1.987	Gauge only
BH6	3.62	1.048	2.572	4.525	4.95	4.4	1.828	Clear, low Sulphur odour, no sheen
BH7	2.98	1.214	1.766	4.510	4.95	3.7	1.934	Light brown, moderate Sulphur odour, no sheen
BH8	3.88	1.916	1.964	3.490	6.28	4.0	2.036	Yellow, moderate Sulphur odour, no sheen, white suspended sediment
BH9	17.75	15.886	1.864	16.090	18.8	3.0[3]	1.136	Gauge only
BH9A	10.75	8.845	1.905	12.195	16.16	3.0[3]	1.095	Brown, strong Sulphur odour, no sheen
BH10	6.69	3.217	3.473	3.490	5.45	4.9	1.427	Gauge only
BH11	6.63	2.456	4.174	5.280	5.95	5.5	1.326	Light yellow, strong Sulphur odour, no sheen
BH12A	5.62	2.989	2.631	7.290	NA	4.0[5]	1.369	Light brown, low Sulphur odour, no sheen
MW239S	3.04	0.904	2.136	3.790	4.0	3.9[4]	1.764	Light yellow, strong Sulphur odour, no sheen
MW239D	3.04	0.879	2.161	20.275	20.49	3.9[3]	1.739	Gauge only
SW1	N/A	N/A	N/A	0.4	N/A	N/A	N/A	Clear, green algae, no odour, no sheen

Well ID	Top of Casing (mAHD)	Depth to Water (mBTOC)	Ground-water Elevation (mAHD)	Well Total Depth Current (mBTOC)	Well Total Depth 2014 (mBTOC)	Inferred Max GW Elevation (mAHD)[1]	Difference Between Inferred Max and Measured GW Elevation (mAHD)	Comment
SW2	N/A	N/A	N/A	0.2	N/A	N/A	N/A	Clear, low Sulphur odour, no sheen
SW3	N/A	N/A	N/A	0.3	N/A	N/A	N/A	Clear, no odour, no sheen
SW4	N/A	N/A	N/A	0.3	N/A	N/A	N/A	Clear, no odour, no sheen
WPW2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Light brown, earthy odor, no sheen

[1] – Sourced from Watershed HydroGeo ,2019, *Maximum Extraction Depth Management Plan, Cabbage Tree Road Sand Quarry*, May 2019.
[2] – Inferred Max Groundwater level based on former adjacent well (BH1).
[3] – Inferred Max Groundwater level based on adjacent wells (BH4 & BH9).
[4] – Inferred Max Groundwater level based on adjacent well (MW239S).
[5] – Inferred Max Groundwater level based on former adjacent well (BH12).

Table 3: Groundwater Level Monitoring TARP Rules (Watershed HydroGeo, 2019)

Level	Trigger	Action and Response	Report / Response Actions
0	Groundwater levels more than 0.5 m below *inferred* maximum historical level (**Table 2**).	Standard operations – monthly dipping of operational on-site monitoring bores.	N/A
1	Groundwater levels within 0.5 m below *inferred* maximum historical level (**Table 2**) at any on-site bore.	Weekly (or more frequent) monitoring (dipping) of groundwater levels until water level declines to below high frequency level bores listed in **Table 2**.	Internal and environmental consultant. Include note in Annual Report.
2	Groundwater levels within 0.25 m of *inferred* maximum historical level (**Table 2**) at any on-site bore.	Weekly (or more frequent) monitoring (dipping) of groundwater levels. Re-analysis and review of Minimum Extraction Level (MEL).	WSS to issue letter to DPIE, documenting groundwater level and rainfall trends, review and make recommendations regarding MEL.
3	Groundwater levels within resource area rise above previously *inferred* maximum groundwater level (**Table 2**).	Analysis of recent data by hydrogeologist, including site data and data from local HWC wells and local Defence wells (if available). Revision of MEL. Remediation of earlier excavations to revised MEL if required by DPIE.	WSS to issue letter to DPIE, DoI Water and HWC, documenting groundwater level trends, and revision (if necessary) of MEL. Letter to outline remedial options, considering access, vegetation condition in previously rehabilitated areas. Re-grading of previously rehabilitated areas if required by DPIE.

Table 4 provides a summary of the field parameters taken during the August 2023 monitoring event. Four locations reported pH results outside of the site-specific value range of 4.2 to 6.5 (4.05, 3.82, 4.15 and 3.84 reported at BH1A, BH12A, SW2, and SW4 respectively). All field parameters for each monitoring location are detailed in the field sheets provided in **Attachment 2**.

Table 4: Summary of Field Measurements

Borehole	Turbidity (NTU)	Temp (^{0}C)	DO (mg/L)	EC (µc/cm)	TDS (mg/L)	pH	Redox (mV)
BH1A	72	18.4	4.1	101.5	66	4.05	252.3
BH2	164	18.1	64	102.5	67	4.38	187.8
BH4	18.06	15.6	4.9	87.7	57	5.11	143.9
BH5	ND	ND	ND	ND	ND	ND	ND
BH6	39	14.6	1.9	275.9	179	4.36	38.3
BH7	55	15.3	3.5	102.8	67	4.45	123.5
BH8	271	15.3	3.4	163.3	106	4.26	-19.2
BH9A	121.51	17.9	2.6	164.1	107	4.33	77.5
BH10	ND	ND	ND	ND	ND	ND	ND
BH11	75	16.5	3	125.2	81	4.26	16
BH12A	21	16.5	2.9	137.5	89	3.82	166.6
MW239S	223	15.1	3.3	105.9	69	4.77	-34
SW1	5.67	12.5	2.8	114.5	74	6.31	0.8
SW2	0.5	14	1.7	203.9	133	4.15	52.7
SW3	5.67	12.5	2.8	114.5	74	6.31	0.8
SW4	1.4	10.9	4.3	258.6	168	3.84	281.1
WPW2	42	15.9	10.2	242.8	158	4.41	205.6

ND: No Data – no sample taken

Table 5 below presents a summary of the water monitoring results for key analytes found to be reported above the laboratory limit of reporting (LOR) for groundwater. Three analyte exceedances occurred at groundwater locations during this monitoring round, Iron at BH6 (6.34mg/L) exceeded the site-specific trigger value (4.1mg/L) for the sixth consecutive month, Zinc at BH2 (0.164mg/L) exceeded the site specific trigger value (0.085mg/L) for the first time this year and Copper at BH4 (0.119mg/L) exceeded the site-specific trigger value (0.083mg/L) for the second time this year.

Table 6 presents the summary of surface water monitoring results for key analytes found to be elevated above the LOR.

Table 7 presents a summary of the wash plant sample results for key PFAS analytes in water. **Table 8** presents a summary of the wash plant fines soil sample results for key PFAS analytes reported above the LOR. The site-specific groundwater criteria outlined in the SWMP (2021) has been applied to this monthly report including a comparison of results with previous data.

The WPW2 sample recorded no detections for PFAS compounds above the LOR during this monitoring round. The WPF2 sample recorded one detection of PFOS (0.0009mg/kg) above the LOR during this monitoring round. This concentration was below the site-specific trigger value and in line with previously reported concentrations.

Full results summary tables, including Quality Assurance/Quality Control (QA/QC) sample analyses, are provided in **Attachment 2**. Field rinsate and trip blank samples collected by Kleinfelder did not detect any analyte above the laboratory LOR. Based on a review of the QA/QC Compliance Assessment provided by ALS, the overall data quality is considered acceptable for interpretive use. Copies of the final NATA endorsed laboratory reports, including internal QA/QC results and chain-of-custody documentation for both laboratories are provided in **Attachment 3**.

Table 5: Groundwater Results and Screening Criteria (August 2023)

Analyte	Metals									Discussion of results relative to previous monitoring (details on specific data trends provided in Section 4 below)
	Arsenic	Barium	Chromium	Copper	Manganese	Nickel	Zinc	Iron	Magnesium	
LOR	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.05	1	
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Adopted Site Specific Trigger Values (SWMP 2021)	0.003	0.07	0.004	0.083	0.136	0.02	0.085	4.1	11	
	Samples									
BH1A	<0.001	0.003	0.003	0.004	0.011	<0.001	0.015	0.45	2	Metals for BH1A were below the adopted criteria. BH1A is located approximately 30 m north of the current quarry operations.
BH2	<0.001	0.004	<0.001	0.008	0.009	<0.001	0.164	0.18	1	Metal concentrations were generally consistent with historical results and remain below the adopted criteria, except for Zinc which exceeded the site-specific criteria. BH2 is located marginally down hydraulic gradient from the current quarry operations footprint.
BH4	<0.001	0.009	<0.001	0.119	0.015	<0.001	0.028	0.09	1	Metal concentrations were generally consistent with historical variations and remain below the adopted criteria, except for copper which exceeded the site-specific criteria. BH4 is located down hydraulic gradient approximately 700 m from current quarry operations and is on the southernmost boundary of the site adjacent to Cabbage Tree Road.
BH6	<0.001	0.008	<0.001	0.001	0.006	<0.001	0.062	6.34	7	Metal concentrations are generally consistent with historical results and remain below the adopted criteria, except for Iron which exceeded the site-specific criteria. BH6 is considered up hydraulic gradient, approximately 860 m from current quarry operations and is at the north-eastern corner of the site.
BH7	<0.001	0.002	0.002	0.003	0.003	0.002	0.024	0.41	2	Metal concentrations were generally consistent with historical results and are below the adopted criteria. BH7 is located

Analyte	Metals									Discussion of results relative to previous monitoring (details on specific data trends provided in Section 4 below)
	Arsenic	Barium	Chromium	Copper	Manganese	Nickel	Zinc	Iron	Magnesium	
LOR	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.05	1	
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Adopted Site Specific Trigger Values (SWMP 2021)	0.003	0.07	0.004	0.083	0.136	0.02	0.085	4.1	11	
	Samples									
										approximately 960 m east of the current quarry operations.
BH8	0.002	0.005	0.003	<0.001	0.006	0.001	0.024	1.78	2	Metal concentrations for BH8 were generally consistent with historical results and are below the adopted criteria. BH8 is located approximately 974m east of the current quarry operations.
BH9A	<0.001	0.006	<0.001	0.003	0.041	0.003	0.038	0.63	2	Metal concentrations were generally consistent with historical results and below the adopted criteria. BH9A is down gradient (approximately 700m) from current quarry operations and is on the southern-most boundary of the site adjacent to Cabbage Tree Road.
BH11	<0.001	0.002	0.003	0.001	0.004	0.002	0.081	0.88	2	Metal concentrations were generally consistent with historical results and below the adopted criteria. BH11 is located approximately 460 m from current quarry operations and at the most north-western point of the site.
BH12A	<0.001	0.006	<0.001	0.001	0.006	<0.001	0.025	<0.05	2	Metals for BH12A were below the adopted criteria. BH12A is located directly adjacent to current quarry operations.
MW239S	<0.001	0.002	0.002	<0.001	0.004	0.001	0.013	0.28	1	Metal concentrations were generally consistent with historical results and below the adopted criteria. MW239S is located approximately 800 m east of the current quarry operations.

Notes:
< - Less than laboratory limit of reporting; NS – No Sample

Table 6: Surface water results and performance criteria.

Analyte	Metals											Discussion of results relative to previous monitoring (details on specific data trends provided in Section 4 below)
	Arsenic	Barium	Boron	Cobalt	Chromium	Copper	Manganese	Iron	Nickel	Zinc	Magnesium	
LOR	**0.001**	**0.001**	**0.05**	**0.001**	**0.001**	**0.001**	**0.001**	**0.05**	**0.001**	0.005	**1**	
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	
Adopted Site Specific Trigger Values (SWMP 2021)	0.006	0.08	-	0.006	0.004	0.033	0.136	7.25 (32 for SW3 & SW4)	0.02	0.535	52	
Samples												
SW1	<0.001	0.004	<0.05	<0.001	<0.001	0.003	0.026	0.16	<0.001	0.013	1	Metal concentrations were generally in line with historical variations and below the site-specific trigger values. SW1 is located on the southernmost boundary of the quarry adjacent to Cabbage Tree Road.
SW2	<0.001	0.01	<0.05	0.003	0.001	<0.001	0.061	6.48	0.004	0.062	2	SW2 was previously dry during all sampling periods from 2019 – February 2021. Metal concentrations were generally consistent with historical variations and were below the site-specific trigger values. SW2 is the most northern located surface water monitoring point directly adjacent or central to current quarry operations.
SW3	<0.001	0.005	<0.05	<0.001	<0.001	<0.001	0.034	4.72	<0.001	<0.005	3	Analyte concentrations were generally consistent with historical variations and were below the site-specific trigger values. SW3 is located within a drainage channel that travels from west to east along the south-eastern perimeter of the quarry. SW3 is approximately 476 m east of the current quarry operations.
SW4	<0.001	0.028	<0.05	0.002	<0.001	<0.001	0.022	0.26	0.003	0.021	4	Metal concentrations at SW4 appear to be stable across all analytes. SW4 is located downstream of SW3 on the eastern most perimeter of the quarry.

Notes:
< - Less than laboratory limit of reporting

Table 7: Wash Plant Water Sample Results and Screening Criteria

Analyte	PFAS				Discussion of results
	PFOA	PFOS	PFHxS	Sum of PFOS + PFHxS	
LOR	0.01	0.01	0.01	0.01	
Units	µg/L	µg/L	µg/L	µg/L	
Site Specific Trigger Values (SWMP 2021)	0.56	N/A	N/A	0.07	
Sample Name	Sand Wash Plant				
WPW2	<0.01	<0.01	<0.01	<0.01	Concentrations of PFAS compounds in the WPW were not detected above the LOR during this sampling event.

Notes:
< - Less than laboratory limit of reporting
*Detection from QC sample

Table 8: Wash Plant Fines Sample Results and Screening Criteria

Analyte	PFAS			Discussion of results
	PFOA	PFOS	Sum of PFOS + PFHxS	
LOR	0.0002	0.0002	0.0002	
Units	mg/kg	mg/kg	mg/kg	
Site Specific Trigger Values (SWMP 2021)	0.1	-	0.01	
Sample Name	**Sand Wash Plant**			
WPF	<0.002	0.0009	0.0009	PFOS was detected in the WPF sample during this monitoring round. The concentration of PFOS was found to be in-line with previously reported results which are presented in **Attachment 2.**

Notes:
< - Less than laboratory limit of reporting

3 RAINWATER DATA

Table 9 presents the rainfall data from Williamtown RAAF base (Station Number: 061078, Latitude: 32.79°S; Longitude: 151.84°E; Elevation: 8 m) for the period 2022/23. The monthly rainfalls to date for July-August 2023 were recorded to be below the monthly means consistent with the previous two months. Based on current rainfall data (mean and monthly totals) for July-August 2023, it is expected that groundwater elevations will continue to decrease during the subsequent months due to a lag in groundwater response, consistent with current groundwater trend data.

Table 9: 2022-2023 Rainfall data (12-month period)

Date	Sep (22)	Oct (22)	Nov (22)	Dec (22)	Jan (23)	Feb (23)	Mar (23)	Apr (23)	May (23)	Jun (23)	Jul (23)	Aug (23)
1st	2.0	4.4	9	0	0	0	0.2	0	0	0	0	0
2nd	0	0	0	0	0	0	0	11.2	0	0	0	0
3rd	28.0	0	0	0	0	0	0	2.4	0	0	0	0
4th	4.2	0	0.4	0	0	0.6	1	3.4	0	0	2.2	0
5th	0.4	0	0	0	13.8	0	0	-	0	0.2	5	0
6th	0	23.4	0	0.4	5.6	0	0	6.8	0	0.8	0	12.6
7th	0.2	0.2	0	0	21.2	0	0	3	0	0	0	8.8
8th	0	6.6	0	0	4.8	0	0	10.6	4.6	0	0	1.6
9th	0.2	32.6	0	0	-	0	0	0.2	0	0.6	0	0.4
10th	2.2	0	0	0	0	0	0	0	0	0	0	0
11th	0	1.2	0	0	0	0.2	0	0	0	0	0	0
12th	0	0.2	0	0	0	0	0	0	0	0	0	0
13th	0	0	2.8	5.6	0	0	4.2	11.6	0	1.2		0
14th	0.6	0.2	24.2	0	0	21.2	1.6	25.4	0.2	0.6	0	4.6
15th	0.2	0.2	-	0	-	1	7.4	2	0	0	0	8.4
16th	5.4	0	-	0.2	0	0.2	0.2	0	0	0	0	ND
17th	0	0.4	0	4.2	0	0	0	0	11.4	0	5.4	0
18th	0	0	0	2.8	0	0	0	0	22.2	0	0.2	ND
19th	0	0	0	3	0.2	1.8	0	0	2.2	0	0.8	0
20th	0	1.6	0	0	21.4	0.2	0	3.2	0	0	0	0
21st	0	4	0	2	0.8	0	0.6	29.4	0	0	0.4	0
22nd	7.2	3.4	0	0	9.0	45.6	0	0.8	0	0	1	0
23rd	5.4	2.2	0	0.2	4.4	35	0	0	0	3.6	0	-
24th	0.4	3.4	0	0.8	0	1.2	25.6	0.2	0	0.2	22	-
25th	4.6	5.6	0	0	0	0	31.4	0	0	0	1	-
26th	0.2	0.4	1.6	0	0	0	1.8	0	0.2	0	0.2	-
27th	0	0	0	0	3.6	0	0	0	45.8	0	0.2	-
28th	0.2	0.8	12	0	0	0.4	22.4	0	0	0	0	-
29th	0	0	0	0	0	-	8.8	0	0	1.6	0	-

Date	Sep (22)	Oct (22)	Nov (22)	Dec (22)	Jan (23)	Feb (23)	Mar (23)	Apr (23)	May (23)	Jun (23)	Jul (23)	Aug (23)
30th	13.0	0	0	0	3.4	-	0.8	8.2	0	0	ND	-
31st	-	0	-	0	18.0	-	0	-	0	-	ND	-
Total	74.4	90.8	50.0	19.2	106.2	107.4	106	118.4	86.6	8.8	38.4	-
Historical Mean	60.6	76.1	82.9	77.1	99.4	118.8	128.0	109.6	108.2	121.5	75.2	-

Notes:
ND – no data retrieved.

4 DATA TRENDS

Data trends, based on from analyses undertaken throughout the duration of the sampling program (January 2019 – present), are provided as **Attachment 4.** Generally, groundwater elevations have increased over the last four years with a notable spike in elevation following the March 2021 and February 2022 water monitoring events. A general increase in groundwater elevations across the site occurred during 2022 and is predominantly due to the above average rainfall recorded for most months during the year. Since October 2022, groundwater elevations have decreased across the site, with a minor rebound across the March and April monitoring events coinciding with the above average rainfall received during this period as noted in **Section 3**. Water levels between July and August have generally stabilised across the site.

Notable changes in data trends were observed for the following analytes:

- Iron – The reported iron concentrations at BH6 (6.34 mg/L) have been on a generally increasing trend since June 2022, with concentrations consistently reported above the site-specific criteria for the past 6 months. The concentration reported during this monitoring event was found to be above the site-specific trigger value (4.1mg/L) and marginally below the concentration reported in July 2023.
- Copper – Concentrations of Copper at BH4 (0.119mg/L) were reported above the site-specific trigger value (0.082mg/L) during this monitoring event. A seasonal trend has been observed for this analyte at this specific location during the past 3 years of monitoring.
- Zinc – Concentrations of Zinc were reported to be elevated at above the site-specific trigger value (0.085mg/L) at BH2 (0.164mg/L) during this monitoring event coinciding with natural fluctuations reported during previous years of monitoring data.
- Field pH – Field pH results recorded at BH1A, BH12A, SW2 & SW4 (4.05, 3.82, 4.15 & 3.84) were found to be outside of the site-specific trigger value range during this monitoring event. Generally, pH was found to have marginally decreased site wide during this monitoring event except at MW239S.
- PFAS – PFAS compounds were not detected in ground or surface water samples during this monitoring event. WPF reported one detection of PFOS (0.0009mg/kg) during this monitoring round with the concentration in line with previously reported results at this location.

5 CLOSING

Overall, the results suggest that since quarry operations began in August 2019, there has been negligible change in analytical results across the sampled locations. Groundwater level monitoring TARP rules, outlined in **Section 2,** recorded no exceedances at any locations during the August 2023 monitoring event.

Three analyte exceedances were reported during this monitoring event as outlined in **Table 5**:

- Iron at BH6 (6.34mg/L) exceeded the site-specific criteria, however this location is located 860 m upgradient from current quarrying activities. This result is reflective of increases in iron concentrations over the past year. The concentration of iron recorded in the August 2023 GME is marginally below the reported concentration from the July 2023 GME (6.78mg/L).
- Copper at BH4 (0.119mg/L) exceeded site-specific criteria, however, as discussed in the Water Trigger Investigation Copper (BH4) (KLF, 2021) this analyte exhibits a seasonal trend with concentrations expected to decrease during the summer period.
- Zinc at BH2 (0.164 mg/L) exceeded the site-specific criteria, however, as discussed in the Water Trigger Investigation Zinc (BH2) (KLF, 2022) this analyte exhibits natural fluctuations which should continue to be monitored to ensure a decrease in concentrations over time.

Based upon the previous water trigger investigations mentioned above, it is recommended that Copper at BH4 and Zinc at BH2 should continue to be monitored during future events at these specific locations to ensure the concentrations are decreasing as expected.

There is no cause to suggest that the elevated Iron concentrations at BH6 are related to quarrying activities due to the distance and upgradient location of this monitoring well. Iron concentrations have been on an increasing trend doing the previous six months at this location; however, this increase does not appear to have been reflected in any of the wells assessed downgradient of quarrying activities. BH6 will continue to be monitored during future sampling rounds, as per Section 8.6.1 from the SWMP below:

4. Where two consecutive samples are:

a. ABOVE the adopted trigger value, BUT LESS than previous data, this may suggest an incorrectly set trigger value that does not fully account for seasonal changes. Consider updating trigger value at next management plan update.

We trust that the above report meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Kleinfelder Australia Pty Ltd

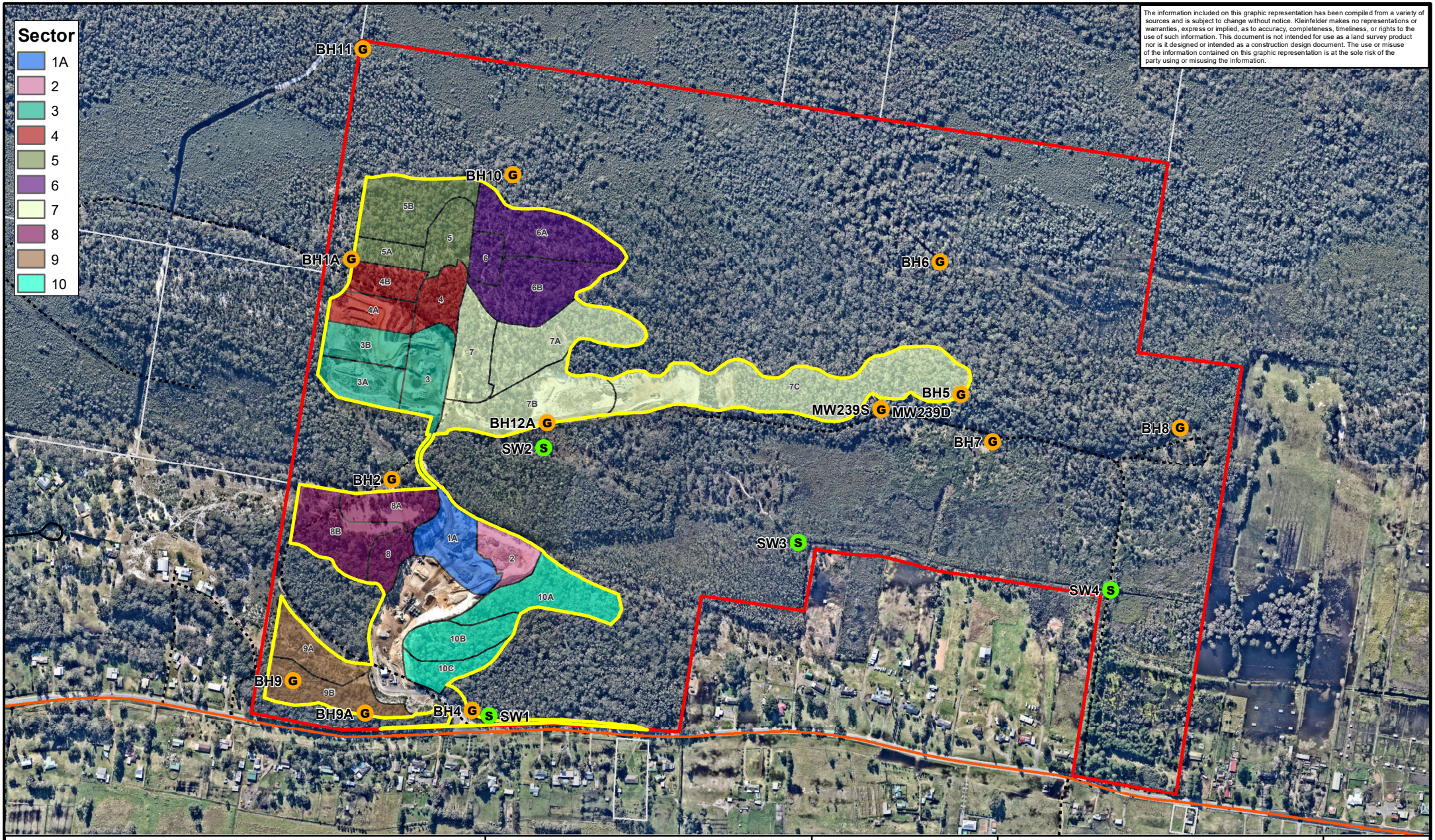
Aaron King

Graduate Environmental Scientist
Contaminated Land Management
Aking@kleinfelder.com
Mobile: 0457 426 013

Attachments

Attachment 1: Figures
Attachment 2: Results tables and field records
Attachment 3: Lab results
Attachment 4: Data Trends

ATTACHMENT 1: FIGURES



Legend

- G Groundwater Sample Site
- S Surface Water Sample Site
- Quarry Project Area
- Subject Land Boundary
- Arterial Road
- Local Road
- Track

Metres
0 50 100 200 300 400 500
N

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www.kleinfelder.com

PROJECT REFERENCE: 20232071
DATE DRAWN: 7/10/2022 14:16 Version 1
DRAWN BY: CMiskell

DATA SOURCE:
NSW DFSI - 2017
Nearmap - 2022

Monthly Monitoring Locations

Williamtown Sand Syndicate
Proposed Sand Quarry
398 Cabbage Tree Road, Williamtown

FIGURE:
1

J:\00 CLIENT FILES\126863_TrusteeForWSS_UnitTrust\20170448_Williamtown\Mapping\20232071_WMP_D20221007_Fig01_MonthlyWaterMonitoring.mxd

ATTACHMENT 2: RESULTS TABLES AND FIELD RECORDS

KLEINFELDER

HYDRASLEEVE™ SAMPLING LOG

Project Number:	Date:	Site Address:
24001956	14/8	Cabbage tree road

Site Name:	Field Manager:	Weather Observations:
WSS	AK	Raining

Well ID	Sample Time	DTW (mbTOC)	Total Depth (mbTOC)	Sample Depth (mbTOC)	Temp (°C)	DO (mg/L)	EC (µc/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)	Description (Odour, Colour, Sheen)
BH11A	1140	5.479	12.150		18.4	4.1	101.5	66	4.05	252.3	72	Clear no o/s
BH2	1100	5.208	8.825		18.1	6.4	102.5	67	4.38	187.8	164	Brown no o/s
BH4	0940	1.257	6.010		15.6	4.9	87.7	57	5.11	143.5	15.06	Clear ~~Mlow~~ low o no s
BH6	1030	1.048	4.525		14.6	1.9	275.9	179	4.36	38.8	39	Clear low o no s
BH7	1400	1.214	4.510		15.3	3.5	102.8	67	4.45	123.5	55	no d o lt brown no s
BH8	1144	1.916	3.490		15.3	3.4	163.3	106	4.26	-19.2	271	yellow no d o no s white SS
BH9	1030	15.886	16.070		–	–	–	–	–	–	–	gauge only
BH9A	0920	8.845	12.195		17.9	7.6	164.1	107	4.33	77.5	12.57	~~gauge only~~ Brown St o no S
~~BH~~12A	~~2.89~~	2.989	7.290		16.5	2.9	137.5	89	3.82	166.6	21	lt brown ~~M~~low o no s
BH ~~MA~~ 11	1200	2.456	5.280		16.5	3.0	125.2	81	4.26	16.0	75	lt yellow St o d no s
MW2395	1230	0.904	3.790		15.1	3.3	105.9	69	4.72	-34.0	223	~~Can't open Gator~~ lt yellow St o no s
BH10 ~~BH10~~		3.217	3.490									Gauge only
BH5		5.347	8.300									gauge only
SW1	0930				12.5	2.8	114.5	74	6.31	0.8	5.67	Green algae no o/s Clear water
SW2					14.0	1.7	2029	133	4.15	52.7	0.5	Clear low o no s
SW3					12.5	2.8	114.5	74	6.31	0.8	5.67	Clear no o/s
SW4					10.9	4.3	258.6	168	~~gauge~~ ~~3.78~~ 3.84	281.1	1.40	Clear no o/S

Damaged wells (identify how damaged):

*Sample Depth is reported as bottom of hydrasleeve depth

WPW2 ~~MW2390~~ 15.9 10.2 242.8 158 4.41 205.6 42 lt brown ~~Barley~~ o no s

~~BH5~~ ~~gauge only~~

MW2390 ~~DTW~~ DTW 0.879 | TD 20.275 gauge only

QA/QC SAMPLE REGISTER

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Project Number:	Site Name:	Site Address:
WSS	WSS	Ca bbagtree road

Date:	Field Manager:
14/8	AK

Date Sampled	Field Staff	QC Sample ID	QC Sample Type	Primary Sample	Rinsate Item (Hand auger, low flow pump etc.)	Rinsate Water Batch	Analysing Lab	Analysis Requested
14/8	AK	QC01	Dup.	BH2	[illegible]		ALS	See COC
		QC01A	Triplicate	"			Eurofins	
		TB-140823	Trip Blank		[illegible]	–	ALS	
		RB-140823	Rinsate		TP	–		

COMMENTS:

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION (YSI)

Plant Number: 1082484

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 4	pH 4		393112	☑
	pH 7	pH 7		393113	☑
Conductivity	12.88 mS/cm	12.88 mS/cm		395556	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.0ppm in Sodium Sulphite	100 ppm Saturation in Air	12110	☑
ORP	240mV	240mV	Zobell Part A	395557	☑
			Zobell Part B	395563	
Turbidity	90 NTU	90 NTU		403994	☑

Battery Status 92 (%)	Temperature 19.5 °C
Electrical Test & Tag (AS/NZS 3760)	Electrodes Cleaned and Checked

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Ben Arcari Date: 07 / 08 / 23 Signed: _____

Accessories List:

User's Manual	pH and ORP Storage Solution	Transit Case

2400 5 Form 2058

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date												
BH1	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	**1,710**	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	**40**	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH1A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH2	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH3	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH4	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	**250**	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH5	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH6	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--
BH6	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH7	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--
BH8	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH9A	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50

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Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--
BH11	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	06-Mar-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH12	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
BH12A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--
MW239S	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up					Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}
LOR		50	100	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	20	20	100	--	100	100
Sample Name	Sample Date												
BH1	15-Mar-19	-	-	< 50	< 100	< 50	< 50	**1,690**	**1,690**	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	-	**30**	**30**	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Sep-21	-	< 100	-	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	13-Oct-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH1A	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH2	22-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up					Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}
LOR		50	100	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	20	20	100	--	100	100
	12-Aug-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH3	21-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	21-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	**250**	-	-	-	-	-	< 20	< 20	< 100	< 100	**280**	< 100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	**130**	< 50	**130**	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH4	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	**340**	< 50	**340**	< 20	< 20	-	-	-	-
	27-May-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH5	22-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up					Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}
LOR		50	100	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	20	20	100	--	100	100
BH6	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH7	22-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	21-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up					Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}
LOR		50	100	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	20	20	100	--	100	100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
BH8	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH9A	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Sep-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	13-Oct-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	21-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up					Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}
LOR		50	100	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	20	20	100	--	100	100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH11	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Sep-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	13-Oct-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	06-Mar-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH12	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Sep-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	13-Oct-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
BH12A	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up					Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}
LOR		50	100	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	20	20	100	--	100	100
	18-Nov-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
MW239S	16-Sep-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--
Sample Name	Sample Date						
BH1	15-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	-	-	< 100	< 100	< 100	< 100
	13-Oct-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
BH1A	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
BH2	22-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 1
Groundwater - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
BH3	21-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	21-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	**280**	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	**140**	< 100	**140**
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
BH4	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	**370**	< 100	**370**
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
	22-Feb-19	-	< 100	< 100	< 100	< 100	< 100
BH5	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	22-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
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Table 1
Groundwater - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--
BH6	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
BH7	22-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
	21-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-

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Table 1
Groundwater - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--
	16-May-19	< 100	-	-	-	-	-
BH8	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
BH9A	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
	21-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-

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Table 1
Groundwater - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
BH11	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	06-Mar-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
BH12	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
BH12A	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
	22-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
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Table 1
Groundwater - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--
MW239S	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0
Sample Name	Sample Date												
BH1	15-Mar-19	**11**	**2.0**	**1.0**	< 1.0	< 1.0	**25**	< 0.1	-	-	-	-	-
	23-Apr-19	**14**	**1.0**	**2.0**	< 1.0	**4.0**	**25**	< 0.1	-	-	-	-	-
	16-May-19	**12**	< 1.0	**2.0**	< 1.0	**5.0**	**25**	< 0.1	-	**0.03**	< 0.01	-	-
	14-Jun-19	**10**	< 1.0	**2.0**	< 1.0	**3.0**	**24**	< 0.1	-	-	-	-	-
	16-Jul-19	**15**	< 1.0	**2.0**	< 1.0	**4.0**	**23**	< 0.1	-	-	-	-	-
	15-Aug-19	**14**	< 1.0	**2.0**	< 1.0	**2.0**	**21**	< 0.1	-	-	-	-	-
	16-Sep-19	**13**	< 1.0	**2.0**	< 1.0	**2.0**	**20**	< 0.1	-	< 0.01	**0.06**	-	-
	15-Oct-19	**13**	< 1.0	**2.0**	< 1.0	**2.0**	**21**	< 0.1	-	-	-	-	-
	18-Nov-19	**16**	< 1.0	**2.0**	< 1.0	**3.0**	**23**	**0.1**	< 0.01	< 0.01	-	-	-
	16-Sep-20	**13**	< 1.0	**2.0**	< 1.0	**2.0**	**21**	< 0.1	-	-	-	-	-
	16-Oct-20	**14**	< 1.0	**2.0**	< 1.0	**4.0**	**21**	< 0.1	-	-	-	-	-
	16-Nov-20	**11**	< 1.0	**2.0**	< 1.0	**5.0**	**18**	< 0.1	-	< 0.01	**0.02**	-	-
	16-Dec-20	**13**	< 1.0	**2.0**	**1.0**	**6.0**	**22**	< 0.1	-	-	-	-	-
	14-Jan-21	**12**	< 1.0	**2.0**	< 1.0	**5.0**	**23**	< 0.1	-	-	-	-	-
	16-Feb-21	**14**	< 1.0	**2.0**	**1.0**	**5.0**	**25**	< 0.1	-	< 0.01	< 0.01	-	-
	17-Mar-21	**14**	**1.0**	**2.0**	< 1.0	**4.0**	**23**	< 0.1	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**14**	**1.0**	**3.0**	< 1.0	**10**	**23**	< 0.1	-	-	< 0.01	-	-
BH1A	15-Feb-23	**9.0**	< 1.0	< 1.0	< 1.0	**7.0**	**13**	< 0.1	-	< 0.01	< 0.01	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	**12**	**2.0**	**2.0**	< 1.0	**6.0**	**22**	**0.1**	-	< 0.01	**0.28**	-	-
	15-Mar-19	**10**	**3.0**	**2.0**	< 1.0	**7.0**	**23**	< 0.1	-	-	-	-	-
	23-Apr-19	**14**	**2.0**	**2.0**	< 1.0	**6.0**	**23**	< 0.1	-	-	-	-	-
	16-May-19	**12**	**2.0**	**2.0**	< 1.0	**21**	**22**	< 0.1	-	< 0.01	**0.26**	-	-
	14-Jun-19	**11**	**1.0**	**2.0**	< 1.0	**5.0**	**23**	< 0.1	-	-	-	-	-
	16-Jul-19	**13**	**2.0**	**2.0**	< 1.0	**9.0**	**20**	< 0.1	-	-	-	-	-
	15-Aug-19	**12**	**1.0**	**2.0**	< 1.0	**8.0**	**20**	< 0.1	-	-	-	-	-
	16-Sep-19	**11**	**2.0**	**2.0**	< 1.0	**8.0**	**18**	< 0.1	-	< 0.01	-	-	**0.28**
	15-Oct-19	**12**	**2.0**	**2.0**	< 1.0	**5.0**	**20**	< 0.1	-	-	-	-	-
	18-Nov-19	**14**	**2.0**	**1.0**	< 1.0	**7.0**	**19**	< 0.1	**0.21**	< 0.01	-	-	-
	16-Sep-20	**11**	**2.0**	**2.0**	< 1.0	**7.0**	**17**	< 0.1	-	-	-	-	-
	16-Oct-20	**11**	**2.0**	**2.0**	< 1.0	**6.0**	**16**	< 0.1	-	-	-	-	-
	16-Nov-20	**11**	**2.0**	**2.0**	< 1.0	**9.0**	**16**	< 0.1	-	< 0.01	**0.48**	-	-
	16-Dec-20	**11**	**2.0**	**2.0**	< 1.0	**7.0**	**15**	< 0.1	-	-	-	-	-
	14-Jan-21	**9.0**	**2.0**	**2.0**	< 1.0	**7.0**	**13**	< 0.1	-	-	-	-	-
	16-Feb-21	**12**	**1.0**	**1.0**	< 1.0	**8.0**	**12**	< 0.1	-	< 0.01	**0.15**	-	-
	17-Mar-21	**10**	**2.0**	**2.0**	< 1.0	**7.0**	**13**	< 0.1	-	-	-	-	-
	19-Aug-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	24-Feb-22	**8.0**	**2.0**	**1.0**	< 1.0	**7.0**	**14**	< 0.1	-	-	**0.06**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0
Sample Name	Sample Date												
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**9.0**	< 1.0	**1.0**	< 1.0	**6.0**	**16**	< 0.1	-	< 0.01	**0.22**	-	-
	16-May-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-
BH3	21-Feb-19	**4.0**	**4.0**	**1.0**	< 1.0	**4.0**	**10**	< 0.1	-	< 0.01	**2.76**	-	-
	21-Feb-19	**8.0**	**2.0**	**1.0**	**1.0**	**5.0**	**17**	< 0.1	-	< 0.01	**0.19**	-	-
	15-Mar-19	**9.0**	**2.0**	< 1.0	< 1.0	**5.0**	**18**	< 0.1	-	-	-	-	-
	23-Apr-19	**10**	**2.0**	**1.0**	**1.0**	**3.0**	**19**	< 0.1	-	-	-	-	-
	16-May-19	**9.0**	**2.0**	**1.0**	**1.0**	**22**	**19**	< 0.1	-	< 0.01	**0.97**	-	-
	14-Jun-19	**6.0**	**1.0**	**1.0**	< 1.0	**4.0**	**18**	< 0.1	-	-	-	-	-
	16-Jul-19	**10**	**2.0**	**2.0**	**1.0**	**6.0**	**18**	< 0.1	-	-	-	-	-
	15-Aug-19	**8.0**	**2.0**	**1.0**	**1.0**	**5.0**	**16**	< 0.1	-	-	-	-	-
	16-Sep-19	**11**	**2.0**	**2.0**	< 1.0	**8.0**	**19**	< 0.1	-	< 0.01	**0.4**	-	-
	15-Oct-19	**10**	**1.0**	**1.0**	< 1.0	**4.0**	**18**	< 0.1	-	-	-	-	-
	18-Nov-19	**11**	**1.0**	**1.0**	< 1.0	**6.0**	**18**	< 0.1	**0.08**	< 0.01	-	-	-
	16-Sep-20	**20**	< 1.0	**2.0**	< 1.0	**11**	**31**	< 0.1	-	-	-	-	-
	16-Oct-20	**19**	**1.0**	**3.0**	< 1.0	**10**	**34**	< 0.1	-	-	-	-	-
	16-Nov-20	**18**	< 1.0	**2.0**	< 1.0	**12**	**27**	< 0.1	-	< 0.01	**0.06**	-	-
BH4	16-Dec-20	**25**	**1.0**	**4.0**	< 1.0	**15**	**43**	< 0.1	-	-	-	-	-
	14-Jan-21	**36**	**1.0**	**4.0**	< 1.0	**23**	**54**	< 0.1	-	-	-	-	-
	16-Feb-21	**69**	**2.0**	**9.0**	**1.0**	**32**	**111**	< 0.1	-	< 0.01	**0.11**	-	-
	17-Mar-21	**77**	**2.0**	**11**	**1.0**	**26**	**128**	< 0.1	-	-	-	-	-
	19-Aug-21	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**7.0**	**1.0**	**2.0**	< 1.0	**7.0**	**15**	< 0.1	-	-	**0.3**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**10**	**1.0**	**1.0**	**1.0**	**7.0**	**18**	< 0.1	-	< 0.01	**0.11**	-	-
	16-May-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	22-Feb-19	**42**	< 1.0	**6.0**	**1.0**	**19**	**69**	**0.2**	-	< 0.01	**0.34**	-	-
BH5	24-Feb-22	**40**	< 1.0	**8.0**	< 1.0	**42**	**60**	< 0.1	-	-	**0.29**	-	-
	15-Feb-23	**18**	< 1.0	**2.0**	< 1.0	**17**	**24**	< 0.1	-	< 0.01	**0.32**	-	-
	22-Feb-19	**28**	**3.0**	**4.0**	**1.0**	**28**	**42**	< 0.1	-	< 0.01	**0.05**	-	-
	14-Mar-19	**23**	**2.0**	**4.0**	**1.0**	**17**	**37**	< 0.1	-	-	-	-	-
	23-Apr-19	**25**	**3.0**	**4.0**	**1.0**	**18**	**42**	< 0.1	-	-	-	-	-
	16-May-19	**23**	**3.0**	**4.0**	**1.0**	**18**	**45**	< 0.1	-	< 0.01	**0.13**	-	-
	14-Jun-19	**20**	**2.0**	**4.0**	**1.0**	**16**	**42**	< 0.1	-	-	-	-	-
	16-Jul-19	**23**	**2.0**	**4.0**	**1.0**	**20**	**35**	< 0.1	-	-	-	-	-
	15-Aug-19	**23**	**2.0**	**3.0**	**1.0**	**21**	**38**	< 0.1	-	-	-	-	-
	16-Sep-19	**25**	**3.0**	**3.0**	**1.0**	**21**	**38**	< 0.1	-	< 0.01	**0.15**	-	-
	15-Oct-19	**25**	**2.0**	**4.0**	**1.0**	**13**	**41**	< 0.1	-	-	-	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0
Sample Name	Sample Date												
BH6	18-Nov-19	**27**	**3.0**	**3.0**	**1.0**	**18**	**45**	< 0.1	**0.06**	< 0.01	-	-	-
	16-Sep-20	**36**	**2.0**	**4.0**	**1.0**	**16**	**55**	< 0.1	-	-	-	-	-
	16-Oct-20	**36**	**2.0**	**5.0**	**1.0**	**12**	**64**	< 0.1	-	-	-	-	-
	16-Nov-20	**37**	**3.0**	**5.0**	**2.0**	**23**	**61**	< 0.1	-	**0.01**	**0.08**	-	-
	16-Dec-20	**46**	**3.0**	**6.0**	**2.0**	**15**	**75**	< 0.1	-	-	-	-	-
	14-Jan-21	**39**	**3.0**	**5.0**	**2.0**	**21**	**73**	< 0.1	-	-	-	-	-
	16-Feb-21	**43**	**3.0**	**6.0**	**2.0**	**18**	**72**	< 0.1	-	< 0.01	**0.1**	-	-
	17-Mar-21	**51**	**4.0**	**9.0**	**1.0**	**25**	**80**	< 0.1	-	-	-	-	-
	19-Aug-21	-	-	**5.0**	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**30**	< 1.0	**4.0**	< 1.0	**10**	**61**	< 0.1	-	-	**0.11**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**4.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**4.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**32**	< 1.0	**4.0**	< 1.0	**21**	**59**	< 0.1	-	< 0.01	**0.03**	-	-
	16-May-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**7.0**	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	**34**	< 1.0	**5.0**	**2.0**	**12**	**64**	**0.2**	-	< 0.01	**0.13**	-	-
	14-Mar-19	**36**	< 1.0	**6.0**	**2.0**	**16**	**61**	< 0.1	-	-	-	-	-
	23-Apr-19	**38**	< 1.0	**6.0**	**2.0**	**17**	**62**	< 0.1	-	-	-	-	-
	16-May-19	**35**	< 1.0	**5.0**	**2.0**	**15**	**68**	**0.2**	-	< 0.01	**0.06**	-	-
	14-Jun-19	**31**	< 1.0	**4.0**	**2.0**	**11**	**56**	**0.1**	-	-	-	-	-
	16-Jul-19	**36**	< 1.0	**5.0**	**2.0**	**12**	**46**	< 0.1	-	-	-	-	-
	15-Aug-19	**32**	< 1.0	**4.0**	**2.0**	**15**	**49**	**0.1**	-	-	-	-	-
	16-Sep-19	**27**	< 1.0	**4.0**	**1.0**	**13**	**53**	< 0.1	-	< 0.01	**0.09**	-	-
	15-Oct-19	**34**	< 1.0	**5.0**	**2.0**	**12**	**53**	< 0.1	-	-	-	-	-
	18-Nov-19	**31**	< 1.0	**5.0**	**1.0**	**15**	**56**	**0.1**	**0.02**	< 0.01	-	-	-
	16-Sep-20	**33**	< 1.0	**5.0**	**2.0**	**12**	**62**	**0.1**	-	-	-	-	-
	16-Oct-20	**34**	< 1.0	**5.0**	**2.0**	**9.0**	**64**	< 0.1	-	-	-	-	-
	16-Nov-20	**30**	< 1.0	**5.0**	**2.0**	**9.0**	**54**	**0.1**	-	< 0.01	< 0.01	-	-
	16-Dec-20	**30**	< 1.0	**6.0**	**2.0**	**9.0**	**58**	**0.1**	-	-	-	-	-
	14-Jan-21	**31**	< 1.0	**5.0**	**2.0**	**10**	**63**	**0.1**	-	-	-	-	-
	16-Feb-21	**34**	< 1.0	**6.0**	**2.0**	**12**	**64**	< 0.1	-	< 0.01	< 0.01	-	-
	17-Mar-21	**36**	< 1.0	**7.0**	**2.0**	**11**	**68**	< 0.1	-	-	-	-	-
	19-Aug-21	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**17**	< 1.0	**2.0**	**1.0**	**8.0**	**25**	< 0.1	-	-	**0.12**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**10**	< 1.0	**1.0**	< 1.0	**1.0**	**14**	< 0.1	-	< 0.01	**0.23**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0
Sample Name	Sample Date												
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
BH8	21-Feb-19	**52**	< 1.0	**6.0**	< 1.0	**11**	**90**	< 0.1	-	< 0.01	**1.97**	-	-
	14-Mar-19	**45**	< 1.0	**6.0**	< 1.0	**6.0**	**76**	< 0.1	-	-	-	-	-
	23-Apr-19	**53**	< 1.0	**7.0**	< 1.0	**8.0**	**89**	< 0.1	-	-	-	-	-
	16-May-19	**47**	< 1.0	**4.0**	< 1.0	**6.0**	**81**	< 0.1	-	< 0.01	< 0.01	-	-
	14-Jun-19	**47**	< 1.0	**5.0**	< 1.0	**4.0**	**89**	< 0.1	-	-	-	-	-
	16-Jul-19	**57**	< 1.0	**5.0**	< 1.0	**70**	**121**	**0.1**	-	-	-	-	-
	15-Aug-19	**42**	< 1.0	**3.0**	< 1.0	**4.0**	**63**	< 0.1	-	-	-	-	-
	16-Sep-19	**46**	< 1.0	**3.0**	< 1.0	**4.0**	**70**	< 0.1	-	< 0.01	-	**0.43**	-
	15-Oct-19	**45**	< 1.0	**4.0**	< 1.0	**4.0**	**70**	< 0.1	-	-	-	-	-
	18-Nov-19	**49**	< 1.0	**4.0**	< 1.0	**8.0**	**80**	< 0.1	**0.58**	< 0.01	-	-	-
	16-Sep-20	**58**	< 1.0	**4.0**	< 1.0	**9.0**	**109**	< 0.1	-	-	-	-	-
	16-Oct-20	**43**	< 1.0	**4.0**	< 1.0	**12**	**70**	< 0.1	-	-	-	-	-
	16-Nov-20	**48**	< 1.0	**6.0**	< 1.0	**10**	**76**	< 0.1	-	< 0.01	**0.14**	-	-
	16-Dec-20	**35**	< 1.0	**4.0**	< 1.0	**14**	**56**	< 0.1	-	-	-	-	-
	14-Jan-21	**44**	< 1.0	**5.0**	< 1.0	**13**	**77**	< 0.1	-	-	-	-	-
	16-Feb-21	**50**	< 1.0	**6.0**	< 1.0	**17**	**79**	< 0.1	-	< 0.01	**0.14**	-	-
	17-Mar-21	**50**	< 1.0	**6.0**	< 1.0	**19**	**75**	< 0.1	-	-	-	-	-
	19-Aug-21	-	-	**7.0**	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**8.0**	-	-	-	-	-	-	-	-	-
	24-Feb-22	**55**	< 1.0	**5.0**	< 1.0	**54**	**70**	< 0.1	-	-	**0.3**	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**16**	< 1.0	**1.0**	< 1.0	**15**	**22**	< 0.1	-	< 0.01	**0.19**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	**35**	**5.0**	**5.0**	**1.0**	**41**	**38**	< 0.1	-	-	-	-	-
	16-Oct-20	**32**	**3.0**	**6.0**	**1.0**	**33**	**48**	< 0.1	-	-	-	-	-
	16-Nov-20	**23**	**2.0**	**4.0**	**1.0**	**23**	**35**	< 0.1	-	< 0.01	**0.11**	-	-
	16-Dec-20	**23**	**1.0**	**3.0**	**1.0**	**9.0**	**37**	< 0.1	-	-	-	-	-
	14-Jan-21	**24**	**1.0**	**3.0**	**1.0**	**15**	**43**	< 0.1	-	-	-	-	-
	16-Feb-21	**25**	**1.0**	**3.0**	**1.0**	**12**	**40**	< 0.1	-	< 0.01	**1.74**	-	-
	17-Mar-21	**25**	**1.0**	**3.0**	< 1.0	**12**	**35**	< 0.1	-	-	-	-	-
	19-Aug-21	**25**	**1.0**	**3.0**	**1.0**	**14**	**37**	< 0.1	-	< 0.01	< 0.01	-	-
	22-Sep-21	**22**	**1.0**	**2.0**	**1.0**	**12**	**35**	< 0.1	-	< 0.01	**0.16**	-	-
	13-Oct-21	**24**	< 1.0	**2.0**	**1.0**	**11**	**38**	< 0.1	-	< 0.01	**0.13**	-	-
	16-Nov-21	**24**	**2.0**	**3.0**	**1.0**	**17**	**32**	< 0.1	-	< 0.01	**0.05**	-	-
	24-Feb-22	**21**	**2.0**	**4.0**	**1.0**	**17**	**32**	< 0.1	-	-	**0.19**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**18**	< 1.0	**2.0**	**1.0**	**20**	**19**	< 0.1	-	< 0.01	**0.13**	-	-

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0
Sample Name	Sample Date												
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
BH11	21-Feb-19	**48**	< 1.0	**10**	< 1.0	**24**	**80**	**0.1**	-	< 0.01	**0.03**	-	-
	15-Mar-19	**26**	< 1.0	**2.0**	< 1.0	**2.0**	**52**	< 0.1	-	-	-	-	-
	23-Apr-19	**32**	< 1.0	**5.0**	< 1.0	**2.0**	**57**	< 0.1	-	-	-	-	-
	16-May-19	**29**	< 1.0	**4.0**	< 1.0	**2.0**	**55**	< 0.1	-	< 0.01	**0.01**	-	-
	14-Jun-19	**26**	< 1.0	**3.0**	< 1.0	< 1.0	**53**	< 0.1	-	-	-	-	-
	16-Jul-19	**49**	< 1.0	**8.0**	< 1.0	**8.0**	**73**	**0.2**	-	-	-	-	-
	15-Aug-19	**28**	< 1.0	**3.0**	< 1.0	**4.0**	**47**	< 0.1	-	-	-	-	-
	16-Sep-19	**27**	< 1.0	**3.0**	< 1.0	**5.0**	**46**	< 0.1	-	< 0.01	**0.12**	-	-
	15-Oct-19	**28**	< 1.0	**3.0**	< 1.0	**3.0**	**44**	< 0.1	-	-	-	-	-
	18-Nov-19	**28**	< 1.0	**3.0**	< 1.0	< 1.0	**53**	< 0.1	**2.11**	< 0.01	-	-	-
	16-Sep-20	**29**	< 1.0	**5.0**	< 1.0	**6.0**	**48**	< 0.1	-	-	-	-	-
	16-Oct-20	**29**	< 1.0	**6.0**	< 1.0	**4.0**	**61**	< 0.1	-	-	-	-	-
	16-Nov-20	**27**	< 1.0	**5.0**	< 1.0	**5.0**	**50**	< 0.1	-	< 0.01	**0.06**	-	-
	16-Dec-20	**31**	< 1.0	**6.0**	< 1.0	**7.0**	**60**	< 0.1	-	-	-	-	-
	14-Jan-21	**32**	< 1.0	**6.0**	< 1.0	**12**	**63**	< 0.1	-	-	-	-	-
	16-Feb-21	**32**	< 1.0	**5.0**	**1.0**	**12**	**55**	< 0.1	-	< 0.01	< 0.01	-	-
	17-Mar-21	**29**	< 1.0	**6.0**	< 1.0	**17**	**48**	< 0.1	-	-	-	-	-
	19-Aug-21	**58**	< 1.0	**7.0**	< 1.0	**9.0**	**110**	**0.1**	-	< 0.01	**0.08**	-	-
	22-Sep-21	**49**	< 1.0	**6.0**	< 1.0	**12**	**101**	**0.1**	-	< 0.01	**0.01**	-	-
	13-Oct-21	**51**	< 1.0	**8.0**	< 1.0	**29**	**90**	< 0.1	-	< 0.01	**0.03**	-	-
	16-Nov-21	**37**	< 1.0	**8.0**	< 1.0	**24**	**55**	< 0.1	-	< 0.01	**0.03**	-	-
	24-Feb-22	**41**	< 1.0	**6.0**	< 1.0	**4.0**	**80**	< 0.1	-	-	< 0.01	-	-
	06-Mar-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**17**	< 1.0	**2.0**	< 1.0	< 1.0	**29**	< 0.1	-	< 0.01	**0.04**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	**24**	< 1.0	**7.0**	**1.0**	**22**	**38**	< 0.1	-	-	-	-	-
	16-Nov-20	**22**	< 1.0	**4.0**	**1.0**	**11**	**41**	< 0.1	-	< 0.01	< 0.01	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**20**	< 1.0	**4.0**	**2.0**	**18**	**28**	< 0.1	-	-	**0.12**	-	-
BH12A	15-Feb-23	**16**	< 1.0	**2.0**	< 1.0	**8.0**	**29**	< 0.1	-	< 0.01	**1.74**	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	22-Feb-19	**61**	< 1.0	**6.0**	< 1.0	**6.0**	**104**	< 0.1	-	< 0.01	**0.56**	-	-
	14-Mar-19	**64**	< 1.0	**6.0**	< 1.0	**2.0**	**126**	< 0.1	-	-	-	-	-
	23-Apr-19	**64**	< 1.0	**7.0**	**1.0**	**9.0**	**97**	< 0.1	-	-	-	-	-
	16-May-19	**52**	< 1.0	**6.0**	< 1.0	**13**	**88**	< 0.1	-	< 0.01	**0.43**	-	-
	14-Jun-19	**50**	< 1.0	**6.0**	< 1.0	**13**	**87**	< 0.1	-	-	-	-	-
	16-Jul-19	**52**	< 1.0	**7.0**	**1.0**	**16**	**73**	< 0.1	-	-	-	-	-
	15-Aug-19	**54**	< 1.0	**7.0**	< 1.0	**11**	**88**	< 0.1	-	-	-	-	-
	16-Sep-19	**55**	< 1.0	**6.0**	**1.0**	**14**	**85**	< 0.1	-	< 0.01	-	**0.32**	-

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0
Sample Name	Sample Date												
MW239S	15-Oct-19	**58**	< 1.0	**6.0**	< 1.0	**8.0**	**108**	< 0.1	-	-	-	-	-
	18-Nov-19	**63**	< 1.0	**6.0**	**1.0**	**8.0**	**118**	< 0.1	**0.23**	< 0.01	-	-	-
	16-Sep-20	**53**	< 1.0	**8.0**	**1.0**	**36**	**86**	**0.1**	-	-	-	-	-
	16-Oct-20	**76**	< 1.0	**9.0**	**1.0**	**17**	**148**	< 0.1	-	-	-	-	-
	16-Nov-20	**68**	< 1.0	**9.0**	**2.0**	**37**	**125**	< 0.1	-	< 0.01	**0.59**	-	-
	16-Dec-20	**68**	< 1.0	**10**	**1.0**	**24**	**126**	< 0.1	-	-	-	-	-
	14-Jan-21	**58**	< 1.0	**9.0**	**2.0**	**37**	**102**	< 0.1	-	-	-	-	-
	16-Feb-21	**66**	< 1.0	**11**	**2.0**	**38**	**124**	< 0.1	-	< 0.01	**0.58**	-	-
	17-Mar-21	**49**	< 1.0	**7.0**	**1.0**	**38**	**70**	< 0.1	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**24**	< 1.0	**3.0**	< 1.0	**15**	**33**	< 0.1	-	-	**0.33**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**14**	< 1.0	**2.0**	< 1.0	**7.0**	**25**	< 0.1	-	< 0.01	**0.31**	-	-
	16-May-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

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Table 2
Groundwater - Anions Cations and Inorganics

KLEINFELDER
Bright People. Right Solutions.

Analyte									Anions and Cations			
		Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	0.5	5.9	5.9	5.9	--
Sample Name	Sample Date											
BH1	15-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	< 0.01	< 0.01	**0.11**	-	**0.3**	-	-	**0.3**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	< 0.01	< 0.01	**0.12**	-	**0.3**	-	-	**0.3**
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	-	< 0.01	**0.01**	-	**0.01**	-	**0.13**	**0.3**	-	-	**0.3**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	< 0.01	< 0.01	-	**0.07**	**0.2**	-	-	**0.2**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	**0.02**	**0.02**	-	**0.05**	< 0.1	-	-	< 0.1
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.02**	-	**0.02**	**0.11**	-	**0.2**	-	-	**0.2**
BH1A	15-Feb-23	-	< 0.01	-	**0.26**	**0.26**	-	**0.04**	**0.5**	-	-	**0.2**
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	-	< 0.01	-	**2.76**	**2.76**	**0.05**	-	**4.0**	-	-	**1.2**
	15-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	**0.38**	**0.38**	**0.01**	-	**1.3**	-	-	**0.9**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	**1.07**	**1.07**	**0.04**	-	-	-	**2.7**	-
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	-	< 0.01	**1.01**	-	**1.01**	-	**0.05**	**2.1**	-	-	**1.1**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	**2.88**	**2.88**	-	< 0.01	**4.8**	-	-	**1.9**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	**2.58**	**2.58**	-	< 0.01	**3.5**	-	-	**0.9**
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.05**	-	**0.05**	**0.01**	-	**0.4**	-	-	**0.3**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Anions and Cations Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	0.5	5.9	5.9	5.9	--
Sample Name	Sample Date											
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	**0.04**	**0.04**	-	**0.01**	**1.4**	-	-	**1.4**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH3	21-Feb-19	-	< 0.01	-	**0.78**	**0.78**	**0.3**	-	**5.9**	-	-	**5.1**
	21-Feb-19	-	< 0.01	-	**0.35**	**0.35**	**0.04**	-	**0.6**	-	-	**0.3**
	15-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	**0.29**	**0.29**	< 0.01	-	**1.0**	-	-	**0.7**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	**0.24**	**0.24**	**0.02**	-	**0.6**	-	-	**0.4**
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	-	< 0.01	**0.29**	-	**0.29**	-	< 0.01	**0.3**	-	-	< 0.1
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	**0.1**	**0.1**	-	< 0.01	**0.1**	-	-	< 0.1
BH4	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	< 0.1	-	-	< 0.1
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.21**	-	**0.21**	**0.01**	-	**0.6**	-	-	**0.4**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	**0.33**	**0.33**	-	**0.02**	**0.7**	-	-	**0.4**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
	22-Feb-19	-	< 0.01	-	< 0.01	< 0.01	**0.09**	-	**3.0**	-	-	**3.0**
BH5	24-Feb-22	< 0.01	-	**0.02**	-	**0.02**	**0.21**	-	**1.2**	-	-	**1.2**
	15-Feb-23	-	< 0.01	-	**0.01**	**0.01**	-	**0.06**	**3.9**	-	-	**3.9**
	22-Feb-19	-	< 0.01	-	**0.09**	**0.09**	**0.14**	-	**0.5**	-	-	**0.4**
	14-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	< 0.01	< 0.01	**0.14**	-	**0.6**	-	-	**0.6**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	**0.07**	**0.07**	**0.19**	-	**0.8**	-	-	**0.7**
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte												
									Anions and Cations			
		Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	0.5	5.9	5.9	5.9	--
Sample Name	Sample Date											
BH6	18-Nov-19	-	< 0.01	< 0.01	-	< 0.01	-	**0.23**	**0.4**	-	-	**0.4**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	**0.01**	**0.01**	-	**0.22**	**0.3**	-	-	**0.3**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.25**	< 0.1	-	-	< 0.1
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.02**	-	**0.02**	**0.04**	-	**0.4**	-	-	**0.4**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	**0.4**	-	-	**0.4**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	-	< 0.01	-	**0.02**	**0.02**	**0.34**	-	**2.2**	-	-	**2.2**
	14-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	< 0.01	< 0.01	**0.27**	-	**0.9**	-	-	**0.9**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	**0.06**	**0.06**	**0.2**	-	-	**1.2**	-	-
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	-	< 0.01	< 0.01	-	< 0.01	-	**0.17**	**0.5**	-	-	**0.5**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	< 0.01	< 0.01	-	**0.3**	**0.6**	-	-	**0.6**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.3**	**0.6**	-	-	**0.6**
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.02**	-	**0.02**	**0.08**	-	**1.0**	-	-	**1.0**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	**1.6**	-	-	**1.6**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-

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Quarterly Water Monitoring Event

Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Anions and Cations										
		Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	0.5	5.9	5.9	5.9	--
Sample Name	Sample Date											
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH8	21-Feb-19	-	< 0.01	-	< 0.01	< 0.01	**0.5**	-	**2.4**	-	-	**2.4**
	14-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	< 0.01	< 0.01	**0.12**	-	**0.4**	-	-	**0.4**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	< 0.01	< 0.01	**0.13**	-	-	**1.1**	-	-
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	-	< 0.01	**0.01**	-	**0.01**	-	**0.17**	**1.3**	-	-	**1.3**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	< 0.01	< 0.01	-	**0.13**	**0.6**	-	-	**0.6**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.12**	< 0.1	-	-	< 0.1
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.72**	-	**0.72**	**0.13**	-	**1.7**	-	-	**1.0**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	< 0.01	< 0.01	-	**0.06**	**1.7**	-	-	**1.7**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	**2.35**	**2.35**	-	< 0.01	**2.8**	-	-	**0.5**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.15**	**5.1**	-	-	**5.1**
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.8**	-	-	**0.8**
	22-Sep-21	-	< 0.01	-	**0.03**	**0.03**	-	**0.25**	**1.0**	-	-	**1.0**
	13-Oct-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.31**	**0.9**	-	-	**0.9**
	16-Nov-21	-	< 0.01	-	**0.04**	**0.04**	-	**0.21**	**1.1**	-	-	**1.1**
	24-Feb-22	< 0.01	-	< 0.01	-	< 0.01	**0.25**	-	**1.0**	-	-	**1.0**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	< 0.01	< 0.01	-	**0.27**	**2.0**	-	-	**2.0**

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Anions and Cations: Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	0.5	5.9	5.9	5.9	--
Sample Name	Sample Date											
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH11	21-Feb-19	-	< 0.01	-	**0.04**	**0.04**	**0.06**	-	**1.8**	-	-	**1.8**
	15-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	< 0.01	< 0.01	**0.12**	-	**0.4**	-	-	**0.4**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	< 0.01	< 0.01	**0.15**	-	**0.7**	-	-	**0.7**
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	-	< 0.01	**0.06**	-	**0.06**	-	**0.18**	**5.9**	-	-	**5.8**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	< 0.01	< 0.01	-	**0.08**	**0.5**	-	-	**0.5**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.08**	< 0.1	-	-	< 0.1
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**1.4**	-	-	**1.4**
	22-Sep-21	-	< 0.01	-	**0.01**	**0.01**	-	**0.01**	**0.8**	-	-	**0.8**
	13-Oct-21	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.8**	-	-	**0.8**
	16-Nov-21	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.9**	-	-	**0.9**
	24-Feb-22	< 0.01	-	< 0.01	-	< 0.01	**0.02**	-	**0.6**	-	-	**0.6**
	06-Mar-22	-	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	< 0.01	< 0.01	-	**0.07**	**1.0**	-	-	**1.0**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	**0.02**	**0.02**	-	< 0.01	**0.2**	-	-	**0.2**
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.01**	-	**0.01**	**0.01**	-	**0.4**	-	-	**0.4**
BH12A	15-Feb-23	-	**0.02**	-	**0.02**	**0.04**	-	**0.21**	**3.2**	-	-	**3.2**
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
	22-Feb-19	-	< 0.01	-	< 0.01	< 0.01	**0.18**	-	**3.9**	-	-	**3.9**
	14-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	-	< 0.01	-	< 0.01	< 0.01	**0.09**	-	**1.7**	-	-	**1.7**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	-	< 0.01	-	< 0.01	< 0.01	**0.1**	-	-	**1.4**	-	-

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte												
											Anions and Cations	
		Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	0.5	5.9	5.9	5.9	--
Sample Name	Sample Date											
MW239S	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	-	< 0.01	< 0.01	-	< 0.01	-	**0.17**	**1.2**	-	-	**1.2**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	-	< 0.01	-	< 0.01	< 0.01	-	**0.01**	**2.6**	-	-	**2.6**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	-	< 0.01	-	< 0.01	< 0.01	-	**0.06**	**2.5**	-	-	**2.5**
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	**0.16**	-	**0.16**	**0.04**	-	**1.8**	-	-	**1.6**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	-	< 0.01	< 0.01	-	**0.04**	**1.5**	-	-	**1.5**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managem

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte												
						Anions and Cations			Alkalinity			
		Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3
LOR		0.2	1.0	0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0
Units		mg/L	mg/L	meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date											
BH1	15-Mar-19	-	-	**0.66**	**0.88**	-	-	-	-	**9.0**	< 1.0	< 1.0
	23-Apr-19	-	-	**0.82**	**0.99**	-	-	-	-	**10**	< 1.0	< 1.0
	16-May-19	-	-	**0.69**	**1.01**	-	-	**1.7**	-	**10**	< 1.0	< 1.0
	14-Jun-19	-	-	**0.6**	**0.94**	-	-	-	-	**10**	< 1.0	< 1.0
	16-Jul-19	-	-	**0.82**	**0.95**	-	-	-	-	**11**	< 1.0	< 1.0
	15-Aug-19	-	-	**0.77**	**0.91**	-	-	-	-	**14**	< 1.0	< 1.0
	16-Sep-19	-	-	**0.73**	**0.76**	-	-	**1.84**	-	**8.0**	< 1.0	< 1.0
	15-Oct-19	-	-	**0.73**	**0.71**	-	-	-	-	**4.0**	< 1.0	< 1.0
	18-Nov-19	-	-	**0.86**	**1.19**	-	-	**2.26**	-	**24**	< 1.0	< 1.0
	16-Sep-20	-	-	**0.73**	**0.81**	-	-	-	-	**9.0**	< 1.0	< 1.0
	16-Oct-20	-	-	**0.77**	**0.84**	-	-	-	-	**8.0**	< 1.0	< 1.0
	16-Nov-20	-	-	**1.02**	**1.05**	-	-	**1.55**	-	**22**	< 1.0	< 1.0
	16-Dec-20	-	-	**0.93**	**1.16**	-	-	-	-	**21**	< 1.0	< 1.0
	14-Jan-21	-	-	**0.96**	**1.07**	-	-	-	-	**16**	< 1.0	< 1.0
	16-Feb-21	-	-	**0.8**	**1.05**	-	-	**1.98**	-	**12**	< 1.0	< 1.0
	17-Mar-21	-	-	**0.82**	**0.95**	-	-	-	-	**11**	< 1.0	< 1.0
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**0.9**	**1.18**	-	-	-	**16**	-	< 1.0	< 1.0
BH1A	15-Feb-23	-	-	**0.39**	**0.51**	-	-	**2.15**	-	< 1.0	< 1.0	< 1.0
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	-	-	**0.79**	**0.74**	-	-	**1.44**	-	< 1.0	< 1.0	< 1.0
	15-Mar-19	-	-	**0.75**	**0.79**	-	-	-	-	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	**0.87**	**0.77**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-May-19	-	-	**0.79**	**1.06**	-	-	**1.44**	-	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	**0.69**	**0.75**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	**0.83**	**0.75**	-	-	-	-	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	**0.74**	**0.73**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Sep-19	-	**1.6**	**0.74**	**0.67**	-	-	**1.32**	-	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	**0.79**	**0.67**	-	-	-	-	< 1.0	< 1.0	< 1.0
	18-Nov-19	-	-	**0.79**	**0.68**	-	-	**2.02**	-	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	**0.74**	**0.62**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	**0.74**	**0.58**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Nov-20	-	-	**0.74**	**0.7**	-	-	**1.32**	-	**3.0**	< 1.0	< 1.0
	16-Dec-20	-	-	**0.74**	**0.57**	-	-	-	-	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	**0.66**	**0.57**	-	-	-	-	**3.0**	< 1.0	< 1.0
	16-Feb-21	-	-	**0.65**	**0.5**	-	-	**2.03**	-	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	**0.7**	**0.53**	-	-	-	-	**1.0**	< 1.0	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**0.53**	**0.6**	-	-	-	**3.0**	-	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte				Anions and Cations					Alkalinity				
		Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3
LOR		0.2	1.0	0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0
Units		mg/L	mg/L	meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date											
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**0.47**	**0.62**	-	-	**1.69**	-	**2.0**	< 1.0	< 1.0
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH3	21-Feb-19	-	-	**0.46**	**0.54**	-	-	**0.46**	-	**9.0**	< 1.0	< 1.0
	21-Feb-19	-	-	**0.56**	**0.7**	-	-	**1.15**	-	**6.0**	< 1.0	< 1.0
	15-Mar-19	-	-	**0.49**	**0.61**	-	-	-	-	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	**0.64**	**0.6**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-May-19	-	-	**0.6**	**0.99**	-	-	**1.3**	-	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	**0.39**	**0.59**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	**0.72**	**0.63**	-	-	-	-	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	**0.56**	**0.56**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Sep-19	-	-	**0.74**	**0.7**	-	-	**1.32**	-	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	**0.57**	**0.59**	-	-	-	-	< 1.0	< 1.0	< 1.0
	18-Nov-19	-	-	**0.61**	**0.63**	-	-	**1.86**	-	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	**1.03**	**1.1**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	**1.12**	**1.21**	-	-	-	-	**2.0**	< 1.0	< 1.0
	16-Nov-20	-	-	**0.95**	**1.03**	-	-	**2.54**	-	**1.0**	< 1.0	< 1.0
BH4	16-Dec-20	-	-	**1.47**	**1.58**	-	-	-	-	**3.0**	< 1.0	< 1.0
	14-Jan-21	-	-	**1.94**	**2.02**	-	-	-	-	**1.0**	< 1.0	< 1.0
	16-Feb-21	-	-	**3.87**	**3.82**	**0.65**	-	**4.63**	-	**1.0**	< 1.0	< 1.0
	17-Mar-21	-	-	**4.38**	**4.21**	**1.96**	-	-	-	**3.0**	< 1.0	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**0.52**	**0.61**	-	-	-	**2.0**	-	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**0.59**	**0.65**	-	-	**1.69**	-	< 1.0	< 1.0	< 1.0
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
	22-Feb-19	-	-	**2.35**	**2.34**	-	-	**3.59**	-	< 1.0	< 1.0	< 1.0
BH5	24-Feb-22	-	-	**2.4**	**2.63**	-	-	-	**3.0**	-	< 1.0	< 1.0
	15-Feb-23	-	-	**0.95**	**1.07**	-	-	**2.54**	-	**2.0**	< 1.0	< 1.0
	22-Feb-19	-	-	**1.72**	**1.77**	-	-	**2.49**	-	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	**1.46**	**1.44**	-	-	-	-	**2.0**	< 1.0	< 1.0
	23-Apr-19	-	-	**1.59**	**1.56**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-May-19	-	-	**1.5**	**1.64**	-	-	**2.04**	-	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	**1.32**	**1.52**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	**1.46**	**1.4**	-	-	-	-	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	**1.37**	**1.51**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Sep-19	-	-	**1.51**	**1.55**	-	-	**2.44**	-	**2.0**	< 1.0	< 1.0
	15-Oct-19	-	-	**1.54**	**1.43**	-	-	-	-	< 1.0	< 1.0	< 1.0

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte												
						Anions and Cations			Alkalinity			
		Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3
LOR		0.2	1.0	0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0
Units		mg/L	mg/L	meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date											
BH6	18-Nov-19	-	-	**1.6**	**1.64**	-	-	**2.64**	-	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	**2.02**	**1.9**	-	-	-	-	**1.0**	< 1.0	< 1.0
	16-Oct-20	-	-	**2.1**	**2.14**	-	-	-	-	**4.0**	< 1.0	< 1.0
	16-Nov-20	-	-	**2.22**	**2.2**	-	-	**3.04**	-	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	**2.7**	**2.43**	-	-	-	-	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	**2.31**	**2.5**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Feb-21	-	-	**2.56**	**2.46**	-	-	**3.3**	-	**3.0**	< 1.0	< 1.0
	17-Mar-21	-	-	**3.18**	**2.82**	-	-	-	-	**2.0**	< 1.0	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**1.63**	**1.93**	-	-	-	< 1.0	-	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**1.93**	**2.1**	-	-	**3.31**	-	< 1.0	< 1.0	< 1.0
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	-	-	**1.94**	**2.06**	-	-	**3.16**	-	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	**2.11**	**2.05**	**1.37**	-	-	-	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	**2.2**	**2.1**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-May-19	-	-	**1.98**	**2.23**	-	-	**3.26**	-	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	**1.73**	**1.81**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	**2.03**	**1.55**	-	-	-	-	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	**1.77**	**1.85**	-	-	-	-	**8.0**	< 1.0	< 1.0
	16-Sep-19	**1.1**	-	**1.53**	**1.86**	-	-	**2.79**	-	**5.0**	< 1.0	< 1.0
	15-Oct-19	-	-	**1.94**	**1.74**	-	-	-	-	< 1.0	< 1.0	< 1.0
	18-Nov-19	-	-	**1.78**	**1.89**	-	-	**2.89**	-	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	**1.9**	**2.0**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	**1.94**	**1.99**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Nov-20	-	-	**1.77**	**1.71**	-	-	**2.79**	-	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	**1.85**	**1.82**	-	-	-	-	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	**1.81**	**1.98**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Feb-21	-	-	**2.02**	**2.06**	-	-	**2.9**	-	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	**2.19**	**2.15**	-	-	-	-	< 1.0	< 1.0	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**0.93**	**0.87**	-	-	-	< 1.0	-	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**0.52**	**0.46**	-	-	**1.88**	-	**2.0**	< 1.0	< 1.0
	16-May-23	-	-	-	-	-	-	-	-	-	-	-

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Table 2
Groundwater - Anions Cations and Inorganics

Analyte				Anions and Cations					Alkalinity			
		Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3
LOR		0.2	1.0	0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0
Units		mg/L	mg/L	meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date											
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH8	21-Feb-19	-	-	**2.76**	**2.77**	-	-	**4.44**	-	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	**2.45**	**2.27**	-	-	-	-	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	**2.88**	**2.68**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-May-19	-	-	**2.37**	**2.43**	-	-	**4.86**	-	**1.0**	< 1.0	< 1.0
	14-Jun-19	-	-	**2.46**	**2.59**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	**2.89**	**4.87**	**26**	-	-	-	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	**2.07**	**1.86**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Sep-19	**1.1**	-	**2.25**	**2.06**	-	-	**5.43**	-	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	**2.29**	**2.06**	-	-	-	-	< 1.0	< 1.0	< 1.0
	18-Nov-19	-	-	**2.46**	**2.42**	-	-	**5.06**	-	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	**3.1**	**3.26**	**2.57**	-	-	-	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	**2.2**	**2.22**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Nov-20	-	-	**2.58**	**2.35**	-	-	**4.1**	-	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	**1.85**	**1.87**	-	-	-	-	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	**2.32**	**2.44**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Feb-21	-	-	**2.67**	**2.58**	-	-	**4.27**	-	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	**2.67**	**2.51**	-	-	-	-	< 1.0	< 1.0	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**2.8**	**3.2**	**6.58**	-	-	**5.0**	-	< 1.0	< 1.0
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**0.78**	**0.93**	-	-	**3.0**	-	< 1.0	< 1.0	< 1.0
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	-	-	**2.21**	**2.06**	-	-	-	-	**7.0**	< 1.0	< 1.0
	16-Oct-20	-	-	**2.06**	**2.06**	-	-	-	-	**1.0**	< 1.0	< 1.0
	16-Nov-20	-	-	**1.46**	**1.51**	-	-	**2.16**	-	**2.0**	< 1.0	< 1.0
	16-Dec-20	-	-	**1.32**	**1.23**	-	-	-	-	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	**1.37**	**1.52**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Feb-21	-	-	**1.41**	**1.42**	-	-	**2.82**	-	**2.0**	< 1.0	< 1.0
	17-Mar-21	-	-	**1.38**	**1.32**	-	-	-	-	**4.0**	< 1.0	< 1.0
	19-Aug-21	-	-	**1.41**	**1.42**	-	-	**2.82**	-	**4.0**	< 1.0	< 1.0
	22-Sep-21	-	-	**1.2**	**1.36**	-	-	**2.92**	-	**6.0**	< 1.0	< 1.0
	13-Oct-21	-	-	**1.23**	**1.46**	-	-	**3.39**	-	**8.0**	< 1.0	< 1.0
	16-Nov-21	-	-	**1.42**	**1.36**	-	-	**2.51**	-	**5.0**	< 1.0	< 1.0
	24-Feb-22	-	-	**1.37**	**1.26**	-	-	-	< 1.0	-	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**0.97**	**1.01**	-	-	**2.54**	-	**3.0**	< 1.0	< 1.0

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte				Anions and Cations					Alkalinity			
		Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3
LOR		0.2	1.0	0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0
Units		mg/L	mg/L	meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date											
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH11	21-Feb-19	-	-	**2.91**	**2.76**	-	-	**3.21**	-	< 1.0	< 1.0	< 1.0
	15-Mar-19	-	-	**1.3**	**1.51**	-	-	-	-	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	**1.8**	**1.65**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-May-19	-	-	**1.59**	**1.59**	-	-	**3.0**	-	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	**1.38**	**1.5**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	**2.79**	**2.22**	-	-	-	-	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	**1.46**	**1.41**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Sep-19	-	-	**1.42**	**1.4**	-	-	**3.18**	-	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	**1.46**	**1.3**	-	-	-	-	< 1.0	< 1.0	< 1.0
	18-Nov-19	-	-	**1.46**	**1.5**	-	-	**3.3**	-	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	**1.67**	**1.48**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	**1.76**	**1.8**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Nov-20	-	-	**1.58**	**1.51**	-	-	**2.51**	-	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	**1.84**	**1.84**	-	-	-	-	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	**1.88**	**2.03**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Feb-21	-	-	**1.83**	**1.8**	-	-	**2.98**	-	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	**1.76**	**1.71**	-	-	-	-	< 1.0	< 1.0	< 1.0
	19-Aug-21	-	-	**3.1**	**3.29**	**3.0**	-	**4.6**	-	< 1.0	< 1.0	< 1.0
	22-Sep-21	-	-	**3.01**	**3.1**	**1.54**	-	**4.18**	-	< 1.0	< 1.0	< 1.0
	13-Oct-21	-	-	**2.88**	**3.14**	**4.42**	-	**3.79**	-	< 1.0	< 1.0	< 1.0
	16-Nov-21	-	-	**2.27**	**2.05**	-	-	**2.75**	-	< 1.0	< 1.0	< 1.0
	24-Feb-22	-	-	**2.28**	**2.4**	-	-	-	**3.0**	-	< 1.0	< 1.0
	06-Mar-22	-	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**0.9**	**0.82**	-	-	**2.4**	-	< 1.0	< 1.0	< 1.0
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	-	-	**1.64**	**1.57**	-	-	-	-	**2.0**	< 1.0	< 1.0
	16-Nov-20	-	-	**1.31**	**1.52**	-	-	**2.27**	-	**7.0**	< 1.0	< 1.0
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**1.25**	**1.2**	-	-	-	**2.0**	-	< 1.0	< 1.0
BH12A	15-Feb-23	-	-	**0.86**	**0.98**	-	-	**2.26**	-	< 1.0	< 1.0	< 1.0
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
	22-Feb-19	-	-	**3.15**	**3.06**	**1.43**	-	**5.21**	-	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	**3.28**	**3.64**	**5.18**	-	-	-	**2.0**	< 1.0	< 1.0
	23-Apr-19	-	-	**3.38**	**2.92**	**7.32**	-	-	-	< 1.0	< 1.0	< 1.0
	16-May-19	-	-	**2.76**	**2.75**	-	-	**4.44**	-	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	**2.67**	**2.86**	-	-	-	-	**7.0**	< 1.0	< 1.0
	16-Jul-19	-	-	**2.86**	**2.39**	-	-	-	-	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	**2.92**	**2.71**	-	-	-	-	< 1.0	< 1.0	< 1.0
	16-Sep-19	**1.4**	-	**2.91**	**2.69**	-	-	**4.7**	-	< 1.0	< 1.0	< 1.0

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 2
Groundwater - Anions Cations and Inorganics

Analyte												
						Anions and Cations			Alkalinity			
		Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3
LOR		0.2	1.0	0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0
Units		mg/L	mg/L	meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date											
MW239S	15-Oct-19	-	-	**3.02**	**3.21**	**3.15**	-	-	-	< 1.0	< 1.0	< 1.0
	18-Nov-19	-	-	**3.26**	**3.5**	**3.48**	-	**5.38**	-	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	**2.99**	**3.24**	**3.95**	-	-	-	**3.0**	< 1.0	< 1.0
	16-Oct-20	-	-	**4.14**	**4.57**	**4.99**	-	-	-	**2.0**	< 1.0	< 1.0
	16-Nov-20	-	-	**4.21**	**4.3**	**1.0**	-	**4.78**	-	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	**3.81**	**4.05**	**3.15**	-	-	-	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	**3.31**	**3.65**	**4.78**	-	-	-	< 1.0	< 1.0	< 1.0
	16-Feb-21	-	-	**4.03**	**4.29**	**3.1**	-	**4.21**	-	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	**2.73**	**2.76**	-	-	-	-	< 1.0	< 1.0	< 1.0
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	-	**1.29**	**1.3**	-	-	-	**3.0**	-	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	-	**0.77**	**0.89**	-	-	**1.98**	-	**2.0**	< 1.0	< 1.0
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managem

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Inorganics									
		Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
BH1	15-Mar-19	**9.0**	**9.0**	-	**104**	**68**	**129**	**78**	**5.67**	-	-
	23-Apr-19	**10**	**11**	-	**84**	**55**	**97**	**248**	**5.83**	-	-
	16-May-19	**10**	**8.0**	-	**105**	**68**	**164**	**80**	**5.82**	-	-
	14-Jun-19	**10**	**8.0**	-	**99**	**64**	**72**	**39**	**5.52**	-	-
	16-Jul-19	**11**	**8.0**	-	**102**	**66**	**84**	**26**	**5.62**	-	-
	15-Aug-19	**14**	**8.0**	-	**128**	**83**	**82**	**181**	**6.22**	-	-
	16-Sep-19	**8.0**	**8.0**	-	**102**	**66**	**88**	**108**	**5.44**	-	-
	15-Oct-19	**4.0**	**8.0**	-	**98**	**64**	-	-	**5.5**	-	-
	18-Nov-19	**24**	**8.0**	-	**126**	**82**	-	-	**6.29**	-	-
	16-Sep-20	**9.0**	**8.0**	-	**95**	**62**	**81**	**58**	**5.87**	-	-
	16-Oct-20	**8.0**	**8.0**	-	**88**	**57**	-	-	**5.7**	-	-
	16-Nov-20	**22**	**8.0**	-	**120**	**78**	**76**	**41**	**5.98**	-	-
	16-Dec-20	**21**	**8.0**	-	**134**	**87**	-	-	**5.76**	-	-
	14-Jan-21	**16**	**8.0**	-	**124**	**81**	-	-	**5.63**	-	-
	16-Feb-21	**12**	**8.0**	-	**116**	**75**	**89**	**20**	**5.57**	-	-
	17-Mar-21	**11**	**11**	-	**111**	**72**	-	-	**6.02**	-	-
	13-Oct-21	-	-	-	-	-	-	-	**5.66**	**98**	-
	24-Feb-22	**16**	**15**	-	**127**	**82**	-	-	**5.95**	-	< 0.01
BH1A	15-Feb-23	< 1.0	< 1.0	-	**70**	**46**	-	-	**4.49**	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	< 1.0	**13**	-	**91**	**59**	**128**	**376**	**4.87**	-	-
	15-Mar-19	< 1.0	**16**	-	**101**	**66**	**90**	**352**	**4.71**	-	-
	23-Apr-19	< 1.0	**13**	-	**70**	**46**	**84**	**575**	**4.82**	-	-
	16-May-19	< 1.0	**13**	-	**94**	**61**	**144**	**111**	**4.85**	-	-
	14-Jun-19	< 1.0	**11**	-	**91**	**59**	**51**	**215**	**4.76**	-	-
	16-Jul-19	< 1.0	**13**	-	**90**	**58**	**63**	**92**	**4.84**	-	-
	15-Aug-19	< 1.0	**11**	-	**110**	**72**	**61**	**310**	**5.2**	-	-
	16-Sep-19	< 1.0	**13**	-	**96**	**62**	**60**	**216**	**4.72**	-	-
	15-Oct-19	< 1.0	**13**	-	**102**	**66**	-	-	**5.06**	-	-
	18-Nov-19	< 1.0	**9.0**	-	**102**	**66**	-	-	**5.47**	-	-
	16-Sep-20	< 1.0	**13**	-	**99**	**64**	**76**	**356**	**4.85**	-	-
	16-Oct-20	< 1.0	**13**	-	**90**	**58**	-	-	**5.07**	-	-
	16-Nov-20	**3.0**	**13**	-	**119**	**77**	**91**	**952**	**5.09**	-	-
	16-Dec-20	< 1.0	**13**	-	**105**	**68**	-	-	**4.66**	-	-
	14-Jan-21	**3.0**	**13**	-	**93**	**60**	-	-	**5.04**	-	-
	16-Feb-21	< 1.0	**7.0**	-	**89**	**58**	**67**	**86**	**4.84**	-	-
	17-Mar-21	**1.0**	**13**	-	**88**	**57**	-	-	**5.28**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	**5.09**	**101**	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**3.0**	**9.0**	-	**70**	**46**	-	-	**5.18**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	**462**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte		Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Inorganics: Total Dissolved Solids	Inorganics: Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**2.0**	**4.0**	-	**73**	**47**	-	-	**4.67**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH3	21-Feb-19	**9.0**	**14**	-	**60**	**39**	**438**	**3,800**	**5.55**	-	-
	21-Feb-19	**6.0**	**9.0**	-	**73**	**47**	**96**	**122**	**5.4**	-	-
	15-Mar-19	< 1.0	**5.0**	-	**77**	**50**	**70**	**45**	**5.12**	-	-
	23-Apr-19	< 1.0	**9.0**	-	**54**	**35**	**61**	**147**	**5.05**	-	-
	16-May-19	< 1.0	**9.0**	-	**73**	**47**	**100**	**44**	**4.99**	-	-
	14-Jun-19	< 1.0	**7.0**	-	**69**	**45**	**36**	**186**	**4.84**	-	-
	16-Jul-19	< 1.0	**13**	-	**75**	**49**	**42**	**74**	**4.96**	-	-
	15-Aug-19	< 1.0	**9.0**	-	**85**	**55**	**49**	**30**	**5.01**	-	-
	16-Sep-19	< 1.0	**13**	-	**95**	**62**	**58**	**49**	**4.83**	-	-
	15-Oct-19	< 1.0	**7.0**	-	**85**	**55**	-	-	**4.93**	-	-
	18-Nov-19	< 1.0	**7.0**	-	**86**	**56**	-	-	**5.34**	-	-
	16-Sep-20	< 1.0	**8.0**	-	**148**	**96**	**74**	**24**	**4.66**	-	-
	16-Oct-20	**2.0**	**15**	-	**133**	**86**	-	-	**5.21**	-	-
	16-Nov-20	**1.0**	**8.0**	-	**146**	**95**	**90**	**15**	**4.98**	-	-
BH4	16-Dec-20	**3.0**	**19**	-	**193**	**125**	-	-	**4.81**	-	-
	14-Jan-21	**1.0**	**19**	-	**258**	**168**	-	-	**5.23**	-	-
	16-Feb-21	**1.0**	**42**	-	**445**	**289**	**251**	**56**	**4.86**	-	-
	17-Mar-21	**3.0**	**50**	-	**501**	**326**	-	-	**5.07**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	**4.51**	**56**	-
	24-Feb-22	**2.0**	**11**	-	**74**	**48**	-	-	**5.07**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	**61**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	**7.0**	-	**84**	**55**	-	-	**5.06**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH5	22-Feb-19	< 1.0	**25**	-	**250**	**162**	**211**	**458**	**4.87**	-	-
	24-Feb-22	**3.0**	**33**	-	**276**	**179**	-	-	**4.67**	-	< 0.01
	15-Feb-23	**2.0**	**8.0**	-	**126**	**82**	-	-	**4.64**	-	-
	22-Feb-19	< 1.0	**24**	-	**177**	**115**	**144**	**41**	**4.37**	-	-
	14-Mar-19	**2.0**	**21**	-	**179**	**116**	**146**	**144**	**4.95**	-	-
	23-Apr-19	< 1.0	**24**	-	**136**	**88**	**115**	**62**	**4.64**	-	-
	16-May-19	< 1.0	**24**	-	**175**	**114**	**214**	**106**	**4.88**	-	-
	14-Jun-19	< 1.0	**21**	-	**174**	**113**	**90**	**32**	**4.82**	-	-
	16-Jul-19	< 1.0	**21**	-	**161**	**105**	**82**	**23**	**4.73**	-	-
	15-Aug-19	< 1.0	**17**	-	**201**	**131**	**104**	**16**	**4.87**	-	-
	16-Sep-19	**2.0**	**20**	-	**197**	**128**	**124**	**71**	**4.68**	-	-
	15-Oct-19	< 1.0	**21**	-	**202**	**131**	-	-	**5.17**	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte						Inorganics					
		Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
BH6	18-Nov-19	< 1.0	**20**	-	**204**	**133**	-	-	**5.32**	-	-
	16-Sep-20	**1.0**	**21**	-	**273**	**177**	**121**	**49**	**4.98**	-	-
	16-Oct-20	**4.0**	**26**	-	**249**	**162**	-	-	**5.3**	-	-
	16-Nov-20	< 1.0	**28**	-	**321**	**209**	**205**	**12**	**4.45**	-	-
	16-Dec-20	< 1.0	**32**	-	**321**	**209**	-	-	**4.63**	-	-
	14-Jan-21	< 1.0	**28**	-	**332**	**216**	-	-	**4.33**	-	-
	16-Feb-21	**3.0**	**32**	-	**316**	**205**	**182**	**20**	**4.89**	-	-
	17-Mar-21	**2.0**	**47**	-	**358**	**233**	-	-	**5.07**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	**6.1**	**51**	-
	24-Feb-22	< 1.0	**16**	-	**241**	**157**	-	-	**3.92**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	**33**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	**16**	-	**265**	**172**	-	-	**3.95**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	< 1.0	**20**	-	**213**	**138**	**196**	**152**	**4.76**	-	-
	14-Mar-19	< 1.0	**25**	-	**271**	**176**	**212**	**149**	**4.73**	-	-
	23-Apr-19	< 1.0	**25**	-	**205**	**133**	**185**	**20**	**4.51**	-	-
	16-May-19	< 1.0	**20**	-	**235**	**153**	**310**	**29**	**4.87**	-	-
	14-Jun-19	< 1.0	**16**	-	**213**	**138**	**145**	**39**	**4.91**	-	-
	16-Jul-19	< 1.0	**20**	-	**202**	**131**	**164**	**61**	**5.0**	-	-
	15-Aug-19	**8.0**	**16**	-	**232**	**151**	**168**	**44**	**5.53**	-	-
	16-Sep-19	**5.0**	**16**	-	**222**	**144**	**181**	**44**	**5.07**	-	-
	15-Oct-19	< 1.0	**20**	-	**252**	**164**	-	-	**4.95**	-	-
	18-Nov-19	< 1.0	**20**	-	**239**	**155**	-	-	**4.97**	-	-
	16-Sep-20	< 1.0	**20**	-	**248**	**161**	**140**	**24**	**4.81**	-	-
	16-Oct-20	< 1.0	**20**	-	**243**	**158**	-	-	**4.87**	-	-
	16-Nov-20	< 1.0	**20**	-	**245**	**159**	**168**	**6.0**	**4.57**	-	-
	16-Dec-20	< 1.0	**25**	-	**265**	**172**	-	-	**4.34**	-	-
	14-Jan-21	< 1.0	**20**	-	**267**	**174**	-	-	**4.62**	-	-
	16-Feb-21	< 1.0	**25**	-	**270**	**176**	**161**	**9.0**	**4.54**	-	-
	17-Mar-21	< 1.0	**29**	-	**279**	**181**	-	-	**4.9**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	**5.22**	**170**	-
	24-Feb-22	< 1.0	**8.0**	-	**124**	**81**	-	-	**4.43**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	**33**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**2.0**	**4.0**	-	**66**	**43**	-	-	**4.83**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
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Table 2
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Analyte		Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Inorganics: Total Dissolved Solids	Inorganics: Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH8	21-Feb-19	< 1.0	**25**	-	**352**	**229**	**258**	**438**	**4.46**	-	-
	14-Mar-19	< 1.0	**25**	-	**319**	**207**	**253**	**138**	**4.77**	-	-
	23-Apr-19	< 1.0	**29**	-	**264**	**172**	**223**	**121**	**4.76**	-	-
	16-May-19	**1.0**	**16**	-	**302**	**196**	**354**	**312**	**4.9**	-	-
	14-Jun-19	< 1.0	**20**	-	**315**	**205**	**194**	**83**	**4.82**	-	-
	16-Jul-19	< 1.0	**20**	-	**353**	**229**	**226**	**145**	**4.78**	-	-
	15-Aug-19	< 1.0	**12**	-	**260**	**169**	**140**	**98**	**5.0**	-	-
	16-Sep-19	< 1.0	**12**	-	**293**	**190**	**206**	**79**	**4.85**	-	-
	15-Oct-19	< 1.0	**16**	-	**303**	**197**	-	-	**5.02**	-	-
	18-Nov-19	< 1.0	**16**	-	**316**	**205**	-	-	**5.12**	-	-
	16-Sep-20	< 1.0	**16**	-	**391**	**254**	**216**	**34**	**4.79**	-	-
	16-Oct-20	< 1.0	**16**	-	**268**	**174**	-	-	**5.01**	-	-
	16-Nov-20	< 1.0	**25**	-	**341**	**222**	**212**	**14**	**4.75**	-	-
	16-Dec-20	< 1.0	**16**	-	**256**	**166**	-	-	**4.82**	-	-
	14-Jan-21	< 1.0	**20**	-	**317**	**206**	-	-	**4.76**	-	-
	16-Feb-21	< 1.0	**25**	-	**335**	**218**	**184**	**63**	**4.68**	-	-
	17-Mar-21	< 1.0	**25**	-	**329**	**214**	-	-	**4.57**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**5.0**	**20**	-	**329**	**214**	-	-	**4.67**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	**4.0**	-	**135**	**88**	-	-	**4.93**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	**7.0**	**33**	-	**276**	**179**	**310**	**1,060**	**5.78**	-	-
	16-Oct-20	**1.0**	**32**	-	**237**	**154**	-	-	**5.15**	-	-
	16-Nov-20	**2.0**	**21**	-	**195**	**127**	**142**	**2,220**	**4.93**	-	-
	16-Dec-20	< 1.0	**15**	-	**175**	**114**	-	-	**4.83**	-	-
	14-Jan-21	< 1.0	**15**	-	**196**	**127**	-	-	**4.96**	-	-
	16-Feb-21	**2.0**	**15**	-	**181**	**118**	**135**	**2,030**	**4.72**	-	-
	17-Mar-21	**4.0**	**15**	-	**164**	**107**	-	-	**5.23**	-	-
	19-Aug-21	**4.0**	**15**	-	**180**	**117**	-	-	**5.03**	-	-
	22-Sep-21	**6.0**	**11**	-	**172**	**112**	-	-	**4.99**	-	-
	13-Oct-21	**8.0**	**8.0**	-	**156**	**101**	-	-	**5.21**	**105**	-
	16-Nov-21	**5.0**	-	**17**	**163**	**106**	-	-	**5.51**	-	-
	24-Feb-22	< 1.0	**21**	-	**164**	**107**	-	-	**4.85**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	**289**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**3.0**	**8.0**	-	**141**	**92**	-	-	**4.65**	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte						Inorganics					
		Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
	16-May-23	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH11	21-Feb-19	< 1.0	**41**	-	**346**	**225**	**278**	**144**	**4.67**	-	-
	15-Mar-19	< 1.0	**8.0**	-	**186**	**121**	**144**	**152**	**4.82**	-	-
	23-Apr-19	< 1.0	**20**	-	**150**	**98**	**135**	**112**	**4.99**	-	-
	16-May-19	< 1.0	**16**	-	**188**	**122**	**216**	**156**	**4.91**	-	-
	14-Jun-19	< 1.0	**12**	-	**175**	**114**	**107**	**136**	**4.84**	-	-
	16-Jul-19	< 1.0	**33**	-	**318**	**207**	**192**	**223**	**4.68**	-	-
	15-Aug-19	< 1.0	**12**	-	**197**	**128**	**135**	**303**	**4.88**	-	-
	16-Sep-19	< 1.0	**12**	-	**195**	**127**	**140**	**533**	**4.66**	-	-
	15-Oct-19	< 1.0	**12**	-	**194**	**126**	-	-	**4.92**	-	-
	18-Nov-19	< 1.0	**12**	-	**193**	**125**	-	-	**5.12**	-	-
	16-Sep-20	< 1.0	**20**	-	**223**	**145**	**111**	**136**	**4.61**	-	-
	16-Oct-20	< 1.0	**25**	-	**218**	**142**	-	-	**4.8**	-	-
	16-Nov-20	< 1.0	**20**	-	**217**	**141**	**146**	**100**	**4.81**	-	-
	16-Dec-20	< 1.0	**25**	-	**249**	**162**	-	-	**4.74**	-	-
	14-Jan-21	< 1.0	**25**	-	**264**	**172**	-	-	**4.41**	-	-
	16-Feb-21	< 1.0	**20**	-	**235**	**153**	**149**	**386**	**4.73**	-	-
	17-Mar-21	< 1.0	**25**	-	**223**	**145**	-	-	**4.66**	-	-
	19-Aug-21	< 1.0	**29**	-	**403**	**262**	-	-	**4.38**	-	-
	22-Sep-21	< 1.0	**25**	-	**382**	**248**	-	-	**4.47**	-	-
	13-Oct-21	< 1.0	**33**	-	**373**	**242**	-	-	**4.27**	**18**	-
	16-Nov-21	< 1.0	-	**33**	**268**	**174**	-	-	**4.54**	-	-
	24-Feb-22	**3.0**	**25**	-	**260**	**169**	-	-	**4.57**	-	< 0.01
	06-Mar-22	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	**24**	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	**8.0**	-	**118**	**77**	-	-	**4.54**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	**2.0**	**29**	-	**206**	**134**	**118**	**446**	**5.37**	-	-
	16-Nov-20	**7.0**	**16**	-	**190**	**124**	**134**	**438**	**5.92**	-	-
	13-Oct-21	-	-	-	-	-	-	-	**5.75**	**398**	-
	24-Feb-22	**2.0**	**16**	-	**148**	**96**	-	-	**5.03**	-	< 0.01
BH12A	15-Feb-23	< 1.0	**8.0**	-	**129**	**84**	-	-	**4.91**	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-
	22-Feb-19	< 1.0	**25**	-	**329**	**214**	**234**	**149**	**4.89**	-	-
	14-Mar-19	**2.0**	**25**	-	**410**	**266**	**232**	**504**	**5.02**	-	-
	23-Apr-19	< 1.0	**29**	-	**294**	**191**	**208**	**385**	**4.92**	-	-
	16-May-19	< 1.0	**25**	-	**327**	**212**	**320**	**371**	**4.87**	-	-
	14-Jun-19	**7.0**	**25**	-	**334**	**217**	**220**	**427**	**5.39**	-	-
	16-Jul-19	< 1.0	**29**	-	**353**	**229**	**188**	**70**	**4.85**	-	-
	15-Aug-19	< 1.0	**29**	-	**359**	**233**	**195**	**363**	**4.83**	-	-
	16-Sep-19	< 1.0	**25**	-	**373**	**242**	**224**	**179**	**4.66**	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater - Anions Cations and Inorganics

Analyte						Inorganics					
		Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
MW239S	15-Oct-19	< 1.0	**25**	-	**404**	**263**	-	-	**4.86**	-	-
	18-Nov-19	< 1.0	**25**	-	**419**	**272**	-	-	**4.76**	-	-
	16-Sep-20	**3.0**	**33**	-	**390**	**254**	**244**	**350**	**5.2**	-	-
	16-Oct-20	**2.0**	**37**	-	**458**	**298**	-	-	**4.73**	-	-
	16-Nov-20	< 1.0	**37**	-	**489**	**318**	**294**	**562**	**4.55**	-	-
	16-Dec-20	< 1.0	**41**	-	**484**	**315**	-	-	**4.68**	-	-
	14-Jan-21	< 1.0	**37**	-	**430**	**280**	-	-	**4.44**	-	-
	16-Feb-21	< 1.0	**45**	-	**488**	**317**	**375**	**346**	**4.61**	-	-
	17-Mar-21	< 1.0	**29**	-	**343**	**223**	-	-	**4.73**	-	-
	13-Oct-21	-	-	-	-	-	-	-	**4.87**	**295**	-
	24-Feb-22	**3.0**	**12**	-	**159**	**103**	-	-	**4.67**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	**104**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**2.0**	**8.0**	-	**111**	**72**	-	-	**4.63**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managem

Williamtown Sand Syndicate
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Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
Sample Name	Sample Date												
BH1	15-Mar-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	< 0.001	**13**	< 0.001	**0.014**	< 0.0001
	23-Apr-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	**0.002**	**10**	**0.001**	**0.015**	< 0.0001
	16-May-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**8.33**	< 0.001	**0.009**	< 0.0001
	14-Jun-19	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**6.31**	< 0.001	**0.009**	< 0.0001
	16-Jul-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.002**	**7.35**	< 0.001	**0.01**	< 0.0001
	15-Aug-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.002**	**7.96**	< 0.001	**0.008**	< 0.0001
	16-Sep-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	**0.001**	**8.84**	< 0.001	**0.009**	< 0.0001
	15-Oct-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.006**	-	< 0.001	**0.007**	< 0.0001
	18-Nov-19	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	< 0.001	**11**	< 0.001	**0.008**	< 0.0001
	16-Sep-20	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.005**	**5.48**	< 0.001	**0.01**	< 0.0001
	16-Oct-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**5.55**	< 0.001	**0.009**	< 0.0001
	16-Nov-20	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.001**	**7.05**	< 0.001	**0.012**	< 0.0001
	16-Dec-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.008**	**3.21**	< 0.001	**0.011**	< 0.0001
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**5.21**	< 0.001	**0.013**	< 0.0001
	16-Feb-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**3.24**	< 0.001	**0.015**	< 0.0001
	17-Mar-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**4.0**	< 0.001	**0.027**	< 0.0001
	24-Feb-22	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**7.7**	< 0.001	**0.018**	< 0.0001
BH1A	15-Feb-23	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	**0.003**	< 0.0001
	14-Aug-23	< 0.001	**0.003**	-	-	-	**0.003**	-	**0.004**	**0.45**	-	**0.011**	-
BH2	22-Feb-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.14**	< 0.001	**0.021**	< 0.0001
	15-Mar-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	< 0.05	< 0.001	**0.02**	< 0.0001
	23-Apr-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.004**	**0.19**	< 0.001	**0.018**	< 0.0001
	16-May-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.06**	< 0.001	**0.014**	< 0.0001
	14-Jun-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.004**	**0.08**	< 0.001	**0.009**	< 0.0001
	16-Jul-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**0.05**	< 0.001	**0.013**	< 0.0001
	15-Aug-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.08**	< 0.001	**0.011**	< 0.0001
	16-Sep-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**0.26**	< 0.001	**0.014**	< 0.0001
	15-Oct-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	-	< 0.001	**0.011**	< 0.0001
	18-Nov-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	**0.08**	< 0.001	**0.011**	< 0.0001
	16-Sep-20	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	**0.07**	< 0.001	**0.016**	< 0.0001
	16-Oct-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	< 0.05	< 0.001	**0.015**	< 0.0001
	16-Nov-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.02**	**0.36**	< 0.001	**0.015**	< 0.0001
	16-Dec-20	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	< 0.05	< 0.001	**0.014**	< 0.0001
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	< 0.05	< 0.001	**0.016**	< 0.0001
	16-Feb-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.021**	< 0.05	< 0.001	**0.009**	< 0.0001
	17-Mar-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.003**	< 0.05	< 0.001	**0.016**	< 0.0001
	19-Aug-21	< 0.001	**0.003**	-	-	-	< 0.001	-	**0.007**	< 0.05	-	**0.015**	-
	22-Sep-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.013**	-
	13-Oct-21	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.012**	-
	16-Nov-21	< 0.001	**0.003**	-	-	-	< 0.001	-	**0.006**	< 0.05	-	-	-
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.05**	-	**0.008**	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.49**	-	**0.012**	-

Williamtown Sand Syndicate
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Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
	24-Feb-22	**0.002**	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	**0.009**	< 0.0001
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.01**	-
	12-Apr-22	**0.001**	-	-	-	-	-	-	-	**0.25**	-	**0.009**	-
	27-May-22	< 0.001	**0.002**	-	-	-	< 0.001	-	**0.004**	< 0.05	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.007**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.008**	-
	12-Aug-22	< 0.001	**0.005**	-	-	-	< 0.001	-	**0.012**	< 0.05	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.009**	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.005**	-
	18-Nov-22	< 0.001	**0.004**	-	-	-	< 0.001	**0.001**	**0.002**	**0.14**	-	**0.005**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.004**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.005**	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	< 0.05	< 0.001	**0.002**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.003**	-
	18-Apr-23	< 0.001	**0.003**	< 0.001	**0.05**	< 0.0001	< 0.001	< 0.001	**0.003**	**0.09**	< 0.001	**0.004**	< 0.0001
	16-May-23	< 0.001	**0.002**	-	-	-	< 0.001	-	**0.004**	**0.08**	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.002**	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.007**	-
	14-Aug-23	< 0.001	**0.004**	-	-	-	< 0.001	-	**0.008**	**0.18**	-	**0.009**	-
BH3	21-Feb-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.06**	< 0.001	**0.005**	< 0.0001
	21-Feb-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.16**	< 0.001	**0.039**	< 0.0001
	15-Mar-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	< 0.05	< 0.001	**0.014**	< 0.0001
	23-Apr-19	< 0.001	**0.013**	< 0.001	**0.05**	< 0.0001	< 0.001	< 0.001	**0.002**	**0.99**	< 0.001	**0.045**	< 0.0001
	16-May-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.27**	< 0.001	**0.022**	< 0.0001
	14-Jun-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.038**	< 0.05	< 0.001	**0.014**	< 0.0001
	16-Jul-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.046**	< 0.05	< 0.001	**0.019**	< 0.0001
	15-Aug-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	< 0.05	< 0.001	**0.018**	< 0.0001
	16-Sep-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.051**	**0.19**	< 0.001	**0.026**	< 0.0001
	15-Oct-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	-	< 0.001	**0.136**	< 0.0001
	18-Nov-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	< 0.05	< 0.001	**0.013**	< 0.0001
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.078**	**0.06**	< 0.001	**0.012**	< 0.0001
	16-Oct-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	**0.25**	< 0.001	**0.021**	< 0.0001
	16-Nov-20	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	**0.18**	< 0.001	**0.008**	< 0.0001
	16-Dec-20	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.46**	< 0.001	**0.027**	< 0.0001
	14-Jan-21	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.27**	< 0.001	**0.012**	< 0.0001
	16-Feb-21	< 0.001	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.94**	< 0.001	**0.023**	< 0.0001
	17-Mar-21	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	**1.39**	< 0.001	**0.029**	< 0.0001
	19-Aug-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.198**	**0.14**	< 0.001	**0.022**	< 0.0001
	22-Sep-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.172**	**0.1**	< 0.001	**0.02**	< 0.0001
	13-Oct-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	**1.65**	< 0.001	**0.019**	< 0.0001
	16-Nov-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.38**	< 0.001	**0.021**	< 0.0001
BH4	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.69**	-	**0.016**	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.52**	-	**0.018**	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
	24-Feb-22	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.62**	< 0.001	**0.017**	< 0.0001
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.018**	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.017**	-
	27-May-22	< 0.001	**0.011**	-	-	-	< 0.001	-	**0.097**	< 0.05	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	**0.082**	< 0.05	-	**0.014**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.014**	-
	12-Aug-22	< 0.001	**0.013**	-	-	-	< 0.001	-	**0.05**	< 0.05	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.11**	-	**0.014**	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.19**	-	**0.016**	-
	18-Nov-22	< 0.001	**0.012**	-	-	-	< 0.001	< 0.001	**0.006**	**0.13**	-	**0.016**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.14**	-	**0.015**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.022**	-
	15-Feb-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.06**	< 0.001	**0.012**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.022**	-
	18-Apr-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.059**	**0.05**	< 0.001	**0.012**	< 0.0001
	16-May-23	< 0.001	**0.008**	-	-	-	< 0.001	-	**0.135**	**0.09**	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	**0.067**	< 0.05	-	**0.009**	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.06**	-	**0.013**	-
	14-Aug-23	< 0.001	**0.009**	-	-	-	< 0.001	-	**0.119**	**0.09**	-	**0.015**	-
BH5	22-Feb-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.4**	< 0.001	**0.005**	< 0.0001
	24-Feb-22	< 0.001	**0.024**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.64**	< 0.001	**0.005**	< 0.0001
	15-Feb-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.47**	< 0.001	**0.002**	< 0.0001
	22-Feb-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.03**	< 0.001	**0.014**	< 0.0001
	14-Mar-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.9**	< 0.001	**0.01**	< 0.0001
	23-Apr-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.96**	< 0.001	**0.01**	< 0.0001
	16-May-19	< 0.001	**0.029**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**2.57**	< 0.001	**0.009**	< 0.0001
	14-Jun-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**2.86**	< 0.001	**0.008**	< 0.0001
	16-Jul-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**2.41**	< 0.001	**0.008**	< 0.0001
	15-Aug-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**2.19**	< 0.001	**0.008**	< 0.0001
	16-Sep-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**2.08**	< 0.001	**0.012**	< 0.0001
	15-Oct-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	-	< 0.001	**0.009**	< 0.0001
	18-Nov-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.58**	< 0.001	**0.009**	< 0.0001
	16-Sep-20	< 0.001	**0.047**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**1.78**	< 0.001	**0.01**	< 0.0001
	16-Oct-20	< 0.001	**0.04**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.84**	< 0.001	**0.011**	< 0.0001
	16-Nov-20	< 0.001	**0.061**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.72**	< 0.001	**0.014**	< 0.0001
	16-Dec-20	< 0.001	**0.07**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.64**	< 0.001	**0.014**	< 0.0001
	14-Jan-21	< 0.001	**0.054**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	**1.06**	< 0.001	**0.014**	< 0.0001
	16-Feb-21	< 0.001	**0.048**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	**1.18**	< 0.001	**0.012**	< 0.0001
	17-Mar-21	< 0.001	**0.068**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.39**	< 0.001	**0.012**	< 0.0001
	19-Aug-21	**0.005**	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001
	22-Sep-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.005**	< 0.0001
	13-Oct-21	**0.002**	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001
BH6	16-Nov-21	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.83**	< 0.001	**0.004**	< 0.0001

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
BH6	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.66**	-	**0.002**	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.7**	-	**0.003**	-
	24-Feb-22	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.001**	< 0.0001
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.81**	-	**0.002**	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**3.24**	-	**0.016**	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**3.45**	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**2.7**	-	**0.005**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**2.38**	-	**0.001**	-
	12-Aug-22	< 0.001	**0.008**	-	-	-	< 0.001	-	< 0.001	**2.38**	-	-	-
	16-Sep-22	**0.001**	-	-	-	-	-	-	-	**3.45**	-	**0.002**	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**3.44**	-	**0.002**	-
	18-Nov-22	< 0.001	**0.009**	-	-	-	< 0.001	< 0.001	< 0.001	**4.39**	-	**0.006**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**3.23**	-	**0.012**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**3.61**	-	**0.014**	-
	15-Feb-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	**3.82**	< 0.001	**0.009**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**4.97**	-	**0.006**	-
	18-Apr-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**4.13**	< 0.001	**0.003**	< 0.0001
	16-May-23	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**4.56**	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**5.53**	-	< 0.001	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**6.78**	-	**0.005**	-
	14-Aug-23	< 0.001	**0.008**	-	-	-	< 0.001	-	**0.001**	**6.34**	-	**0.006**	-
BH7	22-Feb-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**1.8**	< 0.001	**0.026**	< 0.0001
	14-Mar-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.003**	< 0.001	**1.8**	< 0.001	**0.02**	< 0.0001
	23-Apr-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.0**	< 0.001	**0.026**	< 0.0001
	16-May-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.32**	< 0.001	**0.035**	< 0.0001
	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**2.06**	< 0.001	**0.03**	< 0.0001
	16-Jul-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.66**	< 0.001	**0.025**	< 0.0001
	15-Aug-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.54**	< 0.001	**0.023**	< 0.0001
	16-Sep-19	< 0.001	**0.016**	< 0.001	**0.06**	< 0.0001	**0.002**	**0.002**	**0.007**	**1.42**	**0.001**	**0.024**	< 0.0001
	15-Oct-19	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.003**	-	< 0.001	**0.018**	< 0.0001
	18-Nov-19	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.1**	< 0.001	**0.015**	< 0.0001
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.67**	< 0.001	**0.021**	< 0.0001
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.49**	< 0.001	**0.015**	< 0.0001
	16-Nov-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**1.72**	< 0.001	**0.023**	< 0.0001
	16-Dec-20	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.79**	< 0.001	**0.024**	< 0.0001
	14-Jan-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.004**	**1.65**	< 0.001	**0.025**	< 0.0001
	16-Feb-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.002**	**1.74**	< 0.001	**0.025**	< 0.0001
	17-Mar-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.28**	< 0.001	**0.028**	< 0.0001
	19-Aug-21	**0.003**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**	**0.001**	< 0.001	**0.79**	< 0.001	**0.006**	< 0.0001
	22-Sep-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.62**	< 0.001	**0.005**	< 0.0001
	13-Oct-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.69**	**0.002**	**0.005**	< 0.0001
	16-Nov-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.39**	< 0.001	**0.003**	< 0.0001
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.47**	-	**0.002**	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
BH8	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.45**	-	**0.002**	-
	24-Feb-22	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.66**	< 0.001	**0.003**	< 0.0001
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.45**	-	**0.003**	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.43**	-	**0.004**	-
	27-May-22	< 0.001	**0.003**	-	-	-	**0.003**	-	< 0.001	**0.52**	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.004**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.51**	-	**0.004**	-
	12-Aug-22	< 0.001	**0.003**	-	-	-	**0.002**	-	**0.003**	**0.56**	-	-	-
	16-Sep-22	**0.001**	-	-	-	-	-	-	-	**0.54**	-	**0.004**	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.5**	-	**0.003**	-
	18-Nov-22	**0.001**	**0.002**	-	-	-	**0.002**	< 0.001	< 0.001	**0.43**	-	**0.001**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.32**	-	**0.002**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.002**	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.31**	< 0.001	**0.003**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.34**	-	**0.003**	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.46**	< 0.001	**0.003**	< 0.0001
	16-May-23	< 0.001	**0.002**	-	-	-	**0.002**	-	**0.001**	**0.47**	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.003**	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.53**	-	**0.004**	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.002**	-	**0.003**	**0.41**	-	**0.003**	-
	21-Feb-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**4.1**	< 0.001	**0.012**	< 0.0001
	14-Mar-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.25**	< 0.001	**0.008**	< 0.0001
	23-Apr-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.2**	< 0.001	**0.009**	< 0.0001
	16-May-19	**0.003**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.0**	< 0.001	**0.01**	< 0.0001
	14-Jun-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.5**	< 0.001	**0.005**	< 0.0001
	16-Jul-19	**0.001**	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.6**	< 0.001	**0.004**	< 0.0001
	15-Aug-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.72**	< 0.001	**0.004**	< 0.0001
	16-Sep-19	**0.001**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**2.06**	< 0.001	**0.005**	< 0.0001
	15-Oct-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	-	< 0.001	**0.009**	< 0.0001
	18-Nov-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**2.49**	< 0.001	**0.01**	< 0.0001
	16-Sep-20	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.035**	**3.35**	**0.001**	**0.009**	< 0.0001
	16-Oct-20	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.03**	< 0.001	**0.007**	< 0.0001
	16-Nov-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**3.48**	< 0.001	**0.008**	< 0.0001
	16-Dec-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.001**	**2.98**	< 0.001	**0.01**	< 0.0001
	14-Jan-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	**2.71**	< 0.001	**0.01**	< 0.0001
	16-Feb-21	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.004**	**2.99**	< 0.001	**0.01**	< 0.0001
	17-Mar-21	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.86**	< 0.001	**0.01**	< 0.0001
	19-Aug-21	**0.003**	**0.008**	-	-	-	**0.002**	-	< 0.001	**3.72**	-	-	-
	16-Nov-21	**0.001**	**0.01**	-	-	-	**0.002**	-	< 0.001	**4.23**	-	-	-
	16-Dec-21	-	-	-	-	-	-	-	-	**3.78**	-	-	-
	24-Feb-22	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**2.98**	< 0.001	**0.007**	< 0.0001
	27-May-22	**0.001**	**0.004**	-	-	-	**0.002**	-	< 0.001	**1.1**	-	-	-
	12-Aug-22	**0.001**	**0.006**	-	-	-	**0.002**	-	< 0.001	**1.54**	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
BH9A	18-Nov-22	**0.002**	**0.004**	-	-	-	**0.002**	< 0.001	< 0.001	**1.16**	-	**0.001**	-
	15-Feb-23	**0.001**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.96**	< 0.001	**0.002**	< 0.0001
	16-May-23	**0.002**	**0.004**	-	-	-	**0.003**	-	< 0.001	**1.37**	-	-	-
	14-Aug-23	**0.002**	**0.005**	-	-	-	**0.003**	-	< 0.001	**1.78**	-	**0.006**	-
BH9	16-Nov-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.014**	-
BH9A	16-Sep-20	< 0.001	**0.028**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.004**	**0.14**	< 0.001	**0.076**	< 0.0001
	16-Oct-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.06**	< 0.001	**0.042**	< 0.0001
	16-Nov-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.11**	< 0.001	**0.03**	< 0.0001
	16-Dec-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.31**	< 0.001	**0.024**	< 0.0001
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.017**	**0.14**	< 0.001	**0.025**	< 0.0001
	16-Feb-21	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.35**	< 0.001	**0.024**	< 0.0001
	17-Mar-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.27**	< 0.001	**0.024**	< 0.0001
	19-Aug-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.26**	< 0.001	**0.03**	< 0.0001
	22-Sep-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.32**	< 0.001	**0.027**	< 0.0001
	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.51**	< 0.001	**0.033**	< 0.0001
	16-Nov-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.33**	< 0.001	**0.025**	< 0.0001
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.025**	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.03**	-
	24-Feb-22	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.5**	< 0.001	**0.042**	< 0.0001
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.32**	-	**0.036**	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.038**	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**0.35**	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.42**	-	**0.032**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.16**	-	**0.019**	-
	12-Aug-22	< 0.001	**0.009**	-	-	-	< 0.001	-	**0.004**	**0.53**	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.54**	-	**0.031**	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.022**	-
	18-Nov-22	< 0.001	**0.007**	-	-	-	< 0.001	< 0.001	< 0.001	**0.56**	-	**0.034**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.18**	-	**0.023**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.49**	-	**0.035**	-
	15-Feb-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.61**	< 0.001	**0.041**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.02**	-
	18-Apr-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.004**	**0.5**	< 0.001	**0.033**	< 0.0001
	16-May-23	< 0.001	**0.004**	-	-	-	< 0.001	-	< 0.001	**0.26**	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.16**	-	**0.013**	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.67**	-	**0.045**	-
	14-Aug-23	< 0.001	**0.006**	-	-	-	< 0.001	-	**0.003**	**0.63**	-	**0.041**	-
	21-Feb-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	< 0.001	**0.26**	< 0.001	**0.003**	< 0.0001
	15-Mar-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.49**	< 0.001	**0.007**	< 0.0001
	23-Apr-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.98**	< 0.001	**0.007**	< 0.0001
	16-May-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.97**	< 0.001	**0.006**	< 0.0001
	14-Jun-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.98**	< 0.001	**0.005**	< 0.0001
	16-Jul-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.47**	< 0.001	**0.003**	< 0.0001

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
BH11	15-Aug-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.87**	< 0.001	**0.007**	< 0.0001
	16-Sep-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.79**	< 0.001	**0.008**	< 0.0001
	15-Oct-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.004**	-	< 0.001	**0.006**	< 0.0001
	18-Nov-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.95**	< 0.001	**0.008**	< 0.0001
	16-Sep-20	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.005**	**0.9**	< 0.001	**0.008**	< 0.0001
	16-Oct-20	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.06**	< 0.001	**0.009**	< 0.0001
	16-Nov-20	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.84**	< 0.001	**0.011**	< 0.0001
	16-Dec-20	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.0**	< 0.001	**0.009**	< 0.0001
	14-Jan-21	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.025**	**0.56**	< 0.001	**0.006**	< 0.0001
	16-Feb-21	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.018**	**0.59**	< 0.001	**0.008**	< 0.0001
	17-Mar-21	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.2**	< 0.001	**0.002**	< 0.0001
	19-Aug-21	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.62**	< 0.001	**0.003**	< 0.0001
	22-Sep-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.72**	< 0.001	**0.003**	< 0.0001
	13-Oct-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.69**	< 0.001	**0.005**	< 0.0001
	16-Nov-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.92**	< 0.001	**0.002**	< 0.0001
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.92**	-	**0.003**	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**1.06**	-	**0.003**	-
	24-Feb-22	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**1.25**	< 0.001	**0.003**	< 0.0001
	06-Mar-22	< 0.001	**0.004**	-	-	-	**0.002**	-	< 0.001	**1.27**	-	-	-
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**1.06**	-	**0.004**	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**1.06**	-	**0.004**	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**1.24**	-	**0.004**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**1.03**	-	**0.004**	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**1.14**	-	**0.004**	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**1.14**	-	**0.003**	-
	18-Nov-22	< 0.001	**0.002**	-	-	-	**0.003**	< 0.001	< 0.001	**1.06**	-	**0.003**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.96**	-	**0.003**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.86**	-	**0.003**	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.008**	**0.91**	< 0.001	**0.003**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.99**	-	**0.002**	-
	18-Apr-23	**0.001**	**0.001**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	< 0.001	**1.07**	< 0.001	**0.003**	< 0.0001
	16-May-23	< 0.001	**0.002**	-	-	-	**0.003**	-	**0.001**	**1.04**	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.59**	-	**0.001**	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.86**	-	**0.002**	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.003**	-	**0.001**	**0.88**	-	**0.004**	-
BH12	16-Nov-20	< 0.001	-	-	-	< 0.0001	**0.002**	-	**0.002**	-	< 0.001	-	< 0.0001
	24-Feb-22	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.33**	< 0.001	**0.006**	< 0.0001
BH12A	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.003**	**3.64**	< 0.001	**0.019**	< 0.0001
	14-Aug-23	< 0.001	**0.006**	-	-	-	< 0.001	-	**0.001**	< 0.05	-	**0.006**	-
BH13	22-Feb-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.11**	< 0.001	**0.003**	< 0.0001
	14-Mar-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.25**	< 0.001	**0.005**	< 0.0001
	23-Apr-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.01**	< 0.001	**0.004**	< 0.0001
	16-May-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 3
Groundwater - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001
MW239S	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.8**	< 0.001	**0.003**	< 0.0001
	16-Jul-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001
	15-Aug-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.0**	< 0.001	**0.004**	< 0.0001
	16-Sep-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.94**	< 0.001	**0.006**	< 0.0001
	15-Oct-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.003**	-	< 0.001	**0.004**	< 0.0001
	18-Nov-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.1**	< 0.001	**0.004**	< 0.0001
	16-Sep-20	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.51**	< 0.001	**0.008**	< 0.0001
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.17**	< 0.001	**0.009**	< 0.0001
	16-Nov-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.3**	< 0.001	**0.011**	< 0.0001
	16-Dec-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.06**	< 0.001	**0.011**	< 0.0001
	14-Jan-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.005**	**0.77**	< 0.001	**0.012**	< 0.0001
	16-Feb-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	**0.01**	**0.92**	< 0.001	**0.012**	< 0.0001
	17-Mar-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.95**	< 0.001	**0.01**	< 0.0001
	19-Aug-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.53**	< 0.001	**0.006**	< 0.0001
	22-Sep-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001
	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.79**	< 0.001	**0.008**	< 0.0001
	16-Nov-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.68**	< 0.001	**0.006**	< 0.0001
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.77**	-	**0.005**	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.003**	-
	24-Feb-22	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.005**	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.93**	-	**0.007**	-
	27-May-22	< 0.001	**0.004**	-	-	-	**0.002**	-	< 0.001	**0.56**	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.36**	-	**0.004**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.43**	-	**0.004**	-
	12-Aug-22	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.4**	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.006**	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.38**	-	**0.004**	-
	18-Nov-22	< 0.001	**0.003**	-	-	-	**0.001**	< 0.001	< 0.001	**0.28**	-	**0.002**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.26**	-	**0.003**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.003**	-
	15-Feb-23	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.17**	< 0.001	**0.004**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.004**	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.27**	< 0.001	**0.004**	< 0.0001
	16-May-23	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.21**	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.004**	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.25**	-	**0.005**	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.28**	-	**0.004**	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 3
Groundwater - Dissolved Metals

Analyte	Metals											
	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR	0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater	0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001

Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Williamtown Sand Syndicate
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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
Sample Name	Sample Date				
BH1	15-Mar-19	< 0.001	< 0.01	< 0.01	**1.27**
	23-Apr-19	**0.002**	< 0.01	< 0.01	**0.363**
	16-May-19	**0.002**	< 0.01	< 0.01	**0.132**
	14-Jun-19	< 0.001	< 0.01	< 0.01	**0.074**
	16-Jul-19	**0.001**	< 0.01	< 0.01	**0.116**
	15-Aug-19	< 0.001	< 0.01	< 0.01	**0.023**
	16-Sep-19	< 0.001	< 0.01	< 0.01	**0.034**
	15-Oct-19	< 0.001	< 0.01	< 0.01	**0.037**
	18-Nov-19	**0.001**	< 0.01	< 0.01	**0.012**
	16-Sep-20	< 0.001	< 0.01	< 0.01	**0.016**
	16-Oct-20	< 0.001	< 0.01	< 0.01	**0.017**
	16-Nov-20	< 0.001	< 0.01	< 0.01	**0.045**
	16-Dec-20	**0.001**	< 0.01	< 0.01	**0.077**
	14-Jan-21	< 0.001	< 0.01	< 0.01	**0.032**
	16-Feb-21	< 0.001	< 0.01	< 0.01	**0.652**
	17-Mar-21	< 0.001	< 0.01	< 0.01	**0.596**
	24-Feb-22	< 0.001	< 0.01	< 0.01	**0.106**
BH1A	15-Feb-23	< 0.001	< 0.01	< 0.01	**0.013**
	14-Aug-23	< 0.001	-	-	**0.015**
BH2	22-Feb-19	**0.015**	< 0.01	< 0.01	**0.006**
	15-Mar-19	< 0.001	< 0.01	< 0.01	< 0.005
	23-Apr-19	**0.001**	< 0.01	< 0.01	**0.008**
	16-May-19	**0.001**	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	< 0.01	< 0.01	< 0.005
	16-Jul-19	**0.001**	< 0.01	< 0.01	**0.006**
	15-Aug-19	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-19	**0.001**	< 0.01	< 0.01	**0.007**
	15-Oct-19	< 0.001	< 0.01	< 0.01	**0.007**
	18-Nov-19	**0.007**	< 0.01	< 0.01	**0.028**
	16-Sep-20	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-20	< 0.001	< 0.01	< 0.01	**0.018**
	16-Dec-20	< 0.001	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	< 0.01	< 0.01	< 0.005
	16-Feb-21	**0.007**	< 0.01	< 0.01	**0.017**
	17-Mar-21	< 0.001	< 0.01	< 0.01	**0.006**
	19-Aug-21	< 0.001	-	-	< 0.005
	22-Sep-21	-	-	-	-
	13-Oct-21	-	-	-	-
	16-Nov-21	< 0.001	-	-	< 0.005
	15-Dec-21	-	-	-	-
	18-Jan-22	-	-	-	-

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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
	24-Feb-22	< 0.001	< 0.01	< 0.01	< 0.005
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	27-May-22	< 0.001	-	-	**0.005**
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	12-Aug-22	**0.001**	-	-	**0.169**
	16-Sep-22	-	-	-	**0.125**
	24-Oct-22	-	-	-	**0.086**
	18-Nov-22	< 0.001	-	-	**0.086**
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
	15-Feb-23	**0.001**	< 0.01	< 0.01	**0.048**
	15-Mar-23	-	-	-	-
	18-Apr-23	**0.003**	< 0.01	< 0.01	**0.039**
	16-May-23	**0.001**	-	-	**0.05**
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	< 0.001	-	-	**0.164**
BH3	21-Feb-19	**0.053**	< 0.01	< 0.01	< 0.005
BH4	21-Feb-19	**0.018**	< 0.01	< 0.01	**0.014**
	15-Mar-19	**0.022**	< 0.01	< 0.01	**0.043**
	23-Apr-19	**0.007**	< 0.01	< 0.01	**0.008**
	16-May-19	**0.022**	< 0.01	< 0.01	**0.011**
	14-Jun-19	< 0.001	< 0.01	< 0.01	**0.005**
	16-Jul-19	< 0.001	< 0.01	< 0.01	**0.007**
	15-Aug-19	**0.001**	< 0.01	< 0.01	**0.007**
	16-Sep-19	**0.002**	< 0.01	< 0.01	**0.005**
	15-Oct-19	**0.002**	< 0.01	< 0.01	**0.014**
	18-Nov-19	**0.001**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	**0.001**	< 0.01	< 0.01	**0.018**
	16-Nov-20	**0.001**	< 0.01	< 0.01	**0.005**
	16-Dec-20	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jan-21	**0.002**	< 0.01	< 0.01	**0.006**
	16-Feb-21	**0.003**	< 0.01	< 0.01	**0.008**
	17-Mar-21	**0.002**	< 0.01	< 0.01	**0.019**
	19-Aug-21	**0.001**	< 0.01	< 0.01	**0.013**
	22-Sep-21	< 0.001	< 0.01	< 0.01	**0.006**
	13-Oct-21	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-21	**0.001**	< 0.01	< 0.01	**0.006**
	15-Dec-21	-	-	-	-
	18-Jan-22	-	-	-	-

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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
	24-Feb-22	< 0.001	< 0.01	< 0.01	**0.008**
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	27-May-22	< 0.001	-	-	< 0.005
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	12-Aug-22	< 0.001	-	-	**0.013**
	16-Sep-22	-	-	-	-
	24-Oct-22	-	-	-	-
	18-Nov-22	< 0.001	-	-	**0.011**
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
	15-Feb-23	< 0.001	< 0.01	< 0.01	**0.015**
	15-Mar-23	-	-	-	-
	18-Apr-23	< 0.001	< 0.01	< 0.01	**0.008**
	16-May-23	< 0.001	-	-	**0.017**
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	< 0.001	-	-	**0.028**
BH5	22-Feb-19	**0.003**	< 0.01	< 0.01	**0.008**
	24-Feb-22	**0.002**	< 0.01	< 0.01	< 0.005
	15-Feb-23	**0.002**	< 0.01	< 0.01	**0.018**
	22-Feb-19	**0.001**	< 0.01	< 0.01	**0.019**
	14-Mar-19	< 0.001	< 0.01	< 0.01	**0.012**
	23-Apr-19	< 0.001	< 0.01	< 0.01	**0.022**
	16-May-19	< 0.001	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	< 0.01	< 0.01	**0.008**
	16-Jul-19	< 0.001	< 0.01	< 0.01	**0.005**
	15-Aug-19	< 0.001	< 0.01	< 0.01	**0.007**
	16-Sep-19	**0.007**	< 0.01	< 0.01	**0.035**
	15-Oct-19	< 0.001	< 0.01	< 0.01	**0.006**
	18-Nov-19	**0.008**	< 0.01	< 0.01	**0.073**
	16-Sep-20	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	< 0.01	< 0.01	**0.007**
	16-Nov-20	< 0.001	< 0.01	< 0.01	**0.01**
	16-Dec-20	< 0.001	< 0.01	< 0.01	**0.007**
	14-Jan-21	**0.002**	< 0.01	< 0.01	**0.025**
	16-Feb-21	**0.002**	< 0.01	< 0.01	**0.012**
	17-Mar-21	< 0.001	< 0.01	< 0.01	**0.006**
	19-Aug-21	< 0.001	< 0.01	< 0.01	< 0.005
	22-Sep-21	< 0.001	< 0.01	< 0.01	< 0.005
	13-Oct-21	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-21	< 0.001	< 0.01	< 0.01	< 0.005
BH6					

Williamtown Sand Syndicate
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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
BH6	15-Dec-21	-	-	-	-
	18-Jan-22	-	-	-	-
	24-Feb-22	< 0.001	< 0.01	< 0.01	**0.031**
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	27-May-22	< 0.001	-	-	< 0.005
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	12-Aug-22	< 0.001	-	-	**0.008**
	16-Sep-22	-	-	-	-
	24-Oct-22	-	-	-	-
	18-Nov-22	**0.002**	-	-	**0.005**
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
	15-Feb-23	< 0.001	< 0.01	< 0.01	**0.032**
	15-Mar-23	-	-	-	-
	18-Apr-23	< 0.001	< 0.01	< 0.01	< 0.005
	16-May-23	< 0.001	-	-	**0.024**
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	< 0.001	-	-	**0.062**
BH7	22-Feb-19	**0.004**	< 0.01	< 0.01	**0.019**
	14-Mar-19	**0.004**	< 0.01	< 0.01	**0.009**
	23-Apr-19	**0.004**	< 0.01	< 0.01	**0.01**
	16-May-19	**0.005**	< 0.01	< 0.01	**0.013**
	14-Jun-19	**0.004**	< 0.01	< 0.01	**0.006**
	16-Jul-19	**0.003**	< 0.01	< 0.01	< 0.005
	15-Aug-19	**0.003**	< 0.01	< 0.01	< 0.005
	16-Sep-19	**0.02**	< 0.01	< 0.01	**0.085**
	15-Oct-19	**0.003**	< 0.01	< 0.01	**0.011**
	18-Nov-19	**0.013**	< 0.01	< 0.01	**0.053**
	16-Sep-20	**0.003**	< 0.01	< 0.01	**0.006**
	16-Oct-20	**0.003**	< 0.01	< 0.01	**0.015**
	16-Nov-20	**0.003**	< 0.01	< 0.01	**0.006**
	16-Dec-20	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jan-21	**0.004**	< 0.01	< 0.01	**0.017**
	16-Feb-21	**0.004**	< 0.01	< 0.01	**0.013**
	17-Mar-21	**0.005**	< 0.01	< 0.01	< 0.005
	19-Aug-21	**0.002**	< 0.01	< 0.01	**0.006**
	22-Sep-21	**0.002**	< 0.01	< 0.01	< 0.005
	13-Oct-21	**0.002**	< 0.01	< 0.01	< 0.005
	16-Nov-21	**0.002**	< 0.01	< 0.01	**0.007**
	15-Dec-21	-	-	-	-

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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
BH8	18-Jan-22	-	-	-	-
	24-Feb-22	**0.002**	< 0.01	< 0.01	< 0.005
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	27-May-22	**0.002**	-	-	**0.005**
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	12-Aug-22	**0.002**	-	-	< 0.005
	16-Sep-22	-	-	-	-
	24-Oct-22	-	-	-	-
	18-Nov-22	**0.001**	-	-	**0.009**
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
	15-Feb-23	**0.001**	< 0.01	< 0.01	**0.011**
	15-Mar-23	-	-	-	-
	18-Apr-23	**0.002**	< 0.01	< 0.01	**0.011**
	16-May-23	**0.002**	-	-	**0.025**
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	**0.002**	-	-	**0.024**
	21-Feb-19	**0.002**	< 0.01	< 0.01	**0.005**
	14-Mar-19	**0.002**	< 0.01	< 0.01	< 0.005
	23-Apr-19	**0.002**	< 0.01	< 0.01	**0.008**
	16-May-19	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jun-19	**0.002**	< 0.01	< 0.01	**0.006**
	16-Jul-19	**0.002**	< 0.01	< 0.01	< 0.005
	15-Aug-19	**0.001**	< 0.01	< 0.01	< 0.005
	16-Sep-19	**0.002**	< 0.01	< 0.01	< 0.005
	15-Oct-19	**0.002**	< 0.01	< 0.01	**0.011**
	18-Nov-19	**0.013**	< 0.01	< 0.01	**0.053**
	16-Sep-20	**0.009**	< 0.01	< 0.01	**0.039**
	16-Oct-20	**0.002**	< 0.01	< 0.01	**0.012**
	16-Nov-20	**0.002**	< 0.01	< 0.01	< 0.005
	16-Dec-20	**0.001**	< 0.01	< 0.01	< 0.005
	14-Jan-21	**0.005**	< 0.01	< 0.01	**0.009**
	16-Feb-21	**0.006**	< 0.01	< 0.01	**0.013**
	17-Mar-21	**0.002**	< 0.01	< 0.01	< 0.005
	19-Aug-21	**0.002**	-	-	< 0.005
	16-Nov-21	**0.002**	-	-	< 0.005
	16-Dec-21	-	-	-	-
	24-Feb-22	**0.002**	< 0.01	< 0.01	**0.012**
	27-May-22	**0.001**	-	-	< 0.005
	12-Aug-22	**0.001**	-	-	**0.007**

Williamtown Sand Syndicate
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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
	18-Nov-22	< 0.001	-	-	**0.008**
	15-Feb-23	**0.001**	< 0.01	< 0.01	**0.034**
	16-May-23	**0.001**	-	-	**0.015**
	14-Aug-23	**0.001**	-	-	**0.024**
BH9	16-Nov-21	-	-	-	-
BH9A	16-Sep-20	**0.002**	< 0.01	< 0.01	**0.02**
	16-Oct-20	**0.003**	< 0.01	< 0.01	**0.016**
	16-Nov-20	**0.002**	< 0.01	< 0.01	**0.011**
	16-Dec-20	**0.002**	< 0.01	< 0.01	**0.006**
	14-Jan-21	**0.004**	< 0.01	< 0.01	**0.011**
	16-Feb-21	**0.003**	< 0.01	< 0.01	**0.006**
	17-Mar-21	**0.002**	< 0.01	< 0.01	**0.01**
	19-Aug-21	**0.003**	< 0.01	< 0.01	**0.006**
	22-Sep-21	**0.003**	< 0.01	< 0.01	< 0.005
	13-Oct-21	**0.003**	< 0.01	< 0.01	**0.021**
	16-Nov-21	**0.003**	< 0.01	< 0.01	**0.031**
	15-Dec-21	-	-	-	-
	18-Jan-22	-	-	-	-
	24-Feb-22	**0.004**	< 0.01	< 0.01	**0.006**
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	27-May-22	**0.003**	-	-	< 0.005
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	12-Aug-22	**0.004**	-	-	**0.008**
	16-Sep-22	-	-	-	-
	24-Oct-22	-	-	-	-
	18-Nov-22	**0.002**	-	-	**0.012**
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
	15-Feb-23	**0.003**	< 0.01	< 0.01	**0.015**
	15-Mar-23	-	-	-	-
	18-Apr-23	**0.004**	< 0.01	< 0.01	**0.038**
	16-May-23	**0.002**	-	-	**0.029**
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	**0.003**	-	-	**0.038**
	21-Feb-19	**0.005**	< 0.01	< 0.01	**0.031**
	15-Mar-19	**0.037**	< 0.01	< 0.01	**0.016**
	23-Apr-19	**0.07**	< 0.01	< 0.01	**0.04**
	16-May-19	**0.004**	< 0.01	< 0.01	**0.024**
	14-Jun-19	**0.001**	< 0.01	< 0.01	**0.005**
	16-Jul-19	**0.004**	< 0.01	< 0.01	**0.007**

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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
BH11	15-Aug-19	**0.001**	< 0.01	< 0.01	**0.005**
	16-Sep-19	**0.002**	< 0.01	< 0.01	**0.012**
	15-Oct-19	**0.003**	< 0.01	< 0.01	**0.016**
	18-Nov-19	**0.002**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	< 0.01	< 0.01	**0.009**
	16-Oct-20	**0.002**	< 0.01	< 0.01	**0.01**
	16-Nov-20	**0.002**	< 0.01	< 0.01	**0.016**
	16-Dec-20	**0.002**	< 0.01	< 0.01	**0.008**
	14-Jan-21	**0.004**	< 0.01	< 0.01	**0.018**
	16-Feb-21	**0.007**	< 0.01	< 0.01	**0.03**
	17-Mar-21	**0.003**	< 0.01	< 0.01	**0.014**
	19-Aug-21	**0.004**	< 0.01	< 0.01	**0.047**
	22-Sep-21	**0.004**	< 0.01	< 0.01	**0.042**
	13-Oct-21	**0.002**	< 0.01	< 0.01	**0.037**
	16-Nov-21	**0.004**	< 0.01	< 0.01	**0.036**
	15-Dec-21	-	-	-	-
	18-Jan-22	-	-	-	-
	24-Feb-22	**0.004**	< 0.01	< 0.01	**0.036**
	06-Mar-22	**0.002**	-	-	**0.028**
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	16-Sep-22	-	-	-	-
	24-Oct-22	-	-	-	-
	18-Nov-22	**0.003**	-	-	**0.042**
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
	15-Feb-23	**0.005**	< 0.01	< 0.01	**0.076**
	15-Mar-23	-	-	-	-
	18-Apr-23	**0.002**	< 0.01	< 0.01	**0.029**
	16-May-23	**0.003**	-	-	**0.065**
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	**0.002**	-	-	**0.081**
BH12	16-Nov-20	**0.002**	-	-	**0.017**
	24-Feb-22	< 0.001	< 0.01	< 0.01	< 0.005
BH12A	15-Feb-23	< 0.001	< 0.01	< 0.01	**0.015**
	14-Aug-23	< 0.001	-	-	**0.025**
	22-Feb-19	**0.001**	< 0.01	< 0.01	**0.006**
	14-Mar-19	**0.005**	< 0.01	< 0.01	**0.008**
	23-Apr-19	**0.004**	< 0.01	< 0.01	**0.007**
	16-May-19	**0.002**	< 0.01	< 0.01	< 0.005

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Table 3
Groundwater - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.02	0.01	0.01	0.085
MW239S	14-Jun-19	**0.001**	< 0.01	< 0.01	< 0.005
	16-Jul-19	**0.002**	< 0.01	< 0.01	< 0.005
	15-Aug-19	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-19	**0.006**	< 0.01	< 0.01	**0.032**
	15-Oct-19	**0.002**	< 0.01	< 0.01	**0.011**
	18-Nov-19	**0.008**	< 0.01	< 0.01	**0.03**
	16-Sep-20	**0.002**	< 0.01	< 0.01	**0.006**
	16-Oct-20	**0.002**	< 0.01	< 0.01	**0.005**
	16-Nov-20	**0.003**	< 0.01	< 0.01	**0.021**
	16-Dec-20	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jan-21	**0.004**	< 0.01	< 0.01	**0.011**
	16-Feb-21	**0.009**	< 0.01	< 0.01	**0.014**
	17-Mar-21	**0.004**	< 0.01	< 0.01	**0.009**
	19-Aug-21	**0.002**	< 0.01	< 0.01	< 0.005
	22-Sep-21	**0.001**	< 0.01	< 0.01	**0.005**
	13-Oct-21	**0.002**	< 0.01	< 0.01	**0.016**
	16-Nov-21	**0.002**	< 0.01	< 0.01	**0.01**
	15-Dec-21	-	-	-	-
	18-Jan-22	-	-	-	-
	24-Feb-22	**0.002**	< 0.01	< 0.01	**0.006**
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	27-May-22	**0.001**	-	-	**0.009**
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	12-Aug-22	**0.001**	-	-	< 0.005
	16-Sep-22	-	-	-	-
	24-Oct-22	-	-	-	-
	18-Nov-22	**0.002**	-	-	**0.006**
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
	15-Feb-23	**0.001**	< 0.01	< 0.01	**0.019**
	15-Mar-23	-	-	-	-
	18-Apr-23	< 0.001	< 0.01	< 0.01	**0.006**
	16-May-23	**0.002**	-	-	**0.027**
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	**0.001**	-	-	**0.013**

Notes:
- - Not analysed
< - Less than laboratory limit of report
mg/L - Milligrams per litre

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Table 3
Groundwater - Dissolved Metals

Analyte				
	Nickel	Selenium	Vanadium	Zinc
LOR	0.001	0.01	0.01	0.005
Units	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater	0.02	0.01	0.01	0.085

Bold indicates a detection above the
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

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Table 4
Groundwater - PFAS

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl C
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
BH1	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH1A	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH2	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH3	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH4	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

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Table 4
Groundwater - PFAS

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl C
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
BH5	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jun-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH6	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

Williamtown Sand Syndicate
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Table 4
Groundwater - PFAS

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl C
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
BH7	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH8	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

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Table 4
Groundwater - PFAS

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl C
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH9A	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH11	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	06-Mar-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH12	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
BH12A	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

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Table 4
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Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl C
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--
MW239S	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 4
Groundwater - PFAS

Analyte		Carboxylic Acids		Perfluoroalkyl Carboxylic Acids							Perfluoroalkyl Sulfonic Acids
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	0.56	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
BH1	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH1A	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH2	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH3	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH4	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Mar-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 4
Groundwater - PFAS

Analyte		Carboxylic Acids		Perfluoroalkyl Carboxylic Acids							Perfluoroalkyl Sulfonic Acids
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	0.56	--	--	--	--	--	--	--	--
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH6	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jun-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH5	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH6	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Mar-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Mar-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

Williamtown Sand Syndicate
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Table 4
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Analyte		Carboxylic Acids		Perfluoroalkyl Carboxylic Acids							Perfluoroalkyl Sulfonic Acids
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	0.56	--	--	--	--	--	--	--	--
BH7	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH8	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Mar-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

Williamtown Sand Syndicate
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Table 4
Groundwater - PFAS

Analyte		Carboxylic Acids		Perfluoroalkyl Carboxylic Acids							Perfluoroalkyl Sulfonic Acids
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	0.56	--	--	--	--	--	--	--	--
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH9A	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH11	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	06-Mar-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH12	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
BH12A	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

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Table 4
Groundwater - PFAS

Analyte		Carboxylic Acids		Perfluoroalkyl Carboxylic Acids							Perfluoroalkyl Sulfonic Acids
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	0.56	--	--	--	--	--	--	--	--
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
MW239S	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
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Table 4
Groundwater - PFAS

KLEINFELDER
Bright People. Right Solutions.

Analyte				Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	
		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	0.07
Sample Name	Sample Date										
BH1	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH1A	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH2	22-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH3	21-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH4	21-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Mar-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	23-Apr-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jun-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Jul-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Aug-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-19	-	< 0.02	< 0.02	< 0.01	**0.02**	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Oct-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.15**	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.06**	< 0.05	< 0.05	< 0.01

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Table 4
Groundwater - PFAS

Analyte				Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	
		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	0.07
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.05**	< 0.05	< 0.05	< 0.01
	14-Jun-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH5	22-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH6	22-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Mar-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	23-Apr-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jun-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Jul-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Aug-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Oct-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Mar-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	23-Apr-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jun-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Jul-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Aug-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

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Table 4
Groundwater - PFAS

Analyte				Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	
		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	0.07
BH7	16-Sep-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Oct-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH8	21-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Mar-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	23-Apr-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jun-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Jul-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Aug-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Oct-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

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Table 4
Groundwater - PFAS

Analyte		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroalkyl Sulfonic Acids: Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	(n:2) Fluorotelomer Sulfonic Acids: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	0.07
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH9A	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	13-Oct-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH11	21-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	13-Oct-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	06-Mar-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
BH12	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.07**	< 0.05	< 0.05	< 0.01
BH12A	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

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Table 4
Groundwater - PFAS

Analyte		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroalkyl Sulfonic Acids Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	(n:2) Fluorotelomer Sulfonic Acids 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	0.07
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
MW239S	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	13-Oct-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

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Table 4
Groundwater - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
WSS - Groundwater		--	--
Sample Name	Sample Date		
BH1	17-Mar-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
BH1A	15-Feb-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
BH2	22-Feb-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
BH3	21-Feb-19	< 0.01	< 0.01
BH4	21-Feb-19	< 0.01	< 0.01
	15-Mar-19	< 0.01	< 0.01
	23-Apr-19	< 0.01	< 0.01
	16-May-19	< 0.01	< 0.01
	14-Jun-19	< 0.01	< 0.01
	16-Jul-19	< 0.01	< 0.01
	15-Aug-19	< 0.01	< 0.01
	16-Sep-19	< 0.01	**0.02**
	15-Oct-19	< 0.01	< 0.01
	18-Nov-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	16-Nov-21	**0.15**	**0.15**
	24-Feb-22	**0.06**	**0.06**

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Table 4
Groundwater - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
WSS - Groundwater		--	--
	27-May-22	< 0.01	< 0.01
BH6	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	**0.05**	**0.05**
	14-Jun-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
BH5	22-Feb-19	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
BH6	22-Feb-19	< 0.01	< 0.01
	14-Mar-19	< 0.01	< 0.01
	23-Apr-19	< 0.01	< 0.01
	16-May-19	< 0.01	< 0.01
	14-Jun-19	< 0.01	< 0.01
	16-Jul-19	< 0.01	< 0.01
	15-Aug-19	< 0.01	< 0.01
	16-Sep-19	< 0.01	< 0.01
	15-Oct-19	< 0.01	< 0.01
	18-Nov-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
	22-Feb-19	< 0.01	< 0.01
	14-Mar-19	< 0.01	< 0.01
	23-Apr-19	< 0.01	< 0.01
	16-May-19	< 0.01	< 0.01
	14-Jun-19	< 0.01	< 0.01
	16-Jul-19	< 0.01	< 0.01
	15-Aug-19	< 0.01	< 0.01

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Table 4
Groundwater - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
WSS - Groundwater		--	--
	16-Sep-19	< 0.01	< 0.01
BH7	15-Oct-19	< 0.01	< 0.01
	18-Nov-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
BH8	21-Feb-19	< 0.01	< 0.01
	14-Mar-19	< 0.01	< 0.01
	23-Apr-19	< 0.01	< 0.01
	16-May-19	< 0.01	< 0.01
	14-Jun-19	< 0.01	< 0.01
	16-Jul-19	< 0.01	< 0.01
	15-Aug-19	< 0.01	< 0.01
	16-Sep-19	< 0.01	< 0.01
	15-Oct-19	< 0.01	< 0.01
	18-Nov-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01

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Table 4
Groundwater - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
WSS - Groundwater		--	--
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
BH9A	16-Oct-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	22-Sep-21	< 0.01	< 0.01
	13-Oct-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
BH11	21-Feb-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	22-Sep-21	< 0.01	< 0.01
	13-Oct-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	06-Mar-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
BH12	24-Feb-22	**0.07**	**0.07**
BH12A	15-Feb-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
	22-Feb-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01

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Table 4
Groundwater - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
WSS - Groundwater		--	--
	16-Dec-20	< 0.01	< 0.01
MW239S	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	22-Sep-21	< 0.01	< 0.01
	13-Oct-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

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Table 5
Surface water - Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date												
SW1	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
SW2	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-

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Table 5
Surface water - Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--
SW3	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	**2.0**	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	**2.0**	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
SW4	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-

Notes:
- - Not analysed

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 5
Surface water - Hydrocarbons

Analyte	BTEXN								Total Petroleum Hydrocarbons			
	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}
LOR	1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water	--	--	--	--	--	--	--	--	--	--	--	--

< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 5
Surface water - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up				Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}
LOR		50	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	20	20	100	--	100	100
Sample Name	Sample Date											
SW1	23-Apr-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
SW2	17-Mar-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Sep-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	13-Oct-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	22-Feb-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Mar-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	23-Apr-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-

Williamtown Sand Syndicate
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Table 5
Surface water - Hydrocarbons

Analyte			Total Petroleum Hydrocarbons - Silica Clean-up				Total Recoverable Hydrocarbons					
		C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}
LOR		50	50	100	50	50	20	20	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	20	20	100	--	100	100
SW3	15-Oct-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
SW4	23-Apr-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-May-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	14-Jun-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Jul-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Aug-19	< 50	-	-	-	-	< 20	< 20	< 100	< 100	< 100	< 100
	16-Sep-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Oct-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-19	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Sep-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Oct-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Dec-20	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Jan-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Feb-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	17-Mar-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	19-Aug-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-Nov-21	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	24-Feb-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	27-May-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	12-Aug-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	18-Nov-22	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	15-Feb-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	16-May-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-
	14-Aug-23	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-	-	-

Notes:
- - Not analysed

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 5
Surface water - Hydrocarbons

Analyte		Total Petroleum Hydrocarbons - Silica Clean-up				Total Recoverable Hydrocarbons					
	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup	C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}
LOR	50	50	100	50	50	20	20	100	100	100	100
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water	--	--	--	--	--	20	20	100	--	100	100

< - Less than laboratory limit of repor
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 5
Surface water - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--
Sample Name	Sample Date						
SW1	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
SW2	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
	22-Feb-19	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
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Table 5
Surface water - Hydrocarbons

Analyte			Total Recoverable Hydrocarbons - Silica Clean-up				
		$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--
SW3	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100
SW4	23-Apr-19	< 100	-	-	-	-	-
	16-May-19	< 100	-	-	-	-	-
	14-Jun-19	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	-	-	-	-	-
	16-Sep-19	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	-	< 100	< 100	< 100	< 100	< 100

Notes:
- - Not analysed

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Table 5
Surface water - Hydrocarbons

Analyte		Total Recoverable Hydrocarbons - Silica Clean-up				
	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR	100	100	100	100	100	100
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water	--	--	--	--	--	--

< - Less than laboratory limit of repor
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
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Table 6
Surface water - Cations Anions and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Sulphate	Sulphate	Chloride	Chloride	Chloride	Fluoride	Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	1.0	10	5.0	0.1	0.01
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		142	40	52	8.0	324	324	324	234	234	234	0.8	--
Sample Name	Sample Date												
SW1	23-Apr-19	**94**	**34**	**52**	**6.0**	**310**	-	-	**95**	-	-	**0.5**	-
	16-May-19	**86**	**24**	**42**	**6.0**	**324**	-	-	**112**	-	-	**0.3**	-
	14-Jun-19	**77**	**20**	**34**	**5.0**	-	**182**	-	-	**112**	-	**0.4**	-
	16-Jul-19	**90**	**20**	**35**	**4.0**	**240**	-	-	**130**	-	-	**0.4**	-
	15-Aug-19	**97**	**18**	**32**	**4.0**	**212**	-	-	**134**	-	-	**0.4**	-
	16-Sep-19	**117**	**21**	**39**	**4.0**	**244**	-	-	**193**	-	-	**0.7**	-
	15-Oct-19	**124**	**16**	**31**	**3.0**	-	-	**127**	-	-	**191**	**0.6**	-
	18-Nov-19	**142**	**14**	**30**	**4.0**	**165**	-	-	**234**	-	-	**0.5**	**0.02**
	16-Sep-20	**9.0**	**16**	**3.0**	**3.0**	< 1.0	-	-	< 1.0	-	-	**0.1**	-
	16-Oct-20	**12**	**40**	**4.0**	**4.0**	< 1.0	-	-	**16**	-	-	**0.2**	-
	16-Nov-20	**8.0**	**13**	**2.0**	**3.0**	< 1.0	-	-	**10**	-	-	< 0.1	-
	16-Dec-20	**10**	**19**	**2.0**	**3.0**	**5.0**	-	-	**12**	-	-	**0.1**	-
	14-Jan-21	**10**	**18**	**2.0**	**3.0**	< 1.0	-	-	**13**	-	-	**0.1**	-
	16-Feb-21	**10**	**15**	**2.0**	**3.0**	< 1.0	-	-	**12**	-	-	**0.1**	-
	17-Mar-21	**10**	**15**	**2.0**	**2.0**	< 1.0	-	-	**13**	-	-	**0.1**	-
	19-Aug-21	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	24-Feb-22	**6.0**	**9.0**	**2.0**	**2.0**	< 1.0	-	-	**10**	-	-	< 0.1	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**15**	**10**	**2.0**	< 1.0	**6.0**	-	-	**22**	-	-	**0.1**	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-
SW2	17-Mar-21	**12**	**2.0**	**2.0**	< 1.0	**6.0**	-	-	**16**	-	-	**0.2**	-
	19-Aug-21	**12**	< 1.0	**1.0**	< 1.0	**6.0**	-	-	**22**	-	-	< 0.1	-
	22-Sep-21	**14**	**2.0**	**2.0**	**2.0**	**16**	-	-	**30**	-	-	**0.1**	-
	13-Oct-21	**10**	< 1.0	**1.0**	< 1.0	**6.0**	-	-	**18**	-	-	< 0.1	-
	16-Nov-21	**10**	**2.0**	**2.0**	< 1.0	**7.0**	-	-	**16**	-	-	**0.1**	-
	24-Feb-22	**10**	**1.0**	**1.0**	< 1.0	**2.0**	-	-	**21**	-	-	**0.1**	-
	17-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	< 1.0	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**14**	**2.0**	**3.0**	< 1.0	**6.0**	-	-	**36**	-	-	**0.4**	-
	16-May-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	22-Feb-19	**40**	**4.0**	**4.0**	**1.0**	**16**	-	-	**82**	-	-	< 0.1	-
	14-Mar-19	**45**	**6.0**	**6.0**	**2.0**	**44**	-	-	**64**	-	-	< 0.1	-
	23-Apr-19	**37**	**8.0**	**6.0**	**1.0**	**42**	-	-	**53**	-	-	< 0.1	-
	16-May-19	**35**	**7.0**	**5.0**	< 1.0	**34**	-	-	**54**	-	-	< 0.1	-
	14-Jun-19	**32**	**7.0**	**6.0**	< 1.0	**41**	-	-	**55**	-	-	< 0.1	-
	16-Jul-19	**46**	**8.0**	**12**	< 1.0	**104**	-	-	**57**	-	-	**0.2**	-

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Table 6
Surface water - Cations Anions and Inorganics

Analyte		Anions and Cations											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Sulphate	Sulphate	Chloride	Chloride	Chloride	Fluoride	Phosphorus
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	1.0	10	5.0	0.1	0.01
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		142	40	52	8.0	324	324	324	234	234	234	0.8	--
SW3	15-Aug-19	**38**	**6.0**	**7.0**	< 1.0	**54**	-	-	**56**	-	-	**0.1**	-
	16-Sep-19	**42**	**7.0**	**8.0**	< 1.0	**48**	-	-	**57**	-	-	**0.1**	-
	15-Oct-19	**40**	**5.0**	**7.0**	< 1.0	**42**	-	-	**57**	-	-	**0.2**	-
	18-Nov-19	**36**	**5.0**	**5.0**	< 1.0	**29**	-	-	**56**	-	-	< 0.1	**0.04**
	16-Sep-20	**39**	**3.0**	**8.0**	< 1.0	**65**	-	-	**55**	-	-	**0.1**	-
	16-Oct-20	**40**	**4.0**	**6.0**	< 1.0	**40**	-	-	**63**	-	-	< 0.1	-
	16-Nov-20	**34**	**2.0**	**5.0**	< 1.0	**67**	-	-	**53**	-	-	< 0.1	-
	16-Dec-20	**36**	**1.0**	**5.0**	**1.0**	**27**	-	-	**61**	-	-	< 0.1	-
	14-Jan-21	**27**	< 1.0	**2.0**	< 1.0	**26**	-	-	**54**	-	-	< 0.1	-
	16-Feb-21	**30**	**2.0**	**3.0**	< 1.0	**21**	-	-	**56**	-	-	< 0.1	-
	17-Mar-21	**29**	< 1.0	**2.0**	< 1.0	**15**	-	-	**51**	-	-	< 0.1	-
	19-Aug-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-
	24-Feb-22	**27**	< 1.0	**2.0**	< 1.0	**8.0**	-	-	**53**	-	-	< 0.1	-
	27-May-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**33**	< 1.0	**2.0**	**1.0**	**20**	-	-	**76**	-	-	< 0.1	-
	16-May-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-
SW4	23-Apr-19	**39**	**5.0**	**5.0**	< 1.0	**60**	-	-	**64**	-	-	**0.1**	-
	16-May-19	**41**	**5.0**	**5.0**	< 1.0	**41**	-	-	**59**	-	-	< 0.1	-
	14-Jun-19	**40**	**5.0**	**5.0**	< 1.0	**39**	-	-	**60**	-	-	< 0.1	-
	16-Jul-19	**46**	**7.0**	**7.0**	< 1.0	**67**	-	-	**56**	-	-	**0.2**	-
	15-Aug-19	**40**	**5.0**	**5.0**	< 1.0	**43**	-	-	**55**	-	-	**0.1**	-
	16-Sep-19	**45**	**7.0**	**6.0**	< 1.0	**45**	-	-	**58**	-	-	**0.1**	-
	15-Oct-19	**44**	**6.0**	**6.0**	< 1.0	**38**	-	-	**57**	-	-	**0.1**	-
	18-Nov-19	**41**	**4.0**	**5.0**	< 1.0	**41**	-	-	**64**	-	-	**0.2**	< 0.01
	16-Sep-20	**45**	**6.0**	**7.0**	< 1.0	**58**	-	-	**59**	-	-	**0.1**	-
	16-Oct-20	**43**	**5.0**	**5.0**	< 1.0	**40**	-	-	**67**	-	-	**0.1**	-
	16-Nov-20	**37**	**8.0**	**6.0**	**2.0**	**42**	-	-	**54**	-	-	**0.2**	-
	16-Dec-20	**43**	**4.0**	**4.0**	**2.0**	**24**	-	-	**70**	-	-	**0.2**	-
	14-Jan-21	**36**	**16**	**4.0**	**2.0**	**15**	-	-	**58**	-	-	**0.8**	-
	16-Feb-21	**37**	**6.0**	**4.0**	**2.0**	**14**	-	-	**61**	-	-	**0.3**	-
	17-Mar-21	**36**	**10**	**4.0**	**2.0**	**10**	-	-	**54**	-	-	**0.4**	-
	19-Aug-21	-	-	**4.0**	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**4.0**	-	-	-	-	-	-	-	-	-
	24-Feb-22	**35**	**3.0**	**4.0**	< 1.0	**27**	-	-	**63**	-	-	< 0.1	-
	27-May-22	-	-	**4.0**	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-
	15-Feb-23	**34**	**1.0**	**3.0**	< 1.0	**9.0**	-	-	**63**	-	-	< 0.1	-
	16-May-23	-	-	**4.0**	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**4.0**	-	-	-	-	-	-	-	-	-

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Table 6
Surface water - Cations Anions and Inorganics

Analyte	Anions and Cations											
	Sodium	Calcium	Magnesium	Potassium	Sulphate	Sulphate	Sulphate	Chloride	Chloride	Chloride	Fluoride	Phosphorus
LOR	1.0	1.0	1.0	1.0	1.0	10	5.0	1.0	10	5.0	0.1	0.01
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water	142	40	52	8.0	324	324	324	234	234	234	0.8	--

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Williamtown Sand Syndicate
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Table 6
Surface water - Cations Anions and Inorganics

Analyte											Anions and Cations	
		Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		--	0.17	--	--	--	--	--	--	0.2	5.9	--
Sample Name	Sample Date											
SW1	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	< 0.01	**0.13**	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	**1.8**	**1.8**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	< 0.01	**0.05**	-	< 0.01	-	**0.02**	**0.02**	< 0.01	-	**1.2**	**1.2**
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	< 0.01	-	-	< 0.01	< 0.01	-	< 0.01	-	**0.03**	**1.1**	**1.1**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	< 0.01	**0.03**	-	< 0.01	-	**0.04**	**0.04**	-	< 0.01	**0.6**	**0.6**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	< 0.01	**0.02**	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.5**	**0.5**
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	**0.11**	< 0.01	-	< 0.01	-	< 0.01	**0.02**	-	**1.0**	**1.0**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.06**	**0.06**	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	**1.1**	**1.1**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
SW2	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	< 0.01	**0.07**	-	< 0.01	-	< 0.01	< 0.01	-	**0.17**	**1.2**	**1.2**
	22-Sep-21	< 0.01	**0.08**	-	< 0.01	-	**1.77**	**1.77**	-	< 0.01	**3.0**	**1.2**
	13-Oct-21	< 0.01	**0.03**	-	< 0.01	-	**0.02**	**0.02**	-	< 0.01	**0.6**	**0.6**
	16-Nov-21	< 0.01	**0.09**	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**1.8**	**1.8**
	24-Feb-22	-	**0.63**	< 0.01	-	< 0.01	-	< 0.01	**0.31**	-	**7.5**	**7.5**
	17-Mar-22	-	< 0.01	-	-	-	-	**0.04**	-	**0.13**	**0.4**	**0.4**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.16**	-	< 0.01	-	< 0.01	< 0.01	-	**0.05**	**5.4**	**5.4**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
	22-Feb-19	< 0.01	**0.06**	-	< 0.01	-	< 0.01	< 0.01	**0.16**	-	**1.0**	**1.0**
	14-Mar-19	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	**0.1**	**0.1**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 6
Surface water - Cations Anions and Inorganics

Analyte		Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Anions and Cations: Total Nitrogen as N	Anions and Cations: Total Kjeldahl Nitrogen as N
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		--	0.17	--	--	--	--	--	--	0.2	5.9	--
SW3	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	**0.01**	-	**0.1**	**0.1**
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	< 0.01	-	-	< 0.01	**0.01**	-	**0.01**	-	**0.03**	**0.6**	**0.6**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.3**	**0.3**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.5**	**0.5**
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	**0.03**	< 0.01	-	< 0.01	-	< 0.01	**0.02**	-	**0.9**	**0.9**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	< 0.01	-	**0.02**	-	< 0.01	**0.02**	-	**0.21**	**2.8**	**2.8**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
SW4	23-Apr-19	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**0.01**	< 0.01	-	< 0.01	-	**0.05**	**0.05**	< 0.01	-	**0.2**	**0.2**
	14-Jun-19	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	< 0.01	**0.01**	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	**0.1**	**0.1**
	15-Oct-19	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	< 0.01	-	-	< 0.01	**0.02**	-	**0.02**	-	< 0.01	**0.2**	**0.2**
	16-Sep-20	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.1**	**0.1**
	16-Dec-20	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	< 0.01	**0.03**	-	< 0.01	-	< 0.01	< 0.01	-	**0.02**	**1.2**	**1.2**
	17-Mar-21	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	**0.3**	**0.3**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.02**	-	< 0.01	-	< 0.01	< 0.01	-	**0.04**	**0.7**	**0.7**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 6
Surface water - Cations Anions and Inorganics

Analyte										Anions and Cations	
	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water	--	0.17	--	--	--	--	--	--	0.2	5.9	--

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 6
Surface water - Cations Anions and Inorganics

Analyte					Anions and Cations		Alkalinity					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date											
SW1	23-Apr-19	**10**	**9.13**	**5.6**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**299**
	16-May-19	**8.94**	**9.9**	**5.13**	-	**2.45**	-	< 1.0	< 1.0	< 1.0	< 1.0	**233**
	14-Jun-19	**7.27**	**6.95**	**2.28**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**190**
	16-Jul-19	**7.9**	**8.66**	**4.64**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**194**
	15-Aug-19	**7.85**	**8.19**	**2.12**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**177**
	16-Sep-19	**9.45**	**11**	**5.38**	-	**3.49**	-	< 1.0	< 1.0	< 1.0	< 1.0	**213**
	15-Oct-19	**8.82**	**8.03**	**4.68**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**168**
	18-Nov-19	**9.45**	**10**	**3.03**	-	**4.91**	-	< 1.0	< 1.0	< 1.0	< 1.0	**158**
	16-Sep-20	**1.51**	**1.1**	-	-	-	-	**55**	< 1.0	< 1.0	**55**	**52**
	16-Oct-20	**2.95**	**2.69**	-	-	-	-	**112**	< 1.0	< 1.0	**112**	**116**
	16-Nov-20	**1.24**	**1.12**	-	-	**0.54**	-	**42**	< 1.0	< 1.0	**42**	**41**
	16-Dec-20	**1.62**	**1.68**	-	-	-	-	**62**	< 1.0	< 1.0	**62**	**56**
	14-Jan-21	**1.57**	**1.46**	-	-	-	-	**55**	< 1.0	< 1.0	**55**	**53**
	16-Feb-21	**1.42**	**1.36**	-	-	**0.64**	-	**51**	< 1.0	< 1.0	**51**	**46**
	17-Mar-21	**1.4**	**1.26**	-	-	-	-	**45**	< 1.0	< 1.0	**45**	**46**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.92**	**0.8**	-	-	-	**26**	-	< 1.0	< 1.0	**26**	**31**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**1.32**	**1.36**	-	-	**1.13**	-	**31**	< 1.0	< 1.0	**31**	**33**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
SW2	17-Mar-21	**0.79**	**0.58**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**
	19-Aug-21	**0.6**	**0.74**	-	-	**2.25**	-	< 1.0	< 1.0	< 1.0	< 1.0	**4.0**
	22-Sep-21	**0.92**	**1.18**	-	-	**1.67**	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**
	13-Oct-21	**0.52**	**0.63**	-	-	**1.88**	-	< 1.0	< 1.0	< 1.0	< 1.0	**4.0**
	16-Nov-21	**0.7**	**0.6**	-	-	**1.2**	-	< 1.0	< 1.0	< 1.0	< 1.0	-
	24-Feb-22	**0.57**	**0.63**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**7.0**
	17-Mar-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.96**	**1.14**	-	-	**1.46**	-	< 1.0	< 1.0	< 1.0	< 1.0	**17**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
	22-Feb-19	**2.55**	**2.87**	-	-	**3.38**	-	**11**	< 1.0	< 1.0	**11**	**26**
	14-Mar-19	**2.8**	**2.8**	-	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**	**40**
	23-Apr-19	**2.53**	**2.37**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**45**
	16-May-19	**2.28**	**2.25**	-	-	**2.47**	-	**1.0**	< 1.0	< 1.0	**1.0**	**38**
	14-Jun-19	**2.24**	**2.4**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**42**
	16-Jul-19	**3.39**	**3.77**	**5.38**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**69**

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 6
Surface water - Cations Anions and Inorganics

KLEINFELDER
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Analyte					Anions and Cations		Alkalinity					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--
SW3	15-Aug-19	**2.53**	**2.7**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**44**
	16-Sep-19	**2.83**	**2.61**	-	-	**2.57**	-	< 1.0	< 1.0	< 1.0	< 1.0	**50**
	15-Oct-19	**2.56**	**2.48**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**41**
	18-Nov-19	**2.23**	**2.18**	-	-	**2.72**	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**
	16-Sep-20	**3.12**	**2.9**	**3.5**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**40**
	16-Oct-20	**2.73**	**2.61**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**35**
	16-Nov-20	**2.6**	**2.89**	-	-	**2.92**	-	< 1.0	< 1.0	< 1.0	< 1.0	**26**
	16-Dec-20	**2.05**	**2.3**	-	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**	**23**
	14-Jan-21	**1.82**	**2.06**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**
	16-Feb-21	**1.65**	**2.02**	-	-	**3.13**	-	< 1.0	< 1.0	< 1.0	< 1.0	**17**
	17-Mar-21	**1.43**	**1.75**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**1.34**	**1.7**	-	-	-	**2.0**	-	< 1.0	< 1.0	**2.0**	**8.0**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**2.13**	**2.56**	-	-	**4.66**	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-
SW4	23-Apr-19	**2.36**	**3.05**	**13**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**
	16-May-19	**2.44**	**2.52**	-	-	**3.1**	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**
	14-Jun-19	**2.4**	**2.5**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**
	16-Jul-19	**2.93**	**2.97**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**46**
	15-Aug-19	**2.4**	**2.45**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**
	16-Sep-19	**2.8**	**2.57**	-	-	**3.01**	-	< 1.0	< 1.0	< 1.0	< 1.0	**42**
	15-Oct-19	**2.71**	**2.4**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**40**
	18-Nov-19	**2.76**	**2.66**	-	-	**3.22**	-	< 1.0	< 1.0	< 1.0	< 1.0	**30**
	16-Sep-20	**2.83**	**2.87**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**44**
	16-Oct-20	**2.53**	**2.72**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**
	16-Nov-20	**2.55**	**2.4**	-	-	**2.41**	-	< 1.0	< 1.0	< 1.0	< 1.0	**45**
	16-Dec-20	**2.45**	**2.79**	-	-	-	-	**16**	< 1.0	< 1.0	**16**	**26**
	14-Jan-21	**2.74**	**2.69**	-	-	-	-	**37**	< 1.0	< 1.0	**37**	**56**
	16-Feb-21	**2.29**	**2.15**	-	-	**2.87**	-	**7.0**	< 1.0	< 1.0	**7.0**	**31**
	17-Mar-21	**2.44**	**2.25**	-	-	-	-	**26**	< 1.0	< 1.0	**26**	**41**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**2.0**	**2.34**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**24**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**1.78**	**2.02**	-	-	**3.84**	-	**3.0**	< 1.0	< 1.0	**3.0**	**15**
	16-May-23	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 6
Surface water - Cations Anions and Inorganics

Analyte				Anions and Cations		Alkalinity					
	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3
LOR	0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0
Units	meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water	--	--	--	--	--	--	--	--	--	--	--

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 6
Surface water - Cations Anions and Inorganics

Analyte				Inorganics					
		Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--
Sample Name	Sample Date								
SW1	23-Apr-19	-	**893**	**580**	**707**	**32**	**4.01**	-	-
	16-May-19	-	**947**	**616**	**715**	**59**	**4.6**	-	-
	14-Jun-19	-	**847**	**550**	**512**	**26**	**4.5**	-	-
	16-Jul-19	-	**876**	**569**	**568**	**17**	**4.42**	-	-
	15-Aug-19	-	**813**	**528**	**548**	**5.0**	**4.53**	-	-
	16-Sep-19	-	**1,080**	**702**	**689**	**15**	**4.32**	-	-
	15-Oct-19	-	**1,050**	**682**	-	-	**5.32**	-	-
	18-Nov-19	-	**1,090**	**708**	-	-	**5.06**	-	-
	16-Sep-20	-	**137**	**89**	**152**	**8.0**	**6.5**	-	-
	16-Oct-20	-	**268**	**174**	-	-	**7.29**	-	-
	16-Nov-20	-	**127**	**82**	**127**	< 5.0	**6.5**	-	-
	16-Dec-20	-	**171**	**111**	-	-	**7.01**	-	-
	14-Jan-21	-	**154**	**100**	-	-	**6.71**	-	-
	16-Feb-21	-	**141**	**92**	**115**	**6.0**	**6.93**	-	-
	17-Mar-21	-	**139**	**90**	-	-	**6.63**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	**6.82**	**3.3**	-
	16-Nov-21	-	-	-	-	-	-	-	-
	24-Feb-22	-	**89**	**58**	-	-	**6.38**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	-	**141**	**92**	-	-	**6.59**	-	-
	16-May-23	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-
SW2	17-Mar-21	-	**83**	**54**	-	-	**5.08**	-	-
	19-Aug-21	-	**103**	**67**	-	-	**4.21**	-	-
	22-Sep-21	-	**235**	**153**	-	-	**3.55**	-	-
	13-Oct-21	-	**77**	**50**	-	-	**4.58**	**4.7**	-
	16-Nov-21	**13**	**93**	**60**	-	-	**4.39**	-	-
	24-Feb-22	-	**97**	**63**	-	-	**4.32**	-	< 0.01
	17-Mar-22	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	-	**150**	**98**	-	-	**4.2**	-	-
	16-May-23	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-
	22-Feb-19	-	**262**	**170**	**228**	**58**	**6.21**	-	-
	14-Mar-19	-	**344**	**224**	**279**	**34**	**5.42**	-	-
	23-Apr-19	-	**220**	**143**	**190**	**9.0**	**5.2**	-	-
	16-May-19	-	**271**	**176**	**300**	**14**	**5.24**	-	-
	14-Jun-19	-	**300**	**195**	**170**	**12**	**4.58**	-	-
	16-Jul-19	-	**451**	**293**	**246**	**7.0**	**4.47**	-	-

Williamtown Sand Syndicate
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Table 6
Surface water - Cations Anions and Inorganics

Analyte		Hardness	Electrical Conductivity @ 25°C	Inorganics: Total Dissolved Solids	Inorganics: Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--
	15-Aug-19	-	**338**	**220**	**192**	< 5.0	**4.47**	-	-
SW3	16-Sep-19	-	**374**	**243**	**201**	**7.0**	**4.3**	-	-
	15-Oct-19	-	**383**	**249**	-	-	**4.75**	-	-
	18-Nov-19	-	**278**	**181**	-	-	**5.39**	-	-
	16-Sep-20	-	**402**	**261**	**224**	**6.0**	**4.41**	-	-
	16-Oct-20	-	**333**	**216**	-	-	**4.15**	-	-
	16-Nov-20	-	**460**	**299**	**201**	< 5.0	**3.95**	-	-
	16-Dec-20	-	**303**	**197**	-	-	**4.8**	-	-
	14-Jan-21	-	**301**	**196**	-	-	**4.06**	-	-
	16-Feb-21	-	**273**	**177**	**172**	< 5.0	**4.15**	-	-
	17-Mar-21	-	**237**	**154**	-	-	**4.65**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-
	24-Feb-22	-	**183**	**119**	-	-	**4.59**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	-	**247**	**160**	-	-	**4.08**	-	-
	16-May-23	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-
SW4	23-Apr-19	-	**293**	**190**	**198**	< 5.0	**4.0**	-	-
	16-May-19	-	**331**	**215**	**288**	**13**	**4.08**	-	-
	14-Jun-19	-	**316**	**205**	**163**	< 5.0	**4.31**	-	-
	16-Jul-19	-	**367**	**238**	**207**	**6.0**	**4.46**	-	-
	15-Aug-19	-	**308**	**200**	**160**	< 5.0	**4.48**	-	-
	16-Sep-19	-	**360**	**234**	**208**	< 5.0	**4.47**	-	-
	15-Oct-19	-	**365**	**237**	-	-	**4.48**	-	-
	18-Nov-19	-	**348**	**226**	-	-	**4.48**	-	-
	16-Sep-20	-	**421**	**274**	**228**	< 5.0	**4.16**	-	-
	16-Oct-20	-	**355**	**231**	-	-	**3.94**	-	-
	16-Nov-20	-	**338**	**220**	**196**	**6.0**	**4.21**	-	-
	16-Dec-20	-	**323**	**210**	-	-	**6.15**	-	-
	14-Jan-21	-	**316**	**205**	-	-	**6.38**	-	-
	16-Feb-21	-	**267**	**174**	**240**	**48**	**5.91**	-	-
	17-Mar-21	-	**271**	**176**	-	-	**6.23**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	**5.86**	**8.6**	-
	16-Nov-21	-	-	-	-	-	-	-	-
	24-Feb-22	-	**275**	**179**	-	-	**3.96**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	-	**250**	**162**	-	-	**5.44**	-	-
	16-May-23	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 6
Surface water - Cations Anions and Inorganics

Analyte			Inorganics					
	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Surface Water	--	--	--	--	--	--	--	--

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
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Table 7
Surface water - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.006	0.08	0.002	0.1	0.0002	0.004	0.006	0.033	7.25	0.003	0.841	0.0001
Sample Name	Sample Date												
SW1	23-Apr-19	< 0.001	**0.043**	< 0.001	**0.14**	< 0.0001	< 0.001	**0.017**	**0.002**	**4.16**	< 0.001	**0.841**	< 0.0001
	16-May-19	< 0.001	**0.029**	< 0.001	**0.1**	< 0.0001	< 0.001	**0.01**	**0.003**	**7.25**	< 0.001	**0.666**	< 0.0001
	14-Jun-19	< 0.001	**0.029**	< 0.001	**0.09**	**0.0002**	< 0.001	**0.009**	**0.006**	**2.75**	< 0.001	**0.595**	< 0.0001
	16-Jul-19	< 0.001	**0.032**	< 0.001	**0.08**	**0.0001**	< 0.001	**0.007**	**0.003**	**1.86**	< 0.001	**0.59**	< 0.0001
	15-Aug-19	< 0.001	**0.027**	< 0.001	**0.09**	< 0.0001	< 0.001	**0.005**	**0.003**	**2.15**	< 0.001	**0.482**	< 0.0001
	16-Sep-19	< 0.001	**0.056**	< 0.001	**0.09**	**0.0002**	**0.001**	**0.008**	**0.012**	**2.45**	**0.001**	**0.587**	< 0.0001
	15-Oct-19	< 0.001	**0.036**	< 0.001	**0.07**	< 0.0001	< 0.001	**0.005**	**0.003**	-	< 0.001	**0.383**	< 0.0001
	18-Nov-19	< 0.001	**0.042**	< 0.001	**0.11**	< 0.0001	**0.001**	**0.003**	< 0.001	**1.14**	< 0.001	**0.366**	< 0.0001
	16-Sep-20	< 0.001	**0.021**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.005**	**0.87**	**0.001**	**0.096**	< 0.0001
	16-Oct-20	**0.001**	**0.021**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.76**	< 0.001	**0.15**	< 0.0001
	16-Nov-20	< 0.001	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	**0.18**	< 0.001	**0.017**	< 0.0001
	16-Dec-20	< 0.001	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	**0.18**	< 0.001	**0.058**	< 0.0001
	14-Jan-21	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.02**	**0.35**	< 0.001	**0.04**	< 0.0001
	16-Feb-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.12**	< 0.001	**0.028**	< 0.0001
	17-Mar-21	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.16**	< 0.001	**0.036**	< 0.0001
	19-Aug-21	< 0.001	**0.011**	-	< 0.05	-	**0.001**	< 0.001	**0.002**	**0.86**	-	-	-
	16-Nov-21	< 0.001	**0.006**	-	< 0.05	-	< 0.001	< 0.001	**0.002**	**1.0**	-	-	-
	24-Feb-22	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.12**	< 0.001	**0.025**	< 0.0001
	27-May-22	< 0.001	**0.01**	-	< 0.05	-	**0.003**	**0.001**	< 0.001	**4.39**	-	-	-
	12-Aug-22	< 0.001	**0.007**	-	< 0.05	-	**0.003**	< 0.001	**0.001**	**2.92**	-	-	-
	18-Nov-22	< 0.001	**0.01**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**2.89**	-	**0.038**	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	**0.51**	< 0.001	**0.06**	< 0.0001
	16-May-23	< 0.001	< 0.001	-	< 0.05	-	< 0.001	< 0.001	**0.001**	**0.39**	-	-	-
	14-Aug-23	< 0.001	**0.004**	-	< 0.05	-	< 0.001	< 0.001	**0.003**	**0.16**	-	**0.026**	-
SW2	17-Mar-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	< 0.001	**0.62**	< 0.001	**0.11**	< 0.0001
	19-Aug-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.55**	< 0.001	**0.045**	< 0.0001
	22-Sep-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	< 0.001	**1.11**	< 0.001	**0.087**	< 0.0001
	13-Oct-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.88**	< 0.001	**0.049**	< 0.0001
	16-Nov-21	**0.001**	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	< 0.001	**5.59**	< 0.001	**0.064**	< 0.0001
	24-Feb-22	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**16**	< 0.001	**0.032**	< 0.0001
	17-Mar-22	-	-	-	-	-	-	-	-	**1.62**	-	-	-
	27-May-22	< 0.001	**0.005**	-	< 0.05	-	**0.001**	**0.001**	< 0.001	**1.7**	-	-	-
	12-Aug-22	< 0.001	**0.005**	-	< 0.05	-	**0.001**	< 0.001	< 0.001	**2.79**	-	-	-
	18-Nov-22	< 0.001	**0.004**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**0.45**	-	**0.011**	-
	15-Feb-23	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.003**	**2.37**	< 0.001	**0.056**	< 0.0001
	16-May-23	< 0.001	**0.018**	-	< 0.05	-	< 0.001	**0.004**	**0.003**	**0.87**	-	-	-
	14-Aug-23	< 0.001	**0.01**	-	< 0.05	-	**0.001**	**0.003**	< 0.001	**6.48**	-	**0.061**	-
	22-Feb-19	**0.003**	**0.075**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**4.84**	< 0.001	**0.033**	< 0.0001
	14-Mar-19	**0.006**	**0.08**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	< 0.001	**9.26**	< 0.001	**0.048**	< 0.0001
	23-Apr-19	< 0.001	**0.043**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	**0.001**	**2.01**	< 0.001	**0.046**	< 0.0001
	16-May-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.78**	< 0.001	**0.038**	< 0.0001
	14-Jun-19	< 0.001	**0.035**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	< 0.001	**1.68**	< 0.001	**0.038**	< 0.0001

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 7
Surface water - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.006	0.08	0.002	0.1	0.0002	0.004	0.006	0.033	7.25	0.003	0.841	0.0001
SW3	16-Jul-19	< 0.001	**0.055**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.007**	**0.002**	**1.25**	< 0.001	**0.043**	< 0.0001
	15-Aug-19	< 0.001	**0.035**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	**0.002**	**1.16**	< 0.001	**0.036**	< 0.0001
	16-Sep-19	< 0.001	**0.045**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.02**	**0.69**	**0.001**	**0.036**	< 0.0001
	15-Oct-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.005**	**0.002**	-	< 0.001	**0.027**	< 0.0001
	18-Nov-19	< 0.001	**0.031**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.6**	< 0.001	**0.026**	< 0.0001
	16-Sep-20	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.007**	**0.007**	**3.49**	< 0.001	**0.029**	< 0.0001
	16-Oct-20	< 0.001	**0.028**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.003**	**7.09**	< 0.001	**0.027**	< 0.0001
	16-Nov-20	< 0.001	**0.029**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.009**	**0.002**	**4.79**	< 0.001	**0.032**	< 0.0001
	16-Dec-20	**0.002**	**0.015**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	**0.005**	**16**	< 0.001	**0.023**	< 0.0001
	14-Jan-21	**0.002**	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.02**	**8.28**	< 0.001	**0.026**	< 0.0001
	16-Feb-21	**0.004**	**0.014**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	**0.001**	**11**	< 0.001	**0.015**	< 0.0001
	17-Mar-21	**0.004**	**0.013**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	< 0.001	**12**	< 0.001	**0.016**	< 0.0001
	19-Aug-21	**0.001**	**0.005**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**7.14**	-	-	-
	16-Nov-21	**0.001**	**0.006**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**4.89**	-	-	-
	24-Feb-22	**0.004**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**10**	< 0.001	**0.015**	< 0.0001
	27-May-22	< 0.001	**0.01**	-	< 0.05	-	**0.001**	**0.002**	< 0.001	**13**	-	-	-
	12-Aug-22	< 0.001	**0.012**	-	< 0.05	-	**0.001**	**0.003**	< 0.001	**9.73**	-	-	-
	18-Nov-22	**0.001**	**0.012**	-	< 0.05	-	< 0.001	**0.002**	**0.002**	**7.82**	-	**0.05**	-
	15-Feb-23	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**5.16**	< 0.001	**0.01**	< 0.0001
	16-May-23	**0.001**	**0.004**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**4.81**	-	-	-
	14-Aug-23	< 0.001	**0.005**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**4.72**	-	**0.034**	-
SW4	23-Apr-19	< 0.001	**0.059**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	**0.003**	**2.09**	< 0.001	**0.037**	< 0.0001
	16-May-19	< 0.001	**0.047**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.12**	< 0.001	**0.03**	< 0.0001
	14-Jun-19	< 0.001	**0.041**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.003**	**0.79**	< 0.001	**0.034**	< 0.0001
	16-Jul-19	< 0.001	**0.044**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.002**	**0.96**	< 0.001	**0.043**	< 0.0001
	15-Aug-19	< 0.001	**0.04**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.57**	< 0.001	**0.032**	< 0.0001
	16-Sep-19	< 0.001	**0.046**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.02**	**0.7**	**0.001**	**0.039**	< 0.0001
	15-Oct-19	< 0.001	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.004**	-	< 0.001	**0.031**	< 0.0001
	18-Nov-19	< 0.001	**0.035**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**6.32**	< 0.001	**0.032**	< 0.0001
	16-Sep-20	< 0.001	**0.041**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.005**	**0.97**	< 0.001	**0.053**	< 0.0001
	16-Oct-20	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.001**	**2.26**	< 0.001	**0.042**	< 0.0001
	16-Nov-20	< 0.001	**0.031**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.001**	**1.93**	< 0.001	**0.074**	< 0.0001
	16-Dec-20	< 0.001	**0.017**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	**0.002**	**32**	< 0.001	**0.035**	< 0.0001
	14-Jan-21	**0.002**	**0.028**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	**0.026**	**20**	< 0.001	**0.171**	< 0.0001
	16-Feb-21	**0.003**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.003**	**0.001**	< 0.001	**27**	< 0.001	**0.054**	< 0.0001
	17-Mar-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**16**	< 0.001	**0.057**	< 0.0001
	19-Aug-21	< 0.001	**0.022**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**2.13**	-	-	-
	16-Nov-21	< 0.001	**0.016**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**6.59**	-	-	-
	24-Feb-22	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.19**	< 0.001	**0.034**	< 0.0001
	27-May-22	< 0.001	**0.021**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**0.68**	-	-	-
	12-Aug-22	< 0.001	**0.022**	-	< 0.05	-	**0.002**	**0.003**	< 0.001	**0.39**	-	-	-
	18-Nov-22	**0.002**	**0.013**	-	< 0.05	-	**0.002**	**0.001**	**0.003**	**20**	-	**0.084**	-
	15-Feb-23	**0.001**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.001**	< 0.001	**12**	< 0.001	**0.017**	< 0.0001

Williamtown Sand Syndicate
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Table 7
Surface water - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.006	0.08	0.002	0.1	0.0002	0.004	0.006	0.033	7.25	0.003	0.841	0.0001
	16-May-23	< 0.001	**0.025**	-	< 0.05	-	< 0.001	**0.003**	**0.004**	**0.38**	-	-	-
	14-Aug-23	< 0.001	**0.028**	-	< 0.05	-	< 0.001	**0.002**	< 0.001	**0.26**	-	**0.022**	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 7
Surface water - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.02	0.01	0.01	0.535
Sample Name	Sample Date				
SW1	23-Apr-19	**0.02**	< 0.01	< 0.01	**0.356**
	16-May-19	**0.012**	< 0.01	< 0.01	**0.077**
	14-Jun-19	**0.011**	< 0.01	< 0.01	**0.535**
	16-Jul-19	**0.008**	< 0.01	< 0.01	**0.239**
	15-Aug-19	**0.005**	< 0.01	< 0.01	**0.075**
	16-Sep-19	**0.014**	< 0.01	< 0.01	**0.282**
	15-Oct-19	**0.005**	< 0.01	< 0.01	**0.055**
	18-Nov-19	**0.003**	< 0.01	< 0.01	**0.026**
	16-Sep-20	**0.002**	< 0.01	< 0.01	**0.061**
	16-Oct-20	**0.001**	< 0.01	< 0.01	**0.005**
	16-Nov-20	< 0.001	< 0.01	< 0.01	**0.03**
	16-Dec-20	< 0.001	< 0.01	< 0.01	**0.013**
	14-Jan-21	**0.006**	< 0.01	< 0.01	**0.037**
	16-Feb-21	< 0.001	< 0.01	< 0.01	**0.024**
	17-Mar-21	< 0.001	< 0.01	< 0.01	**0.04**
	19-Aug-21	**0.002**	-	-	**0.056**
	16-Nov-21	**0.001**	-	-	**0.036**
	24-Feb-22	< 0.001	< 0.01	< 0.01	**0.014**
	27-May-22	**0.002**	-	-	**0.047**
	12-Aug-22	**0.002**	-	-	**0.019**
	18-Nov-22	< 0.001	-	-	**0.022**
	15-Feb-23	**0.001**	< 0.01	< 0.01	**0.007**
	16-May-23	< 0.001	-	-	**0.013**
	14-Aug-23	< 0.001	-	-	**0.013**
SW2	17-Mar-21	**0.004**	< 0.01	< 0.01	**0.097**
	19-Aug-21	**0.002**	< 0.01	< 0.01	**0.022**
	22-Sep-21	**0.005**	< 0.01	< 0.01	**0.134**
	13-Oct-21	**0.002**	< 0.01	< 0.01	**0.06**
	16-Nov-21	**0.004**	< 0.01	< 0.01	**0.083**
	24-Feb-22	**0.006**	< 0.01	< 0.01	**0.099**
	17-Mar-22	-	-	-	-
	27-May-22	**0.002**	-	-	**0.111**
	12-Aug-22	**0.001**	-	-	**0.09**
	18-Nov-22	< 0.001	-	-	**0.031**
	15-Feb-23	**0.004**	< 0.01	< 0.01	**0.063**
	16-May-23	**0.005**	-	-	**0.284**
	14-Aug-23	**0.004**	-	-	**0.062**
	22-Feb-19	**0.002**	< 0.01	< 0.01	**0.016**
	14-Mar-19	**0.002**	< 0.01	< 0.01	**0.009**
	23-Apr-19	**0.004**	< 0.01	< 0.01	**0.016**
	16-May-19	**0.003**	< 0.01	< 0.01	**0.012**
	14-Jun-19	**0.003**	< 0.01	< 0.01	**0.016**

Williamtown Sand Syndicate
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Table 7
Surface water - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.02	0.01	0.01	0.535
SW3	16-Jul-19	**0.006**	< 0.01	< 0.01	**0.029**
	15-Aug-19	**0.003**	< 0.01	< 0.01	**0.013**
	16-Sep-19	**0.017**	< 0.01	< 0.01	**0.094**
	15-Oct-19	**0.005**	< 0.01	< 0.01	**0.022**
	18-Nov-19	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-20	**0.007**	< 0.01	< 0.01	**0.031**
	16-Oct-20	**0.004**	< 0.01	< 0.01	**0.019**
	16-Nov-20	**0.009**	< 0.01	< 0.01	**0.03**
	16-Dec-20	**0.004**	< 0.01	< 0.01	**0.054**
	14-Jan-21	**0.01**	< 0.01	< 0.01	**0.025**
	16-Feb-21	**0.004**	< 0.01	< 0.01	**0.011**
	17-Mar-21	**0.003**	< 0.01	< 0.01	**0.007**
	19-Aug-21	< 0.001	-	-	< 0.005
	16-Nov-21	< 0.001	-	-	< 0.005
	24-Feb-22	< 0.001	< 0.01	< 0.01	**0.005**
	27-May-22	**0.002**	-	-	< 0.005
	12-Aug-22	**0.004**	-	-	**0.007**
	18-Nov-22	< 0.001	-	-	< 0.005
	15-Feb-23	< 0.001	< 0.01	< 0.01	**0.009**
	16-May-23	< 0.001	-	-	**0.008**
	14-Aug-23	< 0.001	-	-	< 0.005
SW4	23-Apr-19	**0.005**	< 0.01	< 0.01	**0.03**
	16-May-19	**0.003**	< 0.01	< 0.01	**0.019**
	14-Jun-19	**0.003**	< 0.01	< 0.01	**0.014**
	16-Jul-19	**0.003**	< 0.01	< 0.01	**0.014**
	15-Aug-19	**0.002**	< 0.01	< 0.01	**0.009**
	16-Sep-19	**0.017**	< 0.01	< 0.01	**0.085**
	15-Oct-19	**0.003**	< 0.01	< 0.01	**0.018**
	18-Nov-19	**0.002**	< 0.01	< 0.01	< 0.005
	16-Sep-20	**0.005**	< 0.01	< 0.01	**0.02**
	16-Oct-20	**0.003**	< 0.01	< 0.01	**0.007**
	16-Nov-20	**0.005**	< 0.01	< 0.01	**0.016**
	16-Dec-20	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jan-21	**0.005**	< 0.01	< 0.01	**0.013**
	16-Feb-21	**0.002**	< 0.01	< 0.01	**0.01**
	17-Mar-21	< 0.001	< 0.01	< 0.01	< 0.005
	19-Aug-21	**0.001**	-	-	**0.005**
	16-Nov-21	< 0.001	-	-	< 0.005
	24-Feb-22	**0.002**	< 0.01	< 0.01	**0.011**
	27-May-22	**0.001**	-	-	< 0.005
	12-Aug-22	**0.004**	-	-	**0.011**
	18-Nov-22	**0.001**	-	-	< 0.005
	15-Feb-23	**0.001**	< 0.01	< 0.01	< 0.005

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Table 7
Surface water - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.02	0.01	0.01	0.535
	16-May-23	**0.003**	-	-	**0.018**
	14-Aug-23	**0.003**	-	-	**0.021**

Notes:
- - Not analysed
< - Less than laboratory limit of report
mg/L - Milligrams per litre
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 8
Surface water - PFAS

Analyte		Perfluoroalkyl Sulfonamides									
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
SW1	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
SW2	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

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Table 8
Surface water - PFAS

Analyte		Perfluoroalkyl Sulfonamides									
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--
SW3	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
SW4	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 8
Surface water - PFAS

Analyte		Perfluoroalkyl Carboxylic Acids									
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	0.56	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
SW1	16-May-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
SW2	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 8
Surface water - PFAS

Analyte		Perfluoroalkyl Carboxylic Acids									
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	0.56	--	--	--	--	--	--	--	--
SW3	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
SW4	16-May-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 8
Surface water - PFAS

Analyte		Perfluoroalkyl Sulfonic Acids								(n:2) Fluorotelomer Sulfonic Acids	
		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	0.07
Sample Name	Sample Date										
SW1	16-May-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Feb-21	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	13-Oct-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
SW2	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	13-Oct-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Feb-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Dec-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Jan-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

Williamtown Sand Syndicate
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Table 8
Surface water - PFAS

Analyte		Perfluoroalkyl Sulfonic Acids								(n:2) Fluorotelomer Sulfonic Acids	
		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	0.07
SW3	16-Feb-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Mar-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
SW4	16-May-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-19	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**
	18-Nov-19	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Oct-20	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-20	-	< 0.02	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**
	16-Dec-20	-	< 0.02	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**
	14-Jan-21	-	**0.03**	< 0.02	**0.04**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.07**
	16-Feb-21	-	< 0.02	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	17-Mar-21	-	**0.02**	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**
	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	13-Oct-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Feb-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	18-Nov-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-May-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
August 2023
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Table 8
Surface water - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
WSS - Surface Water		--	--
Sample Name	Sample Date		
SW1	16-May-19	< 0.01	< 0.01
	16-Sep-19	< 0.01	< 0.01
	18-Nov-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01
	16-Feb-21	**0.01**	**0.01**
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	22-Sep-21	< 0.01	< 0.01
	13-Oct-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
SW2	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	22-Sep-21	< 0.01	< 0.01
	13-Oct-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
	22-Feb-19	< 0.01	< 0.01
	16-May-19	< 0.01	< 0.01
	16-Sep-19	< 0.01	< 0.01
	18-Nov-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	< 0.01	< 0.01
	16-Dec-20	< 0.01	< 0.01
	14-Jan-21	< 0.01	< 0.01

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Table 8
Surface water - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
WSS - Surface Water		--	--
SW3	16-Feb-21	< 0.01	< 0.01
	17-Mar-21	< 0.01	< 0.01
	19-Aug-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01
SW4	16-May-19	< 0.01	< 0.01
	16-Sep-19	**0.01**	**0.01**
	18-Nov-19	< 0.01	< 0.01
	16-Sep-20	< 0.01	< 0.01
	16-Oct-20	< 0.01	< 0.01
	16-Nov-20	**0.02**	**0.02**
	16-Dec-20	**0.02**	**0.02**
	14-Jan-21	**0.07**	**0.07**
	16-Feb-21	**0.03**	**0.03**
	17-Mar-21	**0.04**	**0.04**
	19-Aug-21	< 0.01	< 0.01
	22-Sep-21	< 0.01	< 0.01
	13-Oct-21	< 0.01	< 0.01
	16-Nov-21	< 0.01	< 0.01
	24-Feb-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	12-Aug-22	< 0.01	< 0.01
	18-Nov-22	< 0.01	< 0.01
	15-Feb-23	< 0.01	< 0.01
	16-May-23	< 0.01	< 0.01
	14-Aug-23	< 0.01	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Managen

Williamtown Sand Syndicate
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Table 10
Wash Plant Water - Dissolved Metals

Analyte		Metals											
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample Name	Sample Date												
WPW	19-Aug-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.062**	-
	22-Sep-21	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.051**	-
	13-Oct-21	< 0.001	-	-	-	-	-	-	-	**0.22**	-	**0.079**	-
	16-Nov-21	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.045**	-
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.078**	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.038**	-
	24-Feb-22	< 0.001	-	-	-	-	-	-	-	**1.02**	-	**0.084**	-
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.97**	-	**0.05**	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.042**	-
	27-May-22	< 0.001	-	-	-	-	-	-	-	**0.07**	-	**0.038**	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.94**	-	**0.061**	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.038**	-
	12-Aug-22	< 0.001	-	-	-	-	-	-	-	**0.17**	-	**0.026**	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.58**	-	**0.069**	-
	24-Oct-22	**0.002**	-	-	-	-	-	-	-	**2.22**	-	**0.118**	-
	18-Nov-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.066**	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.42**	-	**0.062**	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.36**	-	**0.05**	-
WPW2	15-Feb-23	< 0.001	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	< 0.05	< 0.001	**0.004**	< 0.0001
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.061**	-
	18-Apr-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.001**	**0.004**	**0.6**	< 0.001	**0.049**	< 0.0001
	16-May-23	< 0.001	-	-	-	-	-	-	-	**0.28**	-	**0.07**	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.33**	-	**0.047**	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.39**	-	**0.08**	-
	14-Aug-23	< 0.001	-	-	-	-	-	-	-	**0.88**	-	**0.058**	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 10
Wash Plant Water - Dissolved Metals

Analyte		Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L
Sample Name	Sample Date				
WPW	19-Aug-21	-	-	-	-
	22-Sep-21	-	-	-	-
	13-Oct-21	-	-	-	-
	16-Nov-21	-	-	-	-
	15-Dec-21	-	-	-	-
	18-Jan-22	-	-	-	-
	24-Feb-22	-	-	-	-
	17-Mar-22	-	-	-	-
	12-Apr-22	-	-	-	-
	27-May-22	-	-	-	-
	17-Jun-22	-	-	-	-
	27-Jul-22	-	-	-	-
	12-Aug-22	-	-	-	-
	16-Sep-22	-	-	-	-
	24-Oct-22	-	-	-	-
	18-Nov-22	-	-	-	-
	14-Dec-22	-	-	-	-
	17-Jan-23	-	-	-	-
WPW2	15-Feb-23	< 0.001	< 0.01	< 0.01	**0.115**
	15-Mar-23	-	-	-	-
	18-Apr-23	**0.002**	< 0.01	< 0.01	**0.053**
	16-May-23	-	-	-	-
	14-Jun-23	-	-	-	-
	24-Jul-23	-	-	-	-
	14-Aug-23	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of report
mg/L - Milligrams per litre
Bold indicates a detection above the l

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 10
Wash Plant Water - PFAS

Analyte		Perfluoroalkyl Sulfonamides										
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date										
INPUT	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
WPW	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Dec-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Jan-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Mar-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Apr-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Jun-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	27-Jul-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-Sep-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Oct-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Dec-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	17-Jan-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
WPW2	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	15-Mar-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	18-Apr-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Jun-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	24-Jul-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 10
Wash Plant Water - PFAS

Analyte		Perfluoroalkyl Carboxylic Acids									
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
LOR		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date										
INPUT	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
WPW	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Dec-21	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Jan-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Mar-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Apr-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Jun-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	27-Jul-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-Sep-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Oct-22	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Nov-22	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Dec-22	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	17-Jan-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
WPW2	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	15-Mar-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	18-Apr-23	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	16-May-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Jun-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	24-Jul-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
	14-Aug-23	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 10
Wash Plant Water - PFAS

Analyte		Perfluoroalkyl Sulfonic Acids								(n:2) Fluorotelomer Sulfonic Acids	
		Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS
LOR		0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date										
INPUT	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
WPW	19-Aug-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	22-Sep-21	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	13-Oct-21	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**
	16-Nov-21	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Dec-21	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	18-Jan-22	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	24-Feb-22	**0.01**	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**
	17-Mar-22	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	12-Apr-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-May-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	17-Jun-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	27-Jul-22	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	12-Aug-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	16-Sep-22	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	24-Oct-22	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	18-Nov-22	**0.02**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**
	14-Dec-22	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	17-Jan-23	**0.01**	-	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**
WPW2	15-Feb-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
	15-Mar-23	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	18-Apr-23	**0.02**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**
	16-May-23	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	14-Jun-23	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	24-Jul-23	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**
	14-Aug-23	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 10
Wash Plant Water - PFAS

Analyte		Sum of PFAS	
		Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.01	0.01
Units		µg/L	µg/L
Sample Name	Sample Date		
INPUT	22-Sep-21	< 0.01	< 0.01
WPW	19-Aug-21	< 0.01	< 0.01
	22-Sep-21	< 0.01	< 0.01
	13-Oct-21	**0.01**	**0.01**
	16-Nov-21	< 0.01	< 0.01
	15-Dec-21	**0.03**	**0.03**
	18-Jan-22	**0.03**	**0.03**
	24-Feb-22	**0.01**	**0.01**
	17-Mar-22	**0.03**	**0.03**
	12-Apr-22	< 0.01	< 0.01
	27-May-22	< 0.01	< 0.01
	17-Jun-22	< 0.01	< 0.01
	27-Jul-22	**0.03**	**0.03**
	12-Aug-22	< 0.01	< 0.01
	16-Sep-22	< 0.01	< 0.01
	24-Oct-22	**0.03**	**0.03**
	18-Nov-22	**0.05**	**0.05**
	14-Dec-22	**0.04**	**0.04**
	17-Jan-23	**0.02**	**0.02**
WPW2	15-Feb-23	< 0.01	< 0.01
	15-Mar-23	**0.03**	**0.03**
	18-Apr-23	**0.05**	**0.05**
	16-May-23	**0.03**	**0.03**
	14-Jun-23	**0.03**	**0.03**
	24-Jul-23	**0.03**	**0.03**
	14-Aug-23	< 0.01	< 0.01

Notes:
- - Not analysed
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µg/L - Micrograms per litre
Bold indicates a detection above the l

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 11
Wash Plant Fines - Dissolved Metals

Analyte		Metals							
		Arsenic	Barium	Chromium	Copper	Iron	Manganese	Nickel	Zinc
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Date								
WPF	19-Aug-21	**10**	**20**	**83**	**9.0**	**57,700**	-	**6.0**	**28**
	24-Feb-22	< 1.0	-	-	-	**19,100**	< 10	-	-
	27-May-22	**8.0**	**10**	**73**	< 5.0	**40,000**	-	**5.0**	**13**
	12-Aug-22	**6.0**	< 10	**64**	**5.0**	**42,100**	-	**6.0**	**24**
	18-Nov-22	< 5.0	< 10	< 2.0	< 5.0	**970**	-	< 2.0	< 5.0
	16-May-23	< 5.0	**20**	**61**	**9.0**	**30,900**	-	**5.0**	**35**
	14-Aug-23	**6.0**	**20**	**68**	**6.0**	**40,000**	**32**	**7.0**	**23**

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/kg - Milligrams per kilogram
Bold indicates a detection above the laboratory limit of reporting

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 12
Wash Plant Fines - PFAS

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl C
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Date										
WPF	19-Aug-21	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002
	22-Sep-21	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002
	24-Feb-22	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	**0.0002**	< 0.0002
	27-May-22	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002
	12-Aug-22	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002
	18-Nov-22	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002
	16-May-23	< 0.0002	< 0.0005	< 0.0005	**0.0007**	**0.0027**	< 0.0002	< 0.0002	**0.001**	< 0.0002	< 0.0002
	14-Jun-23	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002
	14-Aug-23	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.001	<0.0002	<0.0002

Notes:
< - Less than laboratory limit of reporting
mg/kg - Milligrams per kilogram
Bold indicates a detection above the laboratory limit of reporting

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 12
Wash Plant Fines - PFAS

Analyte		Carboxylic Acids		Perfluoroalkyl Carboxylic Acids							Perfluoroalkyl Sulfonic Acids
		Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Date										
WPF	19-Aug-21	< 0.0002	**0.0006**	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	22-Sep-21	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	24-Feb-22	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	27-May-22	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	12-Aug-22	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	18-Nov-22	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	16-May-23	< 0.0002	**0.0003**	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	14-Jun-23	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002
	14-Aug-23	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002

Notes:
< - Less than laboratory limit of reporti
mg/kg - Milligrams per kilogram
Bold indicates a detection above the la

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 12
Wash Plant Fines - PFAS

Analyte			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS	
		Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Date										
WPF	19-Aug-21	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	**0.0006**
	22-Sep-21	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002
	24-Feb-22	< 0.0002	< 0.0002	**0.001**	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.001**	**0.0012**
	27-May-22	< 0.0002	< 0.0002	**0.0012**	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.0012**	**0.0012**
	12-Aug-22	< 0.0002	< 0.0002	**0.0006**	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.0006**	**0.0006**
	18-Nov-22	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002
	16-May-23	< 0.0002	< 0.0002	**0.0036**	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.0036**	**0.0049**
	14-Jun-23	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002
	14-Aug-23	<0.0002	<0.0002	**0.0009**	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	**0.0009**	**0.0009**

Notes:
< - Less than laboratory limit of reporti
mg/kg - Milligrams per kilogram
Bold indicates a detection above the la

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Table 12
Wash Plant Fines - PFAS

Analyte		Sum of PFAS
Units		mg/kg
Sample Name	Sample Date	
WPF	19-Aug-21	**0.0006**
	22-Sep-21	< 0.0002
	24-Feb-22	**0.0012**
	27-May-22	**0.0012**
	12-Aug-22	**0.0006**
	18-Nov-22	< 0.0002
	16-May-23	**0.0083**
	14-Jun-23	< 0.0002
	14-Aug-23	**0.0009**

Notes:
< - Less than laboratory limit of reporti
mg/kg - Milligrams per kilogram
Bold indicates a detection above the la

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Table 13
QAQC - Dissolved Metals RPDs

Analyte			Metals							
			Arsenic	Barium	Chromium	Copper	Iron	Manganese	Nickel	Zinc
Units			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample Name	Sample Date	Sample Type								
BH2_14082023	14-Aug-23	Primary	< 0.001	**0.004**	< 0.001	**0.008**	**0.18**	**0.009**	< 0.001	**0.164**
QC01_14082023	14-Aug-23	Duplicate	< 0.001	**0.002**	< 0.001	**0.007**	**0.11**	**0.005**	< 0.001	**0.088**
Relative Percentage Difference			NC	**67%**	NC	**13%**	**48%**	**57%**	NC	**60%**
BH2_14082023	14-Aug-23	Primary	< 0.001	**0.004**	< 0.001	**0.008**	**0.18**	**0.009**	< 0.001	**0.164**
QC01A_14082023	14-Aug-23	Triplicate	< 0.001	-	< 0.001	**0.009**	-	-	**0.001**	**0.17**
Relative Percentage Difference			NC	NC	NC	**12%**	NC	NC	**0%**	**4%**
RB_140823_14082023	14-Aug-23	Rinsate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	< 0.001	< 0.005
TB_140823_14082023	14-Aug-23	Tripblank	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	< 0.001	< 0.005

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
NC - Not calculated
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
"*" denotes duplicate/triplicate sample result adopted for analytical use due to RPD >50%
Orange highlighting indicates an RPD in excess of 50%
RPD - Relative Percentage Difference

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Table 14
QAQC - PFAS RPDs

Analyte			Perfluoroalkyl Sulfonamides								
			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type									
BH2_14082023	14-Aug-23	Primary	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02
QC01_14082023	14-Aug-23	Duplicate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC
BH2_14082023	14-Aug-23	Primary	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02
QC01A_14082023	14-Aug-23	Triplicate	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC
RB_140823_14082023	14-Aug-23	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02
TB_140823_14082023	14-Aug-23	Tripblank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
EPA - Environment Protection Authority
NC - Not calculated
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting
"*" denotes duplicate/triplicate sample result adopted for analytical use due to RPD >50%
Orange highlighting indicates an RPD in excess of 50%
RPD - Relative Percentage Difference

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Table 14
QAQC - PFAS RPDs

Analyte			Perfluoroalkyl Carboxylic Acids							
			Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type								
BH2_14082023	14-Aug-23	Primary	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
QC01_14082023	14-Aug-23	Duplicate	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC
BH2_14082023	14-Aug-23	Primary	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
QC01A_14082023	14-Aug-23	Triplicate	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC
RB_140823_14082023	14-Aug-23	Rinsate	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
TB_140823_14082023	14-Aug-23	Tripblank	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
EPA - Environment Protection Authority
NC - Not calculated
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reportinç
"*" denotes duplicate/triplicate sample result adopted for analyti
Orange highlighting indicates an RPD in excess of 50%
RPD - Relative Percentage Difference

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Table 14
QAQC - PFAS RPDs

Analyte										
										Perfluoroalky
			Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorononane sulfonate (PFNS)	Perfluoropropanesulfonic acid (PFPrS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type								
BH2_14082023	14-Aug-23	Primary	< 0.05	< 0.02	-	-	< 0.02	< 0.01	< 0.02	< 0.01
QC01_14082023	14-Aug-23	Duplicate	< 0.05	< 0.02	-	-	< 0.02	< 0.01	< 0.02	< 0.01
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC
BH2_14082023	14-Aug-23	Primary	< 0.05	< 0.02	-	-	< 0.02	< 0.01	< 0.02	< 0.01
QC01A_14082023	14-Aug-23	Triplicate	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC
RB_140823_14082023	14-Aug-23	Rinsate	< 0.05	< 0.02	-	-	< 0.02	< 0.01	< 0.02	< 0.01
TB_140823_14082023	14-Aug-23	Tripblank	< 0.05	< 0.02	-	-	< 0.02	< 0.01	< 0.02	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
EPA - Environment Protection Authority
NC - Not calculated
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reportinç
"*" denotes duplicate/triplicate sample result adopted for analyti
Orange highlighting indicates an RPD in excess of 50%
RPD - Relative Percentage Difference

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Table 14
QAQC - PFAS RPDs

Analyte			l Sulfonic Acids				(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS			
			Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Sum of PFAS (WA DER List)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type									
BH2_14082023	14-Aug-23	Primary	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	-	-	< 0.01
QC01_14082023	14-Aug-23	Duplicate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	-	-	< 0.01
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC
BH2_14082023	14-Aug-23	Primary	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	-	-	< 0.01
QC01A_14082023	14-Aug-23	Triplicate	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC
RB_140823_14082023	14-Aug-23	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	-	-	< 0.01
TB_140823_14082023	14-Aug-23	Tripblank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	-	-	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
EPA - Environment Protection Authority
NC - Not calculated
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reportinç
"*" denotes duplicate/triplicate sample result adopted for analyti
Orange highlighting indicates an RPD in excess of 50%
RPD - Relative Percentage Difference

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Table 14
QAQC - PFAS RPDs

Analyte			Sum of PFAS	Perfluorononanesulfonic acid (PFNS)
Units			µg/L	µg/L
Sample Name	Sample Date	Sample Type		
BH2_14082023	14-Aug-23	Primary	< 0.01	-
QC01_14082023	14-Aug-23	Duplicate	< 0.01	-
Relative Percentage Difference			NC	NC
BH2_14082023	14-Aug-23	Primary	< 0.01	-
QC01A_14082023	14-Aug-23	Triplicate	< 0.1	< 0.01
Relative Percentage Difference			NC	NC
RB_140823_14082023	14-Aug-23	Rinsate	< 0.01	-
TB_140823_14082023	14-Aug-23	Tripblank	< 0.01	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
EPA - Environment Protection Authority
NC - Not calculated
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reportinç
"*" denotes duplicate/triplicate sample result adopted for analyti
Orange highlighting indicates an RPD in excess of 50%
RPD - Relative Percentage Difference

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Table 15
Gauging Data

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH1	27-Jul-22	8.210	NM	NM	3.836	--	M Ferguson
	12-Aug-22	NM	NM	NM	NC	--	M Ferguson
BH1A	16-Sep-22	12.400	8.980	5.030	3.950	--	J Roby
	24-Oct-22	12.266	8.980	5.034	3.946	--	J Roby
	18-Nov-22	12.290	8.980	4.810	4.170	Gauge only	J. Roby
	14-Dec-22	12.163	8.980	4.513	4.467	--	M Ferguson
	17-Jan-23	12.181	8.980	4.142	4.838	--	A king
	15-Feb-23	12.190	8.980	3.885	5.095	Clear	A King
	15-Mar-23	12.160	8.980	3.766	5.214	--	A King
	18-Apr-23	12.155	8.980	3.764	5.216	Gauge only	A King
	16-May-23	12.160	8.980	3.688	5.292	Gauge only	A King
	14-Jun-23	12.160	8.980	3.792	5.188	--	M Ferguson
	24-Jul-23	12.150	8.980	3.522	5.458	--	A King
	14-Aug-23	12.150	8.980	3.501	5.479	Clear, no odor, no sheen	AK
BH2	27-Jul-22	8.940	7.790	3.897	3.893	Clear	M Ferguson
	12-Aug-22	8.000	7.790	3.735	4.055	Clear	M Ferguson
	16-Sep-22	8.997	7.790	3.671	4.119	Dark brown	J Roby
	24-Oct-22	9.952	7.790	3.608	4.182	Clear	J Roby
	18-Nov-22	9.450	7.790	3.410	4.380	Light brown, NO, NS	J. Roby
	14-Dec-22	8.879	7.790	3.203	4.587	Very light brown	M Ferguson
	17-Jan-23	8.930	7.790	2.917	4.873	Brown	A king
	15-Feb-23	8.871	7.790	2.732	5.058	Odor, Light brown	A King
	15-Mar-23	8.842	7.790	2.655	5.135	Light brown	A King
	18-Apr-23	8.861	7.790	2.703	5.087	Light brown, no odour, no sheen	A King
	16-May-23	8.850	7.790	2.654	5.136	Brown, no odour / sheen, well in good condition	A King
	14-Jun-23	8.840	7.790	2.706	5.084	Clear	M Ferguson
	24-Jul-23	8.840	7.790	2.574	5.216	Lt brown	A King
	14-Aug-23	8.825	7.790	2.582	5.208	Brown, no odour, no sheen	AK
BH4	27-Jul-22	5.980	3.060	2.296	0.764	Clear	M Ferguson
	12-Aug-22	5.000	3.060	2.261	0.799	Clear	M Ferguson
	16-Sep-22	5.990	3.060	2.234	0.826	Light brown	J Roby
	24-Oct-22	6.050	3.060	2.239	0.821	Clear	J Roby
	18-Nov-22	6.010	3.060	2.110	0.950	Clear, NO/NS	J. Roby
	14-Dec-22	6.025	3.060	1.941	1.119	Clear	M Ferguson
	17-Jan-23	6.006	3.060	1.761	1.299	Clear	A king
	15-Feb-23	6.015	3.060	1.627	1.433	Clear	A King
	15-Mar-23	6.015	3.060	1.625	1.435	Clear	A King
	18-Apr-23	6.018	3.060	1.832	1.228	Clear, no odour, no sheen	A King
	16-May-23	5.992	3.060	1.771	1.289	Clear, no odour / sheen, well in good condition	A King
	14-Jun-23	5.990	3.060	1.832	1.228	Slightly cloudy/clear	M Ferguson
	24-Jul-23	5.995	3.060	1.814	1.246	Clear	A King
	14-Aug-23	6.010	3.060	1.809	1.251	Clear, low Sulphur odor, no sheen	AK
BH5	12-Aug-22	0.000	7.360	2.320	5.040	--	M Ferguson
	18-Nov-22	8.820	7.360	2.169	5.191	Gauge only	J. Roby
	15-Feb-23	5.612	7.360	-1.375	8.735	Odor, Light brown	A King
	14-Aug-23	8.700	7.360	2.013	5.347	Gauge only	AK
	27-Jul-22	4.510	3.620	2.914	0.706	Odor, Clear	M Ferguson
	12-Aug-22	4.000	3.620	2.909	0.711	Odor, Clear	M Ferguson
	16-Sep-22	4.580	3.620	2.904	0.716	Odor, Clear	J Roby
	24-Oct-22	4.554	3.620	2.870	0.750	Odor, Clear	J Roby
	18-Nov-22	4.540	3.620	2.815	0.805	Cloudy, low sulfur odour, NS	J. Roby

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Table 15
Gauging Data

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH6	14-Dec-22	4.530	3.620	2.596	1.024	Odor, Light yellow	M Ferguson
	17-Jan-23	4.520	3.620	2.381	1.239	--	A king
	15-Feb-23	4.529	3.620	2.267	1.353	Odor, Clear	A King
	15-Mar-23	4.535	3.620	2.303	1.317	Odor, Clear	A King
	18-Apr-23	4.535	3.620	2.580	1.040	Clear, no odour, no sheen	A King
	16-May-23	4.515	3.620	2.480	1.140	Clear, low Sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	4.490	3.620	2.542	1.078	Odor, Clear	M Ferguson
	24-Jul-23	4.920	3.620	2.645	0.975	Odor, Cloudy white	A King
	14-Aug-23	4.525	3.620	2.572	1.048	Clear, low Sulphur odor, no sheen	AK
BH7	27-Jul-22	4.500	2.980	2.074	0.906	Weak Odor, Light yellow	M Ferguson
	12-Aug-22	4.000	2.980	2.035	0.945	Light yellow	M Ferguson
	16-Sep-22	4.499	2.980	2.027	0.953	Yellow	J Roby
	24-Oct-22	4.530	2.980	2.040	0.940	Odor, Brown	J Roby
	18-Nov-22	5.500	2.980	1.890	1.090	Light brown, low sulfur odour, NS	J. Roby
	14-Dec-22	4.520	2.980	1.702	1.278	Odor, Light yellow	M Ferguson
	17-Jan-23	4.510	2.980	1.584	1.396	Odor, Light yellow, almost clear	A king
	15-Feb-23	4.520	2.980	1.511	1.469	Odor, Light brown	A King
	15-Mar-23	4.505	2.980	1.535	1.445	Odor, Lght yellow	A King
	18-Apr-23	4.520	2.980	1.789	1.191	Light yellow, no odour, no sheen	A King
	16-May-23	4.520	2.980	1.715	1.265	Light yellow, low sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	4.520	2.980	1.762	1.218	Light yellow	M Ferguson
	24-Jul-23	4.520	2.980	1.769	1.211	Weak Odor, Lt yellow	A King
	14-Aug-23	4.510	2.980	1.766	1.214	Light brown, moderate Sulphur odor, no sheen	AK
BH8	12-Aug-22	0.000	3.880	2.191	1.689	Strong Odor, Milky white	M Ferguson
	18-Nov-22	6.040	3.880	2.055	1.825	Cloudy, low sulfur odour, NS	J. Roby
	15-Feb-23	6.055	3.880	1.540	2.340	Odor, Light brown	A King
	16-May-23	6.025	3.880	1.858	2.022	Yellow, strong sulphur odour, no sheen, well in good condition	A King
	14-Aug-23	3.490	3.880	1.964	1.916	Yellow, moderate Sulphur odor, no sheen, white suspended sediment	AK
BH9	27-Jul-22	16.190	17.750	2.709	15.041	--	M Ferguson
	12-Aug-22	16.000	17.750	2.600	15.150	--	M Ferguson
	16-Sep-22	16.145	17.750	2.494	15.256	--	J Roby
	24-Oct-22	16.000	17.750	2.471	15.279	--	J Roby
	18-Nov-22	16.320	17.750	2.291	15.459	Gauge only	J. Roby
	14-Dec-22	16.110	17.750	2.091	15.659	--	M Ferguson
	17-Jan-23	16.240	17.750	1.895	15.855	--	A king
	15-Feb-23	16.108	17.750	1.747	16.003	--	A King
	15-Mar-23	16.090	17.750	1.707	16.043	--	A King
	18-Apr-23	16.095	17.750	1.904	15.846	Gauge only	A King
	16-May-23	16.075	17.750	1.832	15.918	Gauge only	A King
	14-Jun-23	16.100	17.750	1.872	15.878	--	M Ferguson
	24-Jul-23	1616.100	17.750	1.834	15.916	--	A King
	14-Aug-23	16.090	17.750	1.864	15.886	Gauge only	AK
BH9A	27-Jul-22	12.440	10.750	2.548	8.202	Weak Odor, Clear	M Ferguson
	12-Aug-22	12.000	10.750	2.455	8.295	Light yellow	M Ferguson
	16-Sep-22	12.283	10.750	2.395	8.355	Odor, Light brown	J Roby
	24-Oct-22	12.420	10.750	2.384	8.366	Clear	J Roby
	18-Nov-22	12.430	10.750	2.229	8.521	Brown, NO/NS	J. Roby
	14-Dec-22	12.295	10.750	2.053	8.697	Light yellow	M Ferguson
	17-Jan-23	12.264	10.750	1.881	8.869	Weak Odor, Light brown	A king
	15-Feb-23	12.235	10.750	1.744	9.006	Odor, Light bown	A King
	15-Mar-23	12.241	10.750	1.727	9.023	Light brown	A King

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Table 15
Gauging Data

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
	18-Apr-23	12.215	10.750	1.934	8.816	Light brown, moderate sulfur odour, no sheen	A King
	16-May-23	12.235	10.750	1.871	8.879	Light brown, low sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	12.230	10.750	1.931	8.819	Weak Odor, Light yellow/clear	M Ferguson
	24-Jul-23	12.270	10.750	1.891	8.859	Strong Odor, Lt yellow	A King
	14-Aug-23	12.195	10.750	1.905	8.845	Brown, strong Sulphur odor, no sheen	AK
BH10	12-Aug-22	0.000	6.690	4.991	1.699	--	M Ferguson
	18-Nov-22	3.480	6.690	4.600	2.090	Gauge only	J. Roby
	15-Feb-23	3.486	6.690	3.771	2.919	--	A King
	14-Aug-23	3.490	6.690	3.473	3.217	Gauge only	AK
BH11	27-Jul-22	5.280	6.630	5.837	0.793	Strong Odor, Light yellow	M Ferguson
	16-Sep-22	5.304	6.630	5.783	0.847	Odor, Yellow	J Roby
	24-Oct-22	4.315	6.630	5.760	0.870	Odor, Yellow	J Roby
	18-Nov-22	5.290	6.630	5.450	1.180	Yellow, moderate sulfur odour, NS	J. Roby
	14-Dec-22	5.302	6.630	5.174	1.456	Odor, Light yellow	M Ferguson
	17-Jan-23	5.300	6.630	4.836	1.794	Odor, Light yellow	A king
	15-Feb-23	5.309	6.630	4.577	2.053	Odor, Yellow light	A King
	15-Mar-23	5.300	6.630	4.431	2.199	Odor, Yellow	A King
	18-Apr-23	5.300	6.630	4.520	2.110	Light yellow, strong sulfur odour, no sheen	A King
	16-May-23	5.295	6.630	4.402	2.228	Light yellow, strong sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	5.280	6.630	4.410	2.220	Strong Odor, Yellow	M Ferguson
	24-Jul-23	5.305	6.630	4.209	2.421	Strong Odor, Yellow	A King
	14-Aug-23	5.280	6.630	4.174	2.456	Light yellow, strong Sulphur odor, no sheen	AK
BH12A	16-Sep-22	7.337	5.620	3.322	2.298	--	J Roby
	24-Oct-22	7.340	5.620	3.329	2.291	Light brown	J Roby
	18-Nov-22	7.390	5.620	3.190	2.430	Gauge only	J. Roby
	14-Dec-22	7.370	5.620	3.033	2.587	--	M Ferguson
	17-Jan-23	7.327	5.620	2.907	2.713	--	A king
	15-Feb-23	7.335	5.620	2.717	2.903	Brown	A King
	15-Mar-23	7.310	5.620	2.664	2.956	--	A King
	18-Apr-23	7.312	5.620	2.746	2.874	Gauge only	A King
	16-May-23	7.300	5.620	2.698	2.922	Gauge only	A King
	14-Jun-23	7.300	5.620	2.724	2.896	--	M Ferguson
	24-Jul-23	7.290	5.620	2.640	2.980	--	A King
	14-Aug-23	7.290	5.620	2.631	2.989	Light brown, low Sulphur odor, no sheen	AK
MW239D	18-Nov-22	20.490	3.040	2.300	0.740	Gauge only	J. Roby
	15-Feb-23	20.500	3.040	1.964	1.076	--	A King
	15-Aug-23	20.275	3.040	2.161	0.879	Gauge only	AK
MW239S	27-Jul-22	3.800	3.040	2.510	0.530	Strong Odor, Light yellow	M Ferguson
	12-Aug-22	3.000	3.040	2.445	0.595	Odor, Cloudy yellow	M Ferguson
	16-Sep-22	3.820	3.040	2.420	0.620	Odor, Yellow	J Roby
	24-Oct-22	3.620	3.040	2.430	0.610	Odor, Clear	J Roby
	18-Nov-22	3.820	3.040	2.280	0.760	Cloudy, low sulfur odour, NS	J. Roby
	14-Dec-22	3.810	3.040	2.129	0.911	Odor, Light brown	M Ferguson
	17-Jan-23	3.618	3.040	2.008	1.032	Strong Odor, Brown	A king
	15-Feb-23	3.815	3.040	1.939	1.101	Odor, Light brown	A King
	15-Mar-23	3.805	3.040	1.952	1.088	Odor, Orange brown	A King
	18-Apr-23	3.827	3.040	2.155	0.885	Light brown, moderate sulfur odour, no sheen	A King
	16-May-23	3.787	3.040	2.102	0.938	Light brown, moderate sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	3.760	3.040	2.139	0.901	Odor, Clear	M Ferguson
	24-Jul-23	3.790	3.040	2.128	0.912	Odor, Light brown	A King
	15-Aug-23	3.790	3.040	2.136	0.904	Light yellow, strong Sulphur odor, no sheen	AK

Williamtown Sand Syndicate
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Quarterly Water Monitoring Event

Table 15
Gauging Data

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
WPW	27-Jul-22	NM	NM	NM	NC	Dark cloudy brown	M Ferguson
	12-Aug-22	NM	NM	NM	NC	Light brown	M Ferguson
	16-Sep-22	NM	NM	NM	NC	Brown	J Roby
	24-Oct-22	NM	NM	NM	NC	Dark brown	J Roby
	14-Dec-22	NM	NM	NM	NC	Brown	M Ferguson
	17-Jan-23	NM	NM	NM	NC	Weak Odor, Brown	A king
	15-Feb-23	NM	NM	NM	NC	Clear	A King
	15-Mar-23	NM	NM	NM	NC	Odor, Brown	A King
WPW2	18-Apr-23	NM	NM	NM	NC	Light brown, low earthy odour, no sheen	A King
	14-Jun-23	NM	NM	NM	NC	Turbid muddy brown	M Ferguson
	24-Jul-23	NM	NM	NM	NC	Odor, Dark brown	A King
	14-Aug-23	NM	NM	NM	NC	Light brown, earthy odor, no sheen	AK

Notes:
DTW = Depth to water
mBTOC = metres below top of casing
m = Metres
NC = Not calculated
NM = Not measured

Williamtown Sand Syndicate
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Table 16
Field Parameters

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
BH1A	15-Feb-23	5.8	192.5	4.33	82.6	55	23.8	
	14-Aug-23	4.1	252.3	4.05	101.5	66	18.4	72
BH2	27-Jul-22	5.85	223	4.13	87.6		15.6	131
	12-Aug-22	4.34	269.7	4.52	53		16.7	15.58
	16-Sep-22	3.28	262.7	4.76	80.7	60	18.1	710.34
	24-Oct-22	4.55	218.8	4.71	73.6	55	18.5	33.87
	18-Nov-22	1.9	213.9	4.7	73.2	54	19	
	14-Dec-22	4.14	229.7	4.79	78.6	51	19.3	27.86
	17-Jan-23	3.88	211.3	4.69	75.6	228.72	21.7	240.6
	15-Feb-23	4.2	300.5	4.54	70.9	50	21	133.94
	15-Mar-23	3.62	227.7	4.67	69	49	20.8	103
	18-Apr-23	4.84	224.5	4.88	64.6	4.6	20.2	44.8
	16-May-23	3.27	234	4.54	64.1	47	18.6	
	14-Jun-23	3.1	258	4.43	79.2	52	17.9	0.86
	24-Jul-23	4.14	103.7	4.57	84	64	17.4	40
	14-Aug-23	64	187.8	4.38	102.5	67	18.1	164
BH4	27-Jul-22	3	190.7	4.6	90.2		14.1	121
	12-Aug-22	3.25	236	4.86	77		15.5	10.2
	16-Sep-22	5.35	163.8	5.29	75.2	60	15.4	34.07
	24-Oct-22	3.52	162.3	5.45		57	17.8	45.42
	18-Nov-22	3.57	170.6	5.32	80.2	62	16.8	
	14-Dec-22	3.95	119.8	5.59	92.5	60	18.1	16.36
	17-Jan-23	1.89	159.5	5.31	128.8	91	20.9	8
	15-Feb-23	2.6	166	5.47	115.5	82	20.8	29.64
	15-Mar-23	4.46	179	5.22	92.5	65	21	8.26
	18-Apr-23	4.84	196.7	5.27	70.3	52	18.7	8.45
	16-May-23	3.96	217.9	4.84	65.5	56	16.8	
	14-Jun-23	2.7	157.9	4.97	92.8	60	16.4	3.33
	24-Jul-23	3.41	215.7	5.18	66	53	15.3	7.71
	14-Aug-23	4.9	143.9	5.11	87.7	57	15.6	18.06
BH5	15-Feb-23	3	15.6	4.64	132.9	88	23.9	75.75
BH6	27-Jul-22	4.75	-104	4.76	225		14.2	16.8
	12-Aug-22	3.94	-80	5.1	217		14.2	156
	16-Sep-22	2.64	-112.5	5.18	229.4	71	18.1	101.53
	24-Oct-22	1.75	-66.8	4.01	84.3	171	18.3	65.7
	18-Nov-22	2.29	-85.2	4.14	224.4	156	21.7	
	14-Dec-22	1.72	-45.6	4.11	232.3	151	21.1	35
	17-Jan-23	2.46	-7	3.82	245.5	162	24.5	34.06
	15-Feb-23	3	-57.2	4.55	233.8	148	26.4	88.41
	15-Mar-23	4.29	150.2	4.09	233.2	155	23.9	32.96
	18-Apr-23	2.64	-60.1	4.85	195.4	137	21	19.48
	16-May-23	3.45	-39.9	4.8	195.1	140	20.2	
	14-Jun-23	2.9	-49.9	4.59	242.1	157	15.7	82.08
	24-Jul-23	8.84	97	4.91	230.2	174	17.7	230
	14-Aug-23	1.9	38.3	4.36	275.9	179	14.6	39
	27-Jul-22	4.21	26	4.43	117		14.3	489
	12-Aug-22	3.98	11	4.84	110		14.9	110.4
	16-Sep-22	2.92	65.6	4.78	94.1	71	17.6	101.6
	24-Oct-22	3.52	-93.2	4.72	81.9	62	17.7	68.09
	18-Nov-22	3.35	-92.5	4.75	78.4	54	22.1	

Williamtown Sand Syndicate
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Table 16
Field Parameters

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
BH7	14-Dec-22	3.82	-72.2	4.74	70.1	46	21.6	35.8
	17-Jan-23	2.98	38	4.49	74.1	51	22	15.49
	15-Feb-23	3.4	-50.1	4.68	70.4	45	25.4	70.91
	15-Mar-23	4.06	4	4.62	75.9	51	23.2	28.4
	18-Apr-23	4.02	174.3	4.8	82.9	58	21	51.83
	16-May-23	1.84	161.2	4.18	75.2	54	20	
	14-Jun-23	2.9	99.5	4.66	87.2	57	16.1	184
	24-Jul-23	5.6	159.2	4.83	90.6	71	16.3	58
	14-Aug-23	3.5	123.5	4.45	102.8	67	15.3	55
BH8	12-Aug-22	4.2	-67.9	4.81	135		14.7	782
	18-Nov-22	3.4	-97.2	4.66	98.5	69	20.7	
	15-Feb-23	1.7	-108.51	4.81	129.9	82	26.7	45.25
	16-May-23	2.72	-85.5	4.81	113.1	84	18.6	
	14-Aug-23	3.4	-19.2	4.26	163.3	106	15.3	271
BH9A	27-Jul-22	4.93	208.5	4.11	182.8		16.6	52
	12-Aug-22	3.96	249	4.46	186		17.6	41.5
	16-Sep-22	3.65	241.4	4.69	132	99	18	45.22
	24-Oct-22	2.84	196.2	4.76	118	87	19	36.09
	18-Nov-22	2.04	86.3	4.79	112	84	18.1	
	14-Dec-22	2.32	166	4.75	107.7	70	18.7	61
	17-Jan-23	1.94	111.5	4.73	107.4	75	21.4	32.2
	15-Feb-23	3.2	29.5	3.83	171.6	119	21.6	87.9
	15-Mar-23	4.24	171.7	4.83	103.3	72	21.9	51.32
	18-Apr-23	3.5	9.5	4.83	123.5	90	19.5	69.85
	16-May-23	6.01	44.1	4.6	103.9	80	17.1	
	14-Jun-23	3.6	168.9	4.45	107.6	70	18.2	66.18
	24-Jul-23	4.13	195.5	4.69	125.6	95	17.8	55.5
	14-Aug-23	2.6	77.5	4.33	164.1	107	17.9	121.51
BH11	27-Jul-22	4.74	-39	4.2	158		14	9.7
	16-Sep-22	2.46	-63.9	4.54	118.4	89	18	26.3
	24-Oct-22	2.12	-92.9	4.37	120.3	90	18.1	23.72
	18-Nov-22	2.01	-100.5	4.47	120.7	89	18.8	
	14-Dec-22	3.19	-86	4.48	130.2	85	19.1	73
	17-Jan-23	2.16	-80.5	4.31	133.5	89	23.9	5.8
	15-Feb-23	4	-66.5	4.45	110.1	76	22.1	53.17
	15-Mar-23	3.05	-43.4	4.58	102.9	71	21.6	4.83
	18-Apr-23	3.11	-69.5	4.61	100.1	72	20.1	417.6
	16-May-23	3.13	-60	4.45	111.1	83	18.4	
	14-Jun-23	2.5	-48.9	4.38	122.9	80	16.6	74.09
	24-Jul-23	5.69	-35.6	4.45	102.2	80	16	133
	14-Aug-23	3	16	4.26	125.2	81	16.5	75
BH12A	24-Oct-22	2.94	141.5	4.95	120.8	89	18.8	146
	15-Feb-23	2.5	167.5	4.93	138.4	90	24.9	287.01
	14-Aug-23	2.9	166.6	3.82	137.5	89	16.5	21
MW239S	27-Jul-22	4	-71	4.32	125		14.2	175
	12-Aug-22	2.73	-69	4.6	115		15.2	310
	16-Sep-22	3.65	-79.71	4.83	102.4	77	17.9	129.37
	24-Oct-22	2.33	-117.7	4.72	86.5	65	18	83.71
	18-Nov-22	1.93	-113	4.74	97.3	67	22	
	14-Dec-22	3.05	-62	4.62	115.4	75	21.5	239
	17-Jan-23	2.61	-9.4	4.52	100.2	67	23.6	105.4

Williamtown Sand Syndicate
August 2023
Quarterly Water Monitoring Event

Table 16
Field Parameters

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
MW2393	15-Feb-23	3.1	-62.6	4.51	114.2	72	26.6	145
	15-Mar-23	3.02	-4.1	4.61	102.4	70	22.5	206.44
	18-Apr-23	3.29	-85	4.78	87.2	63	20.1	84.02
	16-May-23	2.75	-50.4	4.52	84.7	63	18.6	
	14-Jun-23	2.4	-77.3	4.58	100.8	66	17.4	88.4
	24-Jul-23	4.37	-57	4.53	84.6	67	15.6	217
	15-Aug-23	3.3	-34	4.77	105.9	69	15.1	223
SW1	12-Aug-22	2.97	182	5.18	140		12.6	4.3
	18-Nov-22	0.89	154.6	5.45	99.5	78	15.9	
	15-Feb-23	4	117.8	6.37	138.5	97	21.1	20.69
	16-May-23	3.58	75.7	6.34	82.4	69	13.3	
	14-Aug-23	2.8	0.8	6.31	114.5	74	12.5	5.67
SW2	12-Aug-22	1.11	-40	4.95	88.2		12.9	23
	18-Nov-22	2.49	122	4.62	82.5	61	18.4	
	15-Feb-23	2.5	-27.9	4.39	137.7	90	23.9	80.7
	16-May-23	3.62	206.2	4.02	147.8	116	15.8	
	14-Aug-23	1.7	52.7	4.15	203.9	133	14	0.5
SW3	12-Aug-22	1.4	41.1	3.99	259.8		11.9	2.8
	18-Nov-22	3.09	80.4	5.62	227.1	164	19.5	
	15-Feb-23	3	-72	4.72	215.5	138	25.6	43.33
	16-May-23	0.98	-24	4.36	176	143	14.7	
	14-Aug-23	2.8	0.8	6.31	114.5	74	12.5	5.67
SW4	12-Aug-22	3.75	224	4.57	214		11.3	1.34
	18-Nov-22	3.5	130.2	4.43	217.9	149	22.4	
	15-Feb-23	0.7	-74	5.75	253.3	172	22.7	4.1
	16-May-23	3.74	292.9	3.96	209.7	172	14	
	14-Aug-23	4.3	281.1	3.84	258.6	168	10.9	1.4
WPW	12-Aug-22	10.09	210	5.06	255		14.7	205
	16-Sep-22	9.42	174.5	4.7	208.2	149	20	1000.34
	24-Oct-22	9.11	145.4	4.73	199.4	143	20.2	4120.3
	18-Nov-22	8.57	209.5	4.77	253.6	167	24.3	
	14-Dec-22	8.64	189.5	4.97	267.8	174	22.1	3055.6
	17-Jan-23	8.24	195.3	4.69	264.1	167	26.5	415
	15-Mar-23	8.29	171.9	4.83	297.2	195	24.7	468.5
WPW2	15-Feb-23	8.2	470.7	6.1	272	164	29	4.88
	18-Apr-23	8.61	203.3	5	226.3	163	20	56.08
	16-May-23	9.61	249.7	4.71	230.1	173	17.8	
	14-Jun-23	10.7	168.3	4.46	263.5	171	14.6	1037
	14-Jun-23	10.7	168.3	4.46	263.5	171	14.6	1037
	24-Jul-23	11.79	448	2.65	1207	980	14.5	1300
	14-Aug-23	10.2	205.6	4.41	242.8	158	15.9	42

ATTACHMENT 3: LABORATORY DOCUMENTATION AND COCS

KLEINFELDER AUSTRALIA PTY LTD

Page 1 of 1

COC number:

KLEINFELDER
Bright People. Right Solutions.

Client:	SITE, COC AND CONTACT DATA				Laboratory:
Kleinfelder Australia Pty Ltd **Suite 3, 240-244 Pacific Hwy** **Charlestown,** **NSW 2290** **Phone: 02 4949 5200**	Site Name:	WSS - Quarterly GME	Sampler Name:	Aaron King	ALS 5/585 Maitland Rd Mayfield West, Newcastle NSW 2304 Phone: (02) 4014 2500
	QUOTE NUMBER		Contact Number:	0457426013	
	Job No.:	20232071	Contact e-mail:	[redacted]@kleinfelder.com	
	Required TAT:	24 hrs 48 hrs 3 days 5 days 7 days	PM e-mail:	DKousbroek@kleinfelder.com	
	Date QA level:	LAB minimum unless specified:	EDD Format	KLF_EFWEDD	

CHAIN OF CUSTODY							Send Results to:
Relinquished by (print):	Aaron King	Received by (print):		Relinquished:		Received by:	Aking@kleinfelder.com, dkousbroek@kleinfelder.com,
(sign)		(sign)		(sign)		(sign)	
Date / Time:	15/8/23	Date / Time:	15/8/23 1328	Date / Time:	15/8/23	Date / Time:	15/8/23 1905
Notes:		Temp. (°C)	1.2 ice present / no ice	Notes:	6pm	Temp. (°C)	Suite 3, 240 - 244 Pacific Highway Charlestown, NSW 2290 Phone: 02 4949 5200
		Notes:	seals intact / no seal			Notes: ice present / no ice seals intact / no seal	

Sample ID	Lab ID	Sample Point	Sample Type	Date 14/8	Start Depth	End Depth	Units	# Containers	Organic Analytes: W-04 sg TRH BS/BTEX	Organic Analytes: TRH with silica gel (EP080 / EP071 SG)	Metals: 10 Metals Dissolved (As, B, Ba, Co, Cr, Cu, Fe, Mn, Ni & Zn)	Metals: 3 Metals (As, Fe, Mn)	Metals: 8 Metals Dissolved (As, Ba, Cr, Cu, Fe, Mn, Ni & Zn)	Other Analytes: Magnesium	Other Analytes: NT 14 - Extended Water Suite	Other Analytes: EP231X PFAS (28 analytes, standard level)	Comments
BH2	1		WG	16/08/2023				6		X			X	X		X	
BH4	2		WG	16/08/2023				6		X			X	X		X	
BH6	3		WG	16/08/2023				6		X			X	X		X	
BH7	4		WG	16/08/2023				6		X			X	X		X	
BH8	5		WG	16/08/2023				6		X			X	X		X	
BH9A	6		WG	16/08/2023				6		X			X	X		X	
BH11	7		WG	16/08/2023				6		X			X	X		X	
MW239S	8		WG	16/08/2023				6		X			X	X		X	
SW1	9		WS	16/08/2023				6		X	X			X		X	
SW2	10		WS	16/08/2023				6		X	X			X		X	
SW3	11		WS	16/08/2023				6		X	X			X		X	
SW4	12		WS	16/08/2023				6		X	X			X		X	
WPW 2	13		WS	16/08/2023				3				X				X	
WPF	14		Soil	16/08/2023				2					X	X		X	
QC01	15		WQ	16/08/2023				5		X	X			X		X	
QC01A	16		WQ	16/08/2023				5		X	X			X		X	Please forward to Eurofins
RB_160823	17		WQ	16/08/2023				2		X	X			X		X	
TB_160823	18		WQ	16/08/2023				2		X	X			X		X	
BH1A	19			15/8						X			X	X		X	
BH12A	20			15/8						X			X	X		X	

NT14 - Extended water suite B

Subcon / Forward Lab / Split WO:

Lab / Analysis: Eurofins

Organised By / Date: QC01A

Relinquished By / Date:

Connote / Courier:

WO No: ES2327437

Attached By PO / Internal Sheet:

Environmental Division
Sydney
Work Order Reference
ES2327437

Telephone : +61-2-8784 8555

CERTIFICATE OF ANALYSIS

Work Order	: **ES2327437**	Page	: 1 of 21
Amendment	: **1**		
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: AARON KING	Contact	: Graeme Jablonskas
Address	: 95 MITCHELL ROAD CARDIFF NSW 2285	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 20232071	Date Samples Received	: 15-Aug-2023 13:28
Order number	: ----	Date Analysis Commenced	: 16-Aug-2023
C-O-C number	: ----	Issue Date	: 25-Aug-2023 17:47
Sampler	: AARON KING		
Site	: WSS- Quarterly GME		
Quote number	: EN/222		
No. of samples received	: 19		
No. of samples analysed	: 19		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

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

General Comments

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

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

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

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

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

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

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

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- Amendment (25/08/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EP231x for sample 014.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	WPF	----	----	----	----
			Sampling date / time	14-Aug-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2327437-014	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**59.2**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	----	----	----	----
Barium	7440-39-3	10	mg/kg	**20**	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**68**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**6**	----	----	----	----
Iron	7439-89-6	50	mg/kg	**40000**	----	----	----	----
Manganese	7439-96-5	5	mg/kg	**32**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**7**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**23**	----	----	----	----
Magnesium	7439-95-4	50	mg/kg	**290**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0009**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	WPF	----	----	----	----
				Sampling date / time	14-Aug-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2327437-014	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0009**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0009**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	WPF	----	----	----	----
				Sampling date / time	14-Aug-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2327437-014	--------	--------	--------	--------
					Result	----	----	----	----
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0009**	**----**	**----**	**----**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**90.8**	**----**	**----**	**----**	**----**
13C8-PFOA	----	0.0002	%		**96.4**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH2	BH4	BH6	BH7	BH8
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	ES2327437-001	ES2327437-002	ES2327437-003	ES2327437-004	ES2327437-005
				Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations								
Magnesium	7439-95-4	1	mg/L	**1**	**1**	**7**	**2**	**2**
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.002**
Barium	7440-39-3	0.001	mg/L	**0.004**	**0.009**	**0.008**	**0.002**	**0.005**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**0.003**
Copper	7440-50-8	0.001	mg/L	**0.008**	**0.119**	**0.001**	**0.003**	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.009**	**0.015**	**0.006**	**0.003**	**0.006**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**0.001**
Zinc	7440-66-6	0.005	mg/L	**0.164**	**0.028**	**0.062**	**0.024**	**0.024**
Iron	7439-89-6	0.05	mg/L	**0.18**	**0.09**	**6.34**	**0.41**	**1.78**
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup								
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<50	<50	<50
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	<100	<100	<100
>C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH2	BH4	BH6	BH7	BH8
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	ES2327437-001	ES2327437-002	ES2327437-003	ES2327437-004	ES2327437-005
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH2	BH4	BH6	BH7	BH8
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2327437-001	ES2327437-002	ES2327437-003	ES2327437-004	ES2327437-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**91.8**	**95.8**	**95.9**	**95.5**	**93.5**
Toluene-D8	2037-26-5	2	%		**101**	**99.5**	**98.0**	**102**	**98.6**
4-Bromofluorobenzene	460-00-4	2	%		**112**	**112**	**112**	**114**	**112**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.6**	**91.0**	**100**	**93.0**	**90.5**
13C8-PFOA	----	0.02	%		**114**	**112**	**107**	**109**	**114**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH9A	BH11	MW239S	SW1	SW2
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	ES2327437-006	ES2327437-007	ES2327437-008	ES2327437-009	ES2327437-010
				Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations								
Magnesium	7439-95-4	1	mg/L	**2**	**2**	**1**	**1**	**2**
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	**0.006**	**0.002**	**0.002**	**0.004**	**0.010**
Chromium	7440-47-3	0.001	mg/L	<0.001	**0.003**	**0.002**	<0.001	**0.001**
Cobalt	7440-48-4	0.001	mg/L	**----**	**----**	**----**	<0.001	**0.003**
Copper	7440-50-8	0.001	mg/L	**0.003**	**0.001**	<0.001	**0.003**	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.041**	**0.004**	**0.004**	**0.026**	**0.061**
Nickel	7440-02-0	0.001	mg/L	**0.003**	**0.002**	**0.001**	<0.001	**0.004**
Zinc	7440-66-6	0.005	mg/L	**0.038**	**0.081**	**0.013**	**0.013**	**0.062**
Boron	7440-42-8	0.05	mg/L	**----**	**----**	**----**	<0.05	<0.05
Iron	7439-89-6	0.05	mg/L	**0.63**	**0.88**	**0.28**	**0.16**	**6.48**
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup								
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<50	<50	<50
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	<100	<100	<100
>C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH9A	BH11	MW239S	SW1	SW2
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	ES2327437-006	ES2327437-007	ES2327437-008	ES2327437-009	ES2327437-010
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH9A	BH11	MW239S	SW1	SW2
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2327437-006	ES2327437-007	ES2327437-008	ES2327437-009	ES2327437-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**94.1**	**89.2**	**95.2**	**99.0**	**99.9**
Toluene-D8	2037-26-5	2	%		**102**	**97.8**	**102**	**99.1**	**102**
4-Bromofluorobenzene	460-00-4	2	%		**113**	**108**	**112**	**112**	**114**
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH9A	BH11	MW239S	SW1	SW2
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2327437-006	ES2327437-007	ES2327437-008	ES2327437-009	ES2327437-010
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.02	%		**94.8**	**93.2**	**97.1**	**93.6**	**96.0**
13C8-PFOA	----	0.02	%		**110**	**111**	**115**	**105**	**107**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SW3	SW4	WPW2	QC01	RB_140823
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	ES2327437-011	ES2327437-012	ES2327437-013	ES2327437-015	ES2327437-017
				Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations								
Magnesium	7439-95-4	1	mg/L	**3**	**4**	**----**	<1	<1
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	**0.005**	**0.028**	**----**	**0.002**	<0.001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	**----**	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	**0.002**	**----**	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	**----**	**0.007**	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.034**	**0.022**	**0.058**	**0.005**	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	**0.003**	**----**	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	**0.021**	**----**	**0.088**	<0.005
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	**----**	<0.05	<0.05
Iron	7439-89-6	0.05	mg/L	**4.72**	**0.26**	**0.88**	**0.11**	<0.05
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup								
C10 - C14 Fraction	----	50	µg/L	<50	<50	**----**	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	**----**	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	**----**	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	**----**	<50	<50
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	**----**	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	**----**	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	**----**	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	**----**	<100	<100
>C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	**----**	<100	<100
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	**----**	<20	<20
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	**----**	<20	<20
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	**----**	<20	<20
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	**----**	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	**----**	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	**----**	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SW3	SW4	WPW2	QC01	RB_140823
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	ES2327437-011	ES2327437-012	ES2327437-013	ES2327437-015	ES2327437-017
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	<2	<2
^ **Total Xylenes**	----	2	µg/L	<2	<2	----	<2	<2
^ **Sum of BTEX**	----	1	µg/L	<1	<1	----	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	----	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW3	SW4	WPW2	QC01	RB_140823
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2327437-011	ES2327437-012	ES2327437-013	ES2327437-015	ES2327437-017
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**97.8**	**99.4**	**----**	**86.8**	**96.6**
Toluene-D8	2037-26-5	2	%		**97.9**	**97.0**	**----**	**85.0**	**95.0**
4-Bromofluorobenzene	460-00-4	2	%		**112**	**112**	**----**	**97.3**	**110**
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW3	SW4	WPW2	QC01	RB_140823
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2327437-011	ES2327437-012	ES2327437-013	ES2327437-015	ES2327437-017
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.02	%		**100**	**99.5**	**93.2**	**95.4**	**101**
13C8-PFOA	----	0.02	%		**101**	**97.2**	**99.9**	**107**	**99.0**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB_140823	BH1A	BH12A	----	----
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2327437-018	ES2327437-019	ES2327437-020	--------	--------
				Result	Result	Result	----	----
ED093F: Dissolved Major Cations								
Magnesium	7439-95-4	1	mg/L	<1	**2**	**2**	**----**	**----**
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	**----**	**----**
Barium	7440-39-3	0.001	mg/L	<0.001	**0.003**	**0.006**	**----**	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	**0.003**	<0.001	**----**	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	**----**	**----**	**----**	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	**0.004**	**0.001**	**----**	**----**
Manganese	7439-96-5	0.001	mg/L	<0.001	**0.011**	**0.006**	**----**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**----**	**----**
Zinc	7440-66-6	0.005	mg/L	<0.005	**0.015**	**0.025**	**----**	**----**
Boron	7440-42-8	0.05	mg/L	<0.05	**----**	**----**	**----**	**----**
Iron	7439-89-6	0.05	mg/L	<0.05	**0.45**	<0.05	**----**	**----**
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup								
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	**----**	**----**
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	**----**	**----**
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	**----**	**----**
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<50	**----**	**----**
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	**----**	**----**
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	**----**	**----**
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	**----**	**----**
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	<100	**----**	**----**
>C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	**----**	**----**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	**----**	**----**
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	**----**	**----**
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	**----**	**----**
Toluene	108-88-3	2	µg/L	<2	<2	<2	**----**	**----**
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_140823	BH1A	BH12A	----	----
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2327437-018	ES2327437-019	ES2327437-020	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_140823	BH1A	BH12A	----	----
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2327437-018	ES2327437-019	ES2327437-020	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**101**	**93.6**	**96.8**	----	----
Toluene-D8	2037-26-5	2	%		**96.8**	**97.4**	**97.5**	----	----
4-Bromofluorobenzene	460-00-4	2	%		**110**	**115**	**114**	----	----
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_140823	BH1A	BH12A	----	----
				Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2327437-018	ES2327437-019	ES2327437-020	--------	--------
					Result	Result	Result	----	----
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.02	%		**98.0**	**96.1**	**101**	**----**	**----**
13C8-PFOA	----	0.02	%		**98.0**	**101**	**106**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2327437**	Page	: 1 of 12
Amendment	: **1**		
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: AARON KING	Contact	: Graeme Jablonskas
Address	: 95 MITCHELL ROAD CARDIFF NSW 2285	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 20232071	Date Samples Received	: 15-Aug-2023
Order number	: ----	Date Analysis Commenced	: 16-Aug-2023
C-O-C number	: ----	Issue Date	: 25-Aug-2023
Sampler	: AARON KING		
Site	: WSS- Quarterly GME		
Quote number	: EN/222		
No. of samples received	: 19		
No. of samples analysed	: 19		

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

Signatories

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

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

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5242450)									
ES2326970-002	Anonymous	EG005T: Barium	7440-39-3	10	mg/kg	500	480	3.1	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	16	19	12.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	7	28.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	23	12.8	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	13	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	29	33	11.4	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	32000	34500	7.6	0% - 20%
ES2327384-003	Anonymous	EG005T: Barium	7440-39-3	10	mg/kg	90	80	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	16	8.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	13	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	401	441	9.4	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	44	40	10.4	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	19400	19900	2.6	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5242465)									
ES2327319-002	Anonymous	EA055: Moisture Content	----	0.1	%	15.2	19.6	25.4	0% - 50%
ES2327384-010	Anonymous	EA055: Moisture Content	----	0.1	%	16.3	14.4	12.3	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5252937)									
ES2327437-014	WPF	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5252937) - continued									
ES2327437-014	WPF	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0009	0.0006	35.3	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5252937)									
ES2327437-014	WPF	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5252937)									
ES2327437-014	WPF	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5252937)									
ES2327437-014	WPF	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5242082)									

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 (%)*
ED093F: Dissolved Major Cations (QC Lot: 5242082) - continued									
ES2327437-001	BH2	ED093F: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
ES2327437-011	SW3	ED093F: Magnesium	7439-95-4	1	mg/L	3	2	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5242080)									
ES2327096-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.020	0.019	0.0	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.036	0.036	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.09	0.10	0.0	No Limit
ES2327096-015	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.099	0.088	11.5	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.008	47.3	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5242083)									
ES2327437-011	SW3	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.034	0.034	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	4.72	4.65	1.6	0% - 20%
ES2327519-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.165	0.164	0.8	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.044	0.043	3.2	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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5242083) - continued									
ES2327519-002	Anonymous	EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5241325)									
ES2327437-001	BH2	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2327437-011	SW3	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5241325)									
ES2327437-001	BH2	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2327437-011	SW3	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5241325)									
ES2327437-001	BH2	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
ES2327437-011	SW3	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

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: **SOIL**

				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
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5242450)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	111	88.0	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	90.5 mg/kg	116	65.0	136
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	124	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111
EG005T: Iron	7439-89-6	50	mg/kg	<50	31660 mg/kg	111	89.0	112
EG005T: Manganese	7439-96-5	5	mg/kg	<5	534 mg/kg	112	83.0	117
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	107	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	98.0	66.0	133
EG005T: Magnesium	7439-95-4	----	mg/kg	----	7894 mg/kg	111	87.0	113
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5252937)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	77.2	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.4	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.9	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5252937)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	87.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.9	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.7	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.7	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	89.8	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5252937)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.2	67.0	137

Sub-Matrix: **SOIL**

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
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5252937) - continued								
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	100	71.6	129
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.2	69.8	131
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.1	68.7	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.9	65.1	134
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5252937)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	78.6	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	85.9	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	93.0	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	89.1	69.2	143

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
ED093F: Dissolved Major Cations (QCLot: 5242082)								
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	101	90.0	116
EG020F: Dissolved Metals by ICP-MS (QCLot: 5242080)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.8	85.0	114
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	82.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.8	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.7	81.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.9	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.7	81.0	117
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	86.7	85.0	115
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	112	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5242083)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.3	85.0	114
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	95.3	82.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.9	85.0	111

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
EG020F: Dissolved Metals by ICP-MS (QCLot: 5242083) - continued								
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	89.9	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.3	81.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.5	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.5	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.1	81.0	117
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	87.0	85.0	115
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	109	82.0	112
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 5240885)								
EP071SG: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	71.9	55.8	112
EP071SG: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	83.9	71.6	113
EP071SG: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	107	56.0	121
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 5240885)								
EP071SG: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	77.5	57.9	119
EP071SG: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	84.0	62.5	110
EP071SG: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	67.4	61.5	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5241325)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.3	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5241325)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.7	75.0	127
EP080: BTEXN (QCLot: 5241325)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100.0	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	106	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	115	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	119	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5237872)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	89.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	90.8	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	91.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	95.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	93.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	88.3	53.0	142

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
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5237872)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	88.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	91.1	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.7	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	88.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	101	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	89.9	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	95.3	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.7	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	104	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5237872)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	89.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	105	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	97.7	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.3	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	82.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.1	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5237872)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	99.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	91.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	111	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	88.6	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5242450)							
ES2326970-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	108	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	106	66.0	133
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5252937)							
ES2327437-014	WPF	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	76.9	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	77.0	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	67.0	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	72.4	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	69.1	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	80.4	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5252937)							
ES2327437-014	WPF	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	73.5	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	86.3	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	85.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	72.2	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	83.3	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	73.1	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	76.0	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	71.2	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	72.9	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	76.8	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	80.8	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5252937)							
ES2327437-014	WPF	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	73.6	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	79.3	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	79.4	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	80.6	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	76.1	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	77.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	71.6	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5252937)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5252937) - continued							
ES2327437-014	WPF	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	69.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	78.9	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	74.6	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	76.1	69.2	143

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5242080)							
ES2327096-003	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	103	70.0	130
		EG020A-F: Barium	7440-39-3	1 mg/L	104	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	105	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	104	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	107	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	105	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	104	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5242083)							
ES2327437-011	SW3	EG020A-F: Arsenic	7440-38-2	1 mg/L	115	70.0	130
		EG020A-F: Barium	7440-39-3	1 mg/L	120	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	116	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	119	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	123	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	124	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	119	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	118	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5241325)							
ES2327437-001	BH2	EP080: C6 - C9 Fraction	----	325 µg/L	85.0	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5241325)							
ES2327437-001	BH2	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	84.1	70.0	130
EP080: BTEXN (QCLot: 5241325)							
ES2327437-001	BH2	EP080: Benzene	71-43-2	25 µg/L	87.1	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	96.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	96.0	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	92.6	70.0	130

KLEINFELDER AUSTRALIA PTY LTD

KLEINFELDER

Kleinfelder Australia Pty Ltd Suite 3, 240-244 Pacific Hwy Charlestown NSW 2290 Phone: 02 4949 5200	SITE, COC AND CONTACT DATA	Laboratory: ALS 5/585 Maitland Rd Mayfield West Newcastle NSW 2304 Phone: (02) 4014 2500

CHAIN OF CUSTODY

15/8/23 1328

Sample ID	Lab ID	Organic Analysis	Metals	Metals	Metals	Other Analysis	Comments
BH2		X			X	X	
BH4		X			X	X	
BH6		X			X	X	
BH7		X			X	X	
BH9		X			X	X	
PH5A		X			X	X	
BH11		X			X	X	
MW2395		X			X	X	
SW1		X	X			X	
SW2		X	X			X	
SW3		X	X			X	
SW4		X	X			X	
WPW				X		X	
WPP					X	X	
QC01	15	X	X			X	
QC01A		X	X			X	Please send to ...
RB 140823	17	X	X			X	
TB 140823		X	X			X	
BH1A						X	
BH12A		X			X	X	

QC01A / Eurofins

Spit WO

Environmental Division
Sydney
Work Order Reference
ES2327437

Received by: Mary Ann 16/8/23 5:20 P.M. 5.3°C

1017674

Kleinfelder Australia Pty Ltd (NEWC)
Suite 3, 240-244 Pacific Hwy
Charlestown
NSW 2290

Attention: **AARON KING**

Report **1017674-W**
Project name WSS-QUARTERLY GME
Project ID 20232071
Received Date Aug 16, 2023

Client Sample ID			**QC01A**
Sample Matrix			**Water**
Eurofins Sample No.			**S23-Au0042210**
Date Sampled			**Aug 14, 2023**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	0.009
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001
Zinc (filtered)	0.005	mg/L	0.17
Alkali Metals			
Magnesium (filtered)	0.5	mg/L	1.6
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01
13C4-PFBA (surr.)	1	%	108
13C5-PFPeA (surr.)	1	%	115
13C5-PFHxA (surr.)	1	%	108
13C4-PFHpA (surr.)	1	%	102
13C8-PFOA (surr.)	1	%	107
13C5-PFNA (surr.)	1	%	95
13C6-PFDA (surr.)	1	%	96
13C2-PFUnDA (surr.)	1	%	95
13C2-PFDoDA (surr.)	1	%	97
13C2-PFTeDA (surr.)	1	%	65

Client Sample ID			QC01A
Sample Matrix			Water
Eurofins Sample No.			S23-Au0042210
Date Sampled			Aug 14, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05
13C8-FOSA (surr.)	1	%	96
D3-N-MeFOSA (surr.)	1	%	88
D5-N-EtFOSA (surr.)	1	%	97
D7-N-MeFOSE (surr.)	1	%	76
D9-N-EtFOSE (surr.)	1	%	66
D5-N-EtFOSAA (surr.)	1	%	80
D3-N-MeFOSAA (surr.)	1	%	77
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	< 0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01
13C3-PFBS (surr.)	1	%	116
18O2-PFHxS (surr.)	1	%	122
13C8-PFOS (surr.)	1	%	108
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01
13C2-4:2 FTSA (surr.)	1	%	102
13C2-6:2 FTSA (surr.)	1	%	85
13C2-8:2 FTSA (surr.)	1	%	92
13C2-10:2 FTSA (surr.)	1	%	121
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1

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
Metals M8 filtered	Sydney	Aug 17, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Alkali Metals (filtered)	Sydney	Aug 17, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Sydney	Aug 17, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Sydney	Aug 17, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Sydney	Aug 17, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Sydney	Aug 17, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Sydney	Aug 17, 2023	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

eurofins

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Eurofins Environment Testing Australia Pty Ltd
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Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Kleinfelder Aust Pty Ltd (NEWCASTLE)
Address: Suite 3, 240-244 Pacific Hwy
Charlestown
NSW 2290

Project Name: WSS-QUARTERLY GME
Project ID: 20232071

Order No.:
Report #: 1017674
Phone: 02 4949 5200
Fax:

Received: Aug 16, 2023 5:30 PM
Due: Aug 24, 2023
Priority: 5 Day
Contact Name: AARON KING

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Magnesium (filtered)	Metals M8 filtered	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QC01A	Aug 14, 2023		Water	S23-Au0042210	X	X	X
Test Counts						1	1	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

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

Terms

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

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Magnesium (filtered)	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	94			80-120	Pass	
Cadmium (filtered)	%	104			80-120	Pass	
Chromium (filtered)	%	99			80-120	Pass	
Copper (filtered)	%	98			80-120	Pass	
Lead (filtered)	%	95			80-120	Pass	
Mercury (filtered)	%	92			80-120	Pass	
Nickel (filtered)	%	99			80-120	Pass	
Zinc (filtered)	%	101			80-120	Pass	
LCS - % Recovery							
Alkali Metals							
Magnesium (filtered)	%	100			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	96			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	96			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	111			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	104			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	102			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	99			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	107			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	104			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	104			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	92			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	97			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	96			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	93			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	100			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	105			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	99			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	95			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	92			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	91			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	100			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	97			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	94			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	119			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	107			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	98			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	N23-Au0043419	NCP	%	110			75-125	Pass	
Cadmium (filtered)	N23-Au0043419	NCP	%	105			75-125	Pass	
Chromium (filtered)	N23-Au0043419	NCP	%	93			75-125	Pass	
Copper (filtered)	N23-Au0043419	NCP	%	90			75-125	Pass	
Lead (filtered)	N23-Au0043419	NCP	%	91			75-125	Pass	
Mercury (filtered)	N23-Au0043419	NCP	%	88			75-125	Pass	
Nickel (filtered)	N23-Au0043419	NCP	%	91			75-125	Pass	
Zinc (filtered)	N23-Au0043419	NCP	%	96			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S23-Au0042659	NCP	%	87			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S23-Au0042659	NCP	%	82			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S23-Au0042659	NCP	%	81			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S23-Au0042659	NCP	%	91			50-150	Pass	
Perfluorononanoic acid (PFNA)	S23-Au0042659	NCP	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S23-Au0042659	NCP	%	88			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S23-Au0042659	NCP	%	92			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S23-Au0042659	NCP	%	93			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S23-Au0042659	NCP	%	97			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S23-Au0042659	NCP	%	86			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S23-Au0042659	NCP	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S23-Au0042659	NCP	%	86			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S23-Au0042659	NCP	%	87			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S23-Au0042659	NCP	%	80			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S23-Au0042659	NCP	%	88			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S23-Au0042659	NCP	%	93			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S23-Au0042659	NCP	%	92			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S23-Au0042659	NCP	%	87			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S23-Au0042659	NCP	%	91			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S23-Au0042659	NCP	%	80			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S23-Au0042659	NCP	%	85			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S23-Au0042659	NCP	%	91			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S23-Au0042659	NCP	%	86			50-150	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S23-Au0042659	NCP	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S23-Au0042659	NCP	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S23-Au0042659	NCP	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S23-Au0042659	NCP	%	81			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Au0037423	NCP	mg/L	0.002	0.002	9.2	30%	Pass	
Cadmium (filtered)	S23-Au0037423	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S23-Au0037423	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Au0037423	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S23-Au0037423	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Au0037423	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S23-Au0037423	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Magnesium (filtered)	S23-Au0037423	NCP	mg/L	14	14	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S23-Au0044548	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S23-Au0044548	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Andrew Black	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal

Glenn Jackson
Managing Director

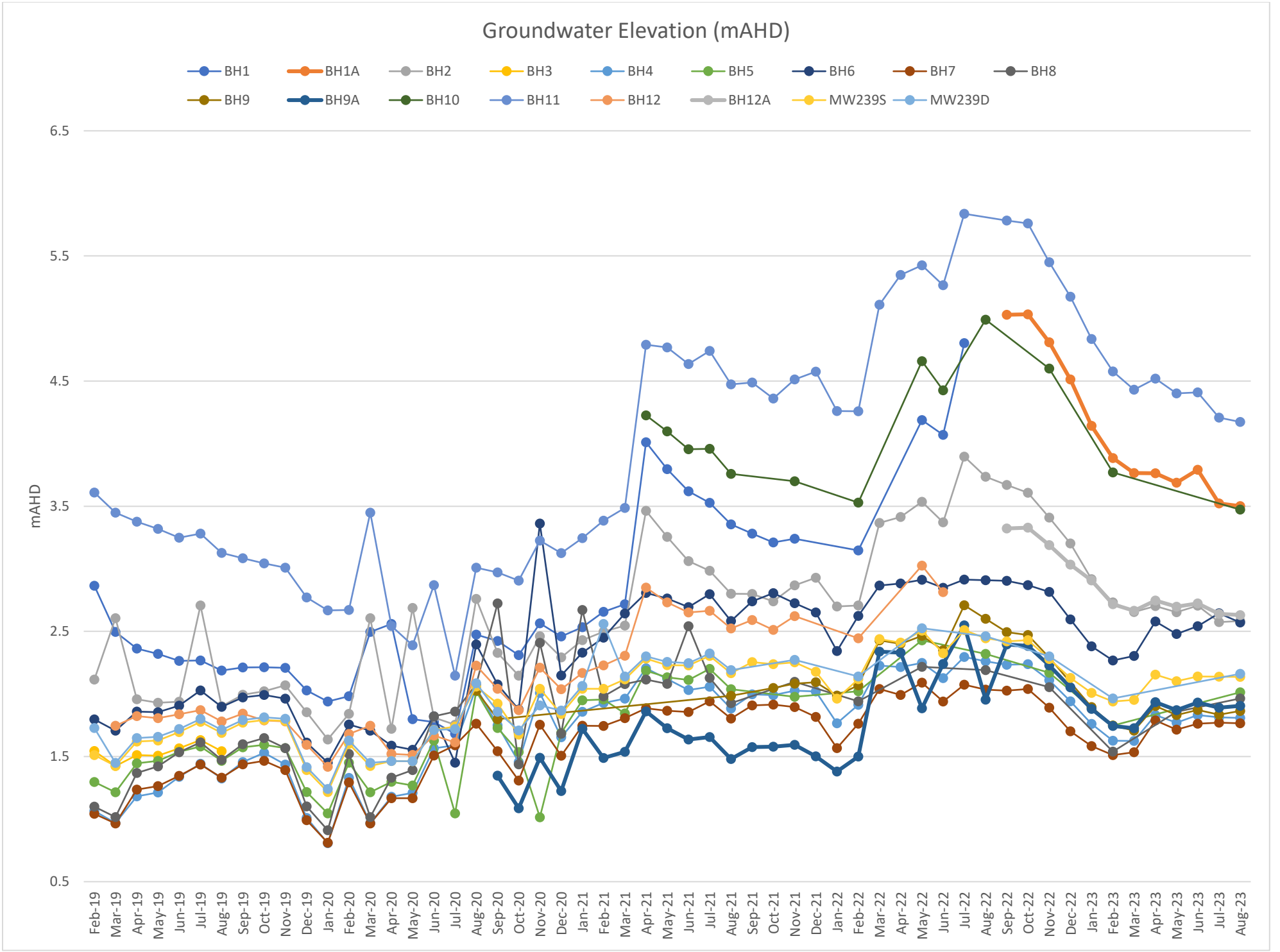
Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

ATTACHMENT 4: DATA TRENDS


Groundwater Elevation (mAHD)
BH1
BH1A
BH2
BH3
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12
BH12A
MW239S
MW239D
mAHD
6.5
5.5
4.5
3.5
2.5
1.5
0.5
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
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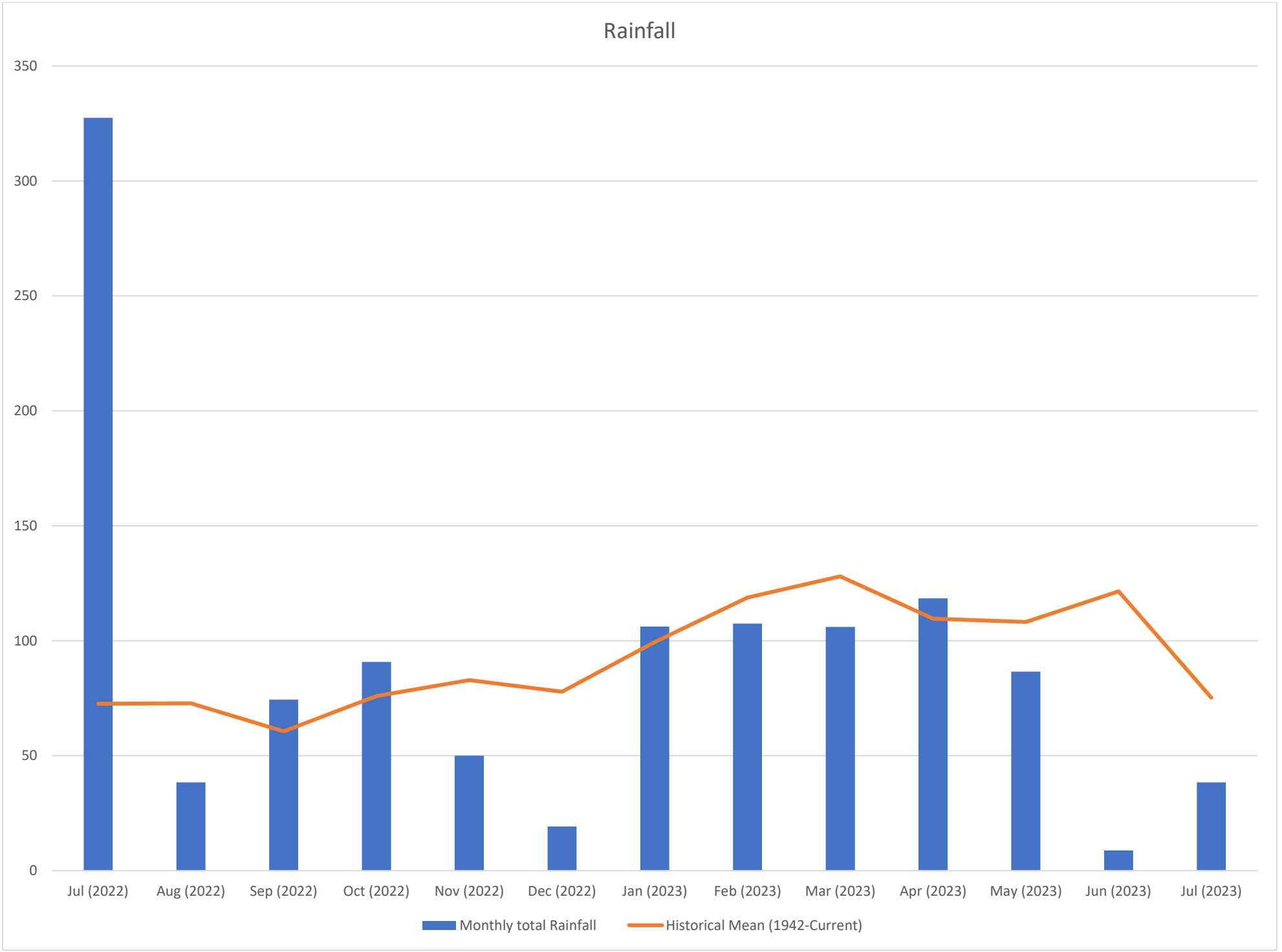
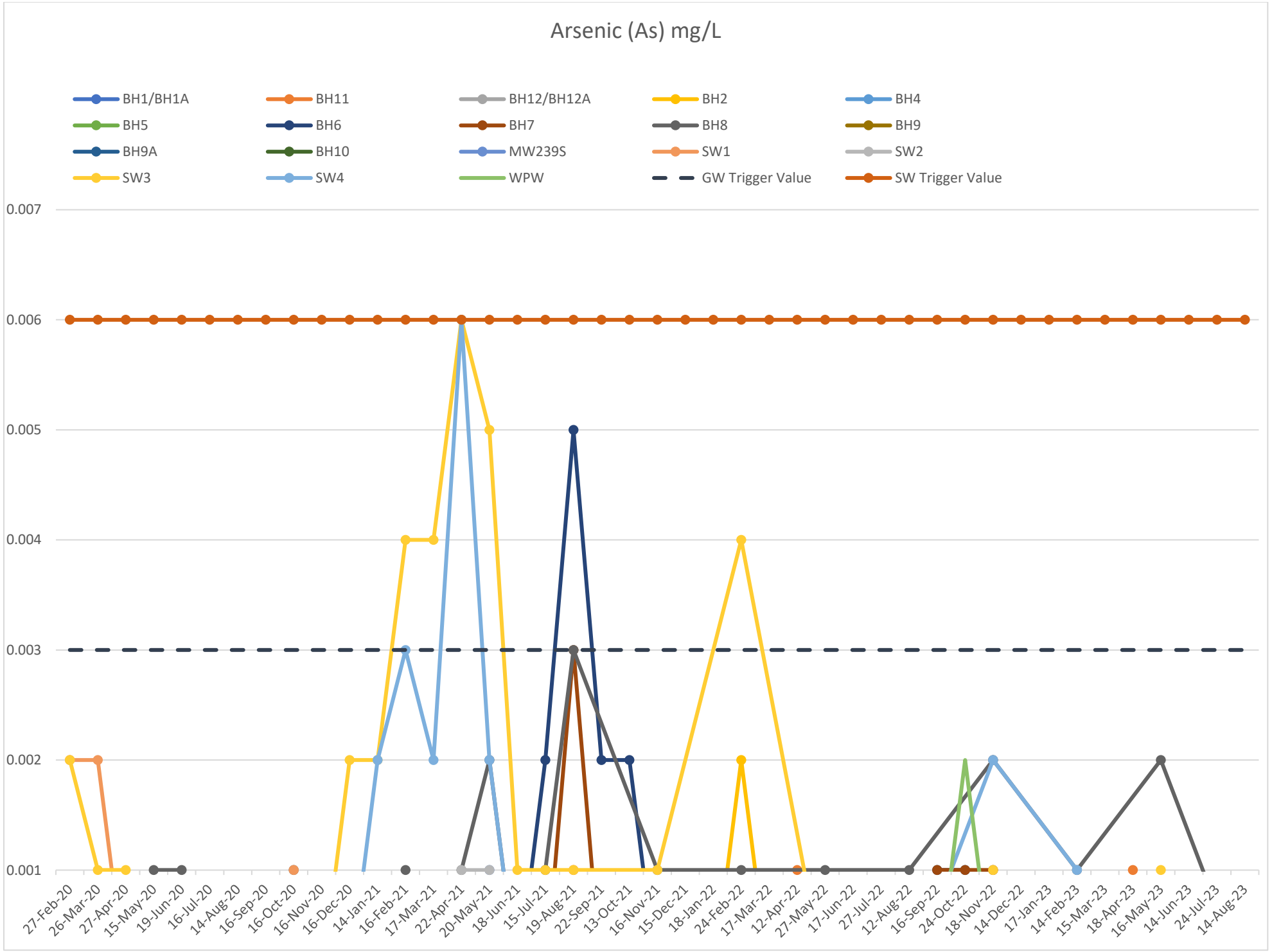
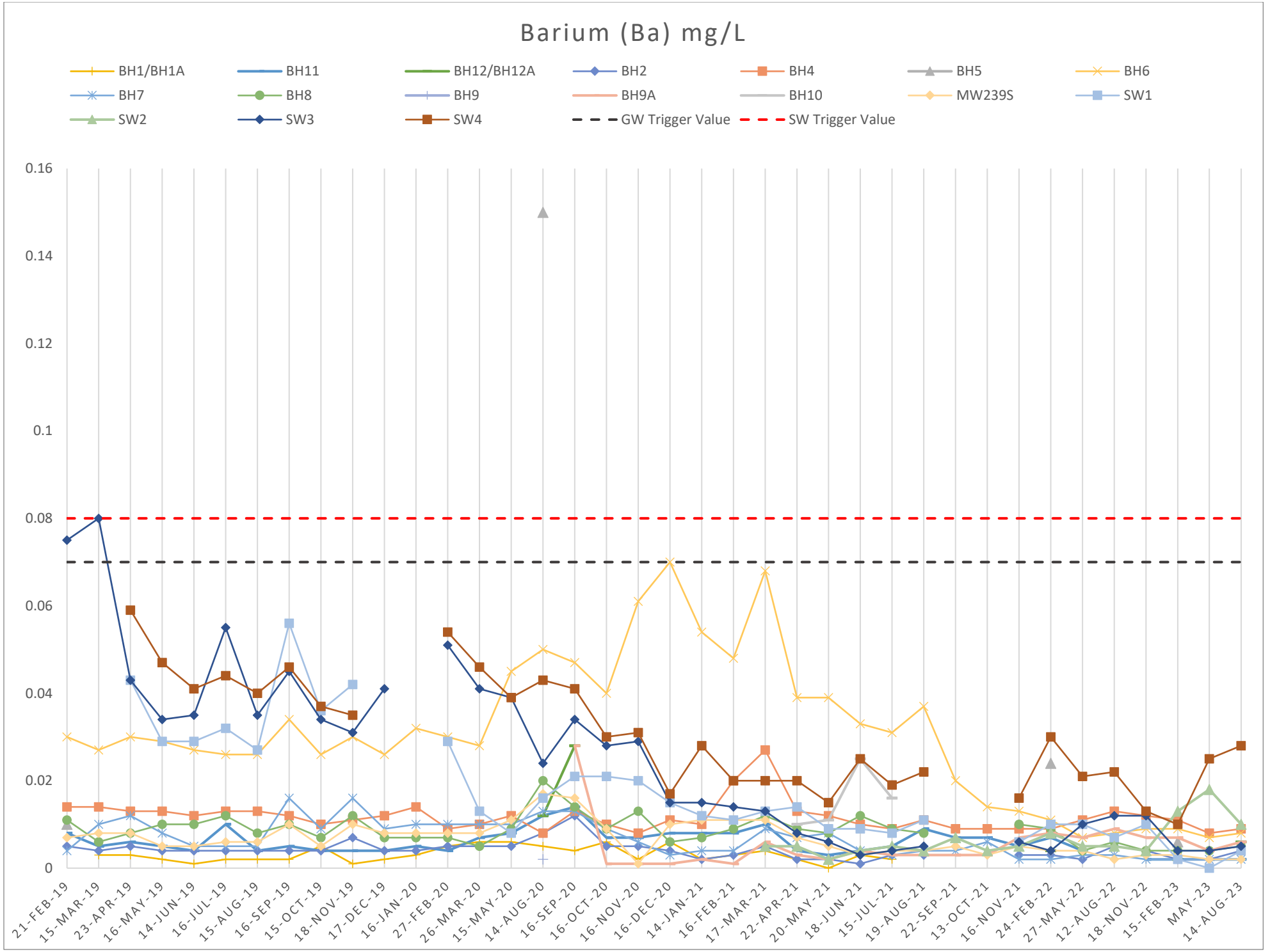
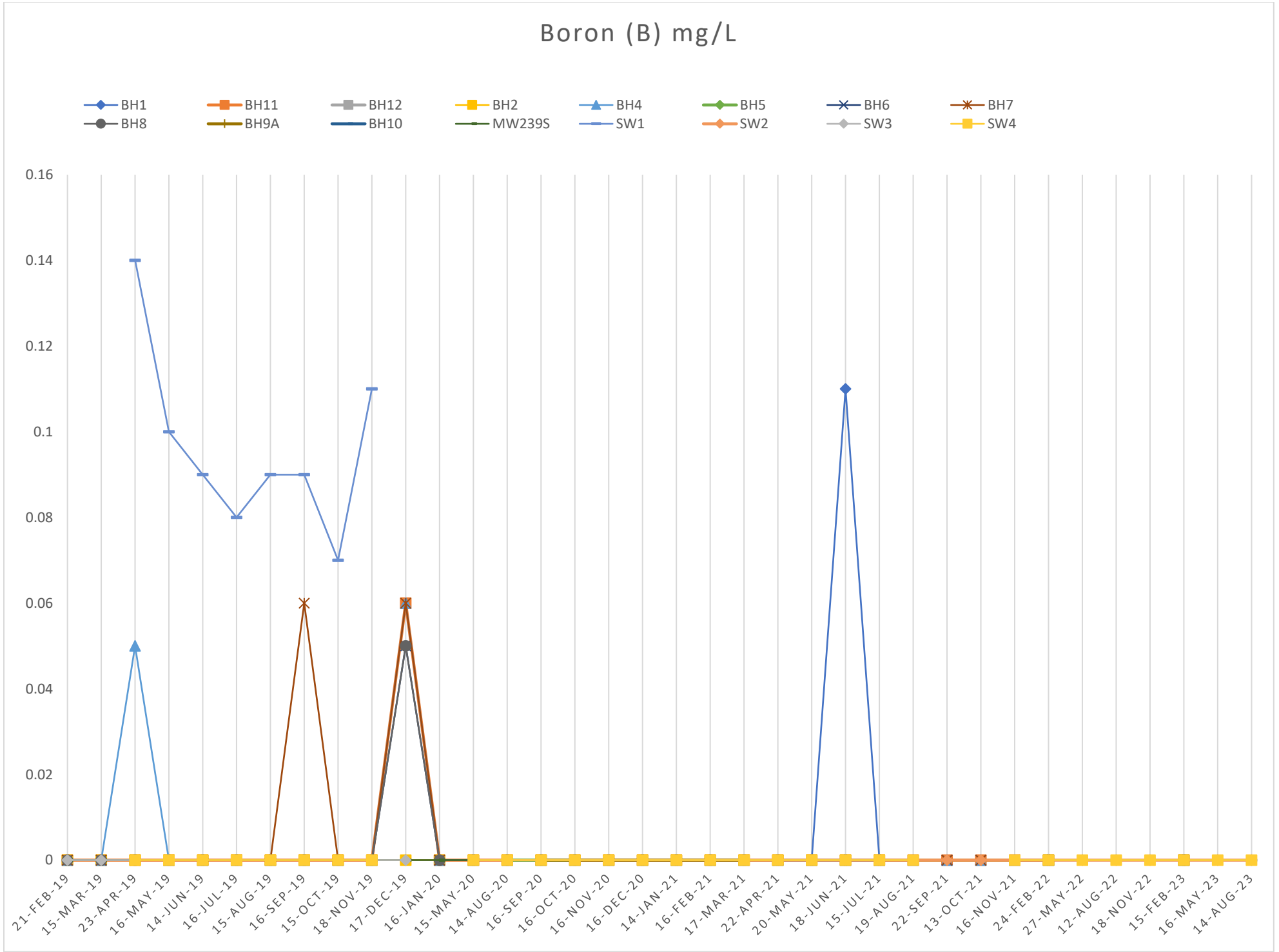
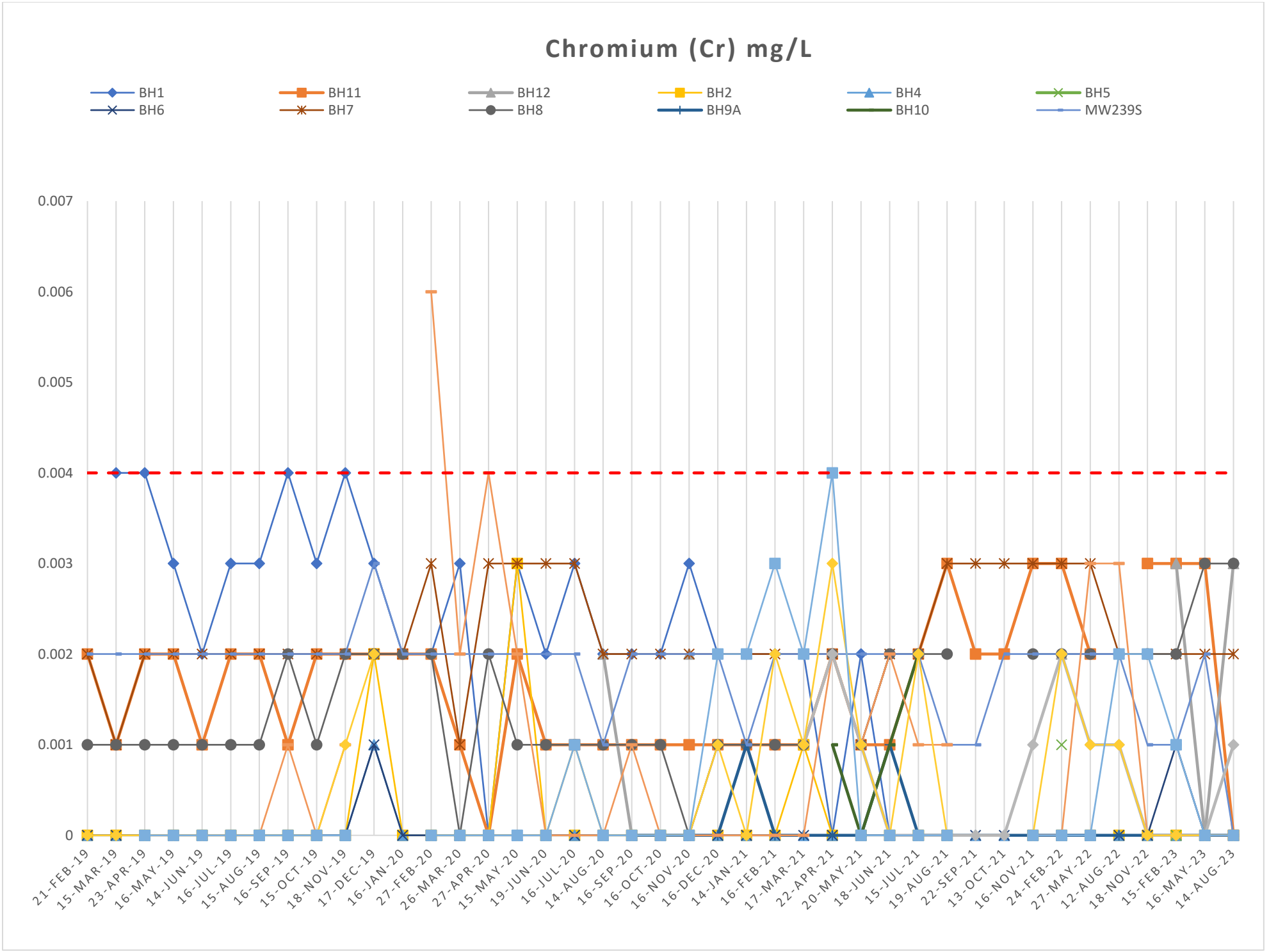
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23

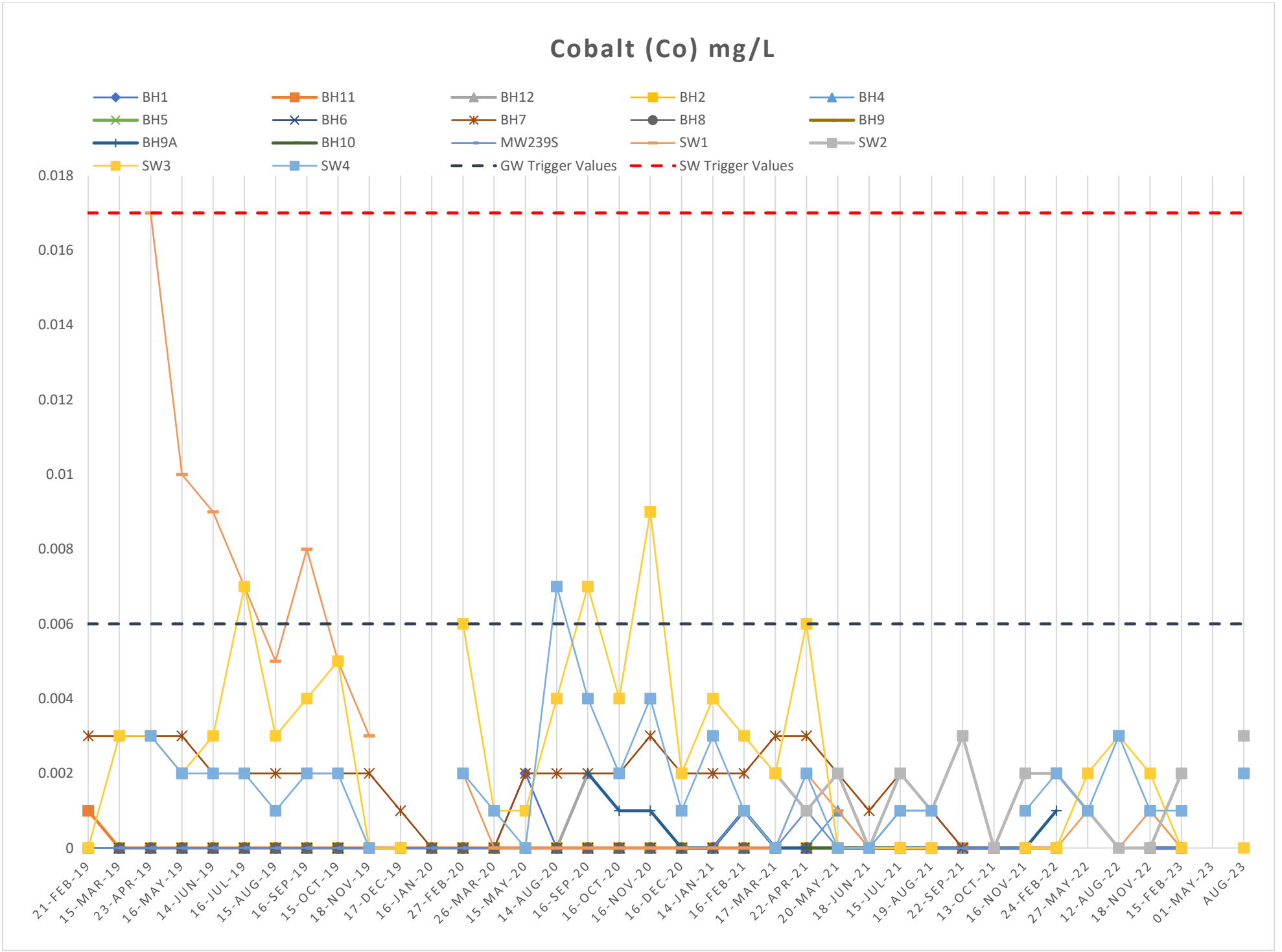

Rainfall
350
300
250
200
150
100
50
0
Jul (2022)
Aug (2022)
Sep (2022)
Oct (2022)
Nov (2022)
Dec (2022)
Jan (2023)
Feb (2023)
Mar (2023)
Apr (2023)
May (2023)
Jun (2023)
Jul (2023)
Monthly total Rainfall
Historical Mean (1942-Current)


Arsenic (As) mg/L
BH1/BH1A
BH11
BH12/BH12A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
WPW
GW Trigger Value
SW Trigger Value
0.007
0.006
0.005
0.004
0.003
0.002
0.001
27-Feb-20
26-Mar-20
27-Apr-20
15-May-20
19-Jun-20
16-Jul-20
14-Aug-20
16-Sep-20
16-Oct-20
16-Nov-20
16-Dec-20
14-Jan-21
16-Feb-21
17-Mar-21
22-Apr-21
20-May-21
18-Jun-21
15-Jul-21
19-Aug-21
22-Sep-21
13-Oct-21
16-Nov-21
15-Dec-21
18-Jan-22
24-Feb-22
17-Mar-22
12-Apr-22
27-May-22
17-Jun-22
27-Jul-22
12-Aug-22
16-Sep-22
24-Oct-22
18-Nov-22
14-Dec-22
17-Jan-23
14-Feb-23
15-Mar-23
18-Apr-23
16-May-23
14-Jun-23
24-Jul-23
14-Aug-23

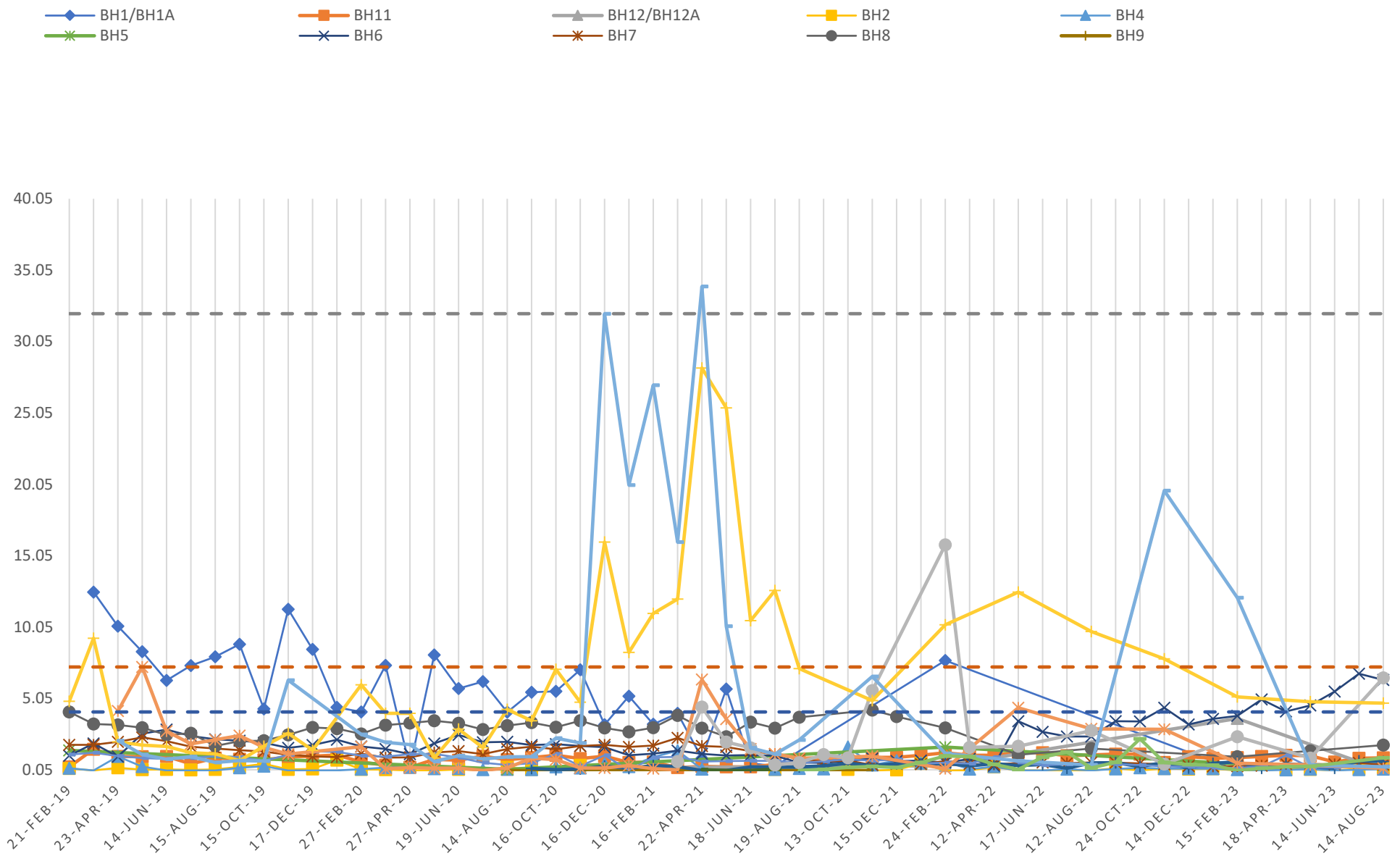

Barium (Ba) mg/L
BH1/BH1A
BH11
BH12/BH12A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
GW Trigger Value
SW Trigger Value
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
21-FEB-19
15-MAR-19
23-APR-19
16-MAY-19
14-JUN-19
16-JUL-19
15-AUG-19
16-SEP-19
15-OCT-19
18-NOV-19
17-DEC-19
16-JAN-20
27-FEB-20
26-MAR-20
15-MAY-20
14-AUG-20
16-SEP-20
16-OCT-20
16-NOV-20
16-DEC-20
14-JAN-21
16-FEB-21
17-MAR-21
22-APR-21
20-MAY-21
18-JUN-21
15-JUL-21
19-AUG-21
22-SEP-21
13-OCT-21
16-NOV-21
24-FEB-22
27-MAY-22
12-AUG-22
18-NOV-22
15-FEB-23
MAY-23
14-AUG-23


Boron (B) mg/L
BH1
BH11
BH12
BH2
BH4
BH5
BH6
BH7
BH8
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
21-FEB-19
15-MAR-19
23-APR-19
16-MAY-19
14-JUN-19
16-JUL-19
15-AUG-19
16-SEP-19
15-OCT-19
18-NOV-19
17-DEC-19
16-JAN-20
15-MAY-20
14-AUG-20
16-SEP-20
16-OCT-20
16-NOV-20
16-DEC-20
14-JAN-21
16-FEB-21
17-MAR-21
22-APR-21
20-MAY-21
18-JUN-21
15-JUL-21
19-AUG-21
22-SEP-21
13-OCT-21
16-NOV-21
24-FEB-22
27-MAY-22
12-AUG-22
18-NOV-22
15-FEB-23
16-MAY-23
14-AUG-23

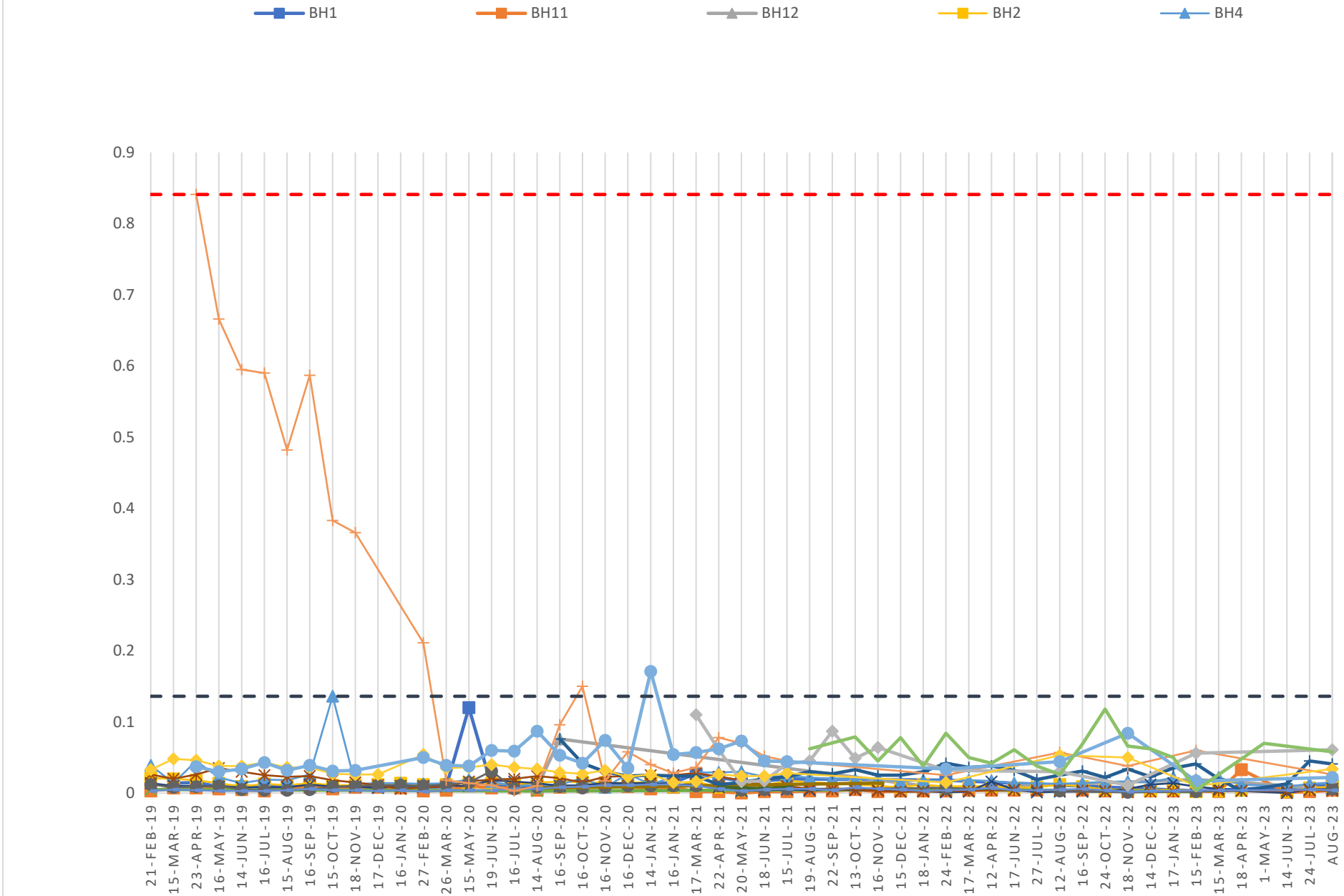

Chromium (Cr) mg/L
BH1
BH11
BH12
BH2
BH4
BH5
BH6
BH7
BH8
BH9A
BH10
MW239S
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
21-FEB-19
15-MAR-19
23-APR-19
16-MAY-19
14-JUN-19
16-JUL-19
15-AUG-19
16-SEP-19
15-OCT-19
18-NOV-19
17-DEC-19
16-JAN-20
27-FEB-20
26-MAR-20
27-APR-20
15-MAY-20
19-JUN-20
16-JUL-20
14-AUG-20
16-SEP-20
16-OCT-20
16-NOV-20
16-DEC-20
14-JAN-21
16-FEB-21
17-MAR-21
22-APR-21
20-MAY-21
18-JUN-21
15-JUL-21
19-AUG-21
22-SEP-21
13-OCT-21
16-NOV-21
24-FEB-22
27-MAY-22
12-AUG-22
18-NOV-22
15-FEB-23
16-MAY-23
14-AUG-23


Cobalt (Co) mg/L
BH1
BH11
BH12
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
GW Trigger Values
SW Trigger Values
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
21-FEB-19
15-MAR-19
23-APR-19
16-MAY-19
14-JUN-19
16-JUL-19
15-AUG-19
16-SEP-19
15-OCT-19
18-NOV-19
17-DEC-19
16-JAN-20
27-FEB-20
26-MAR-20
15-MAY-20
14-AUG-20
16-SEP-20
16-OCT-20
16-NOV-20
16-DEC-20
14-JAN-21
16-FEB-21
17-MAR-21
22-APR-21
20-MAY-21
18-JUN-21
15-JUL-21
19-AUG-21
22-SEP-21
13-OCT-21
16-NOV-21
24-FEB-22
27-MAY-22
12-AUG-22
18-NOV-22
15-FEB-23
01-MAY-23
AUG-23

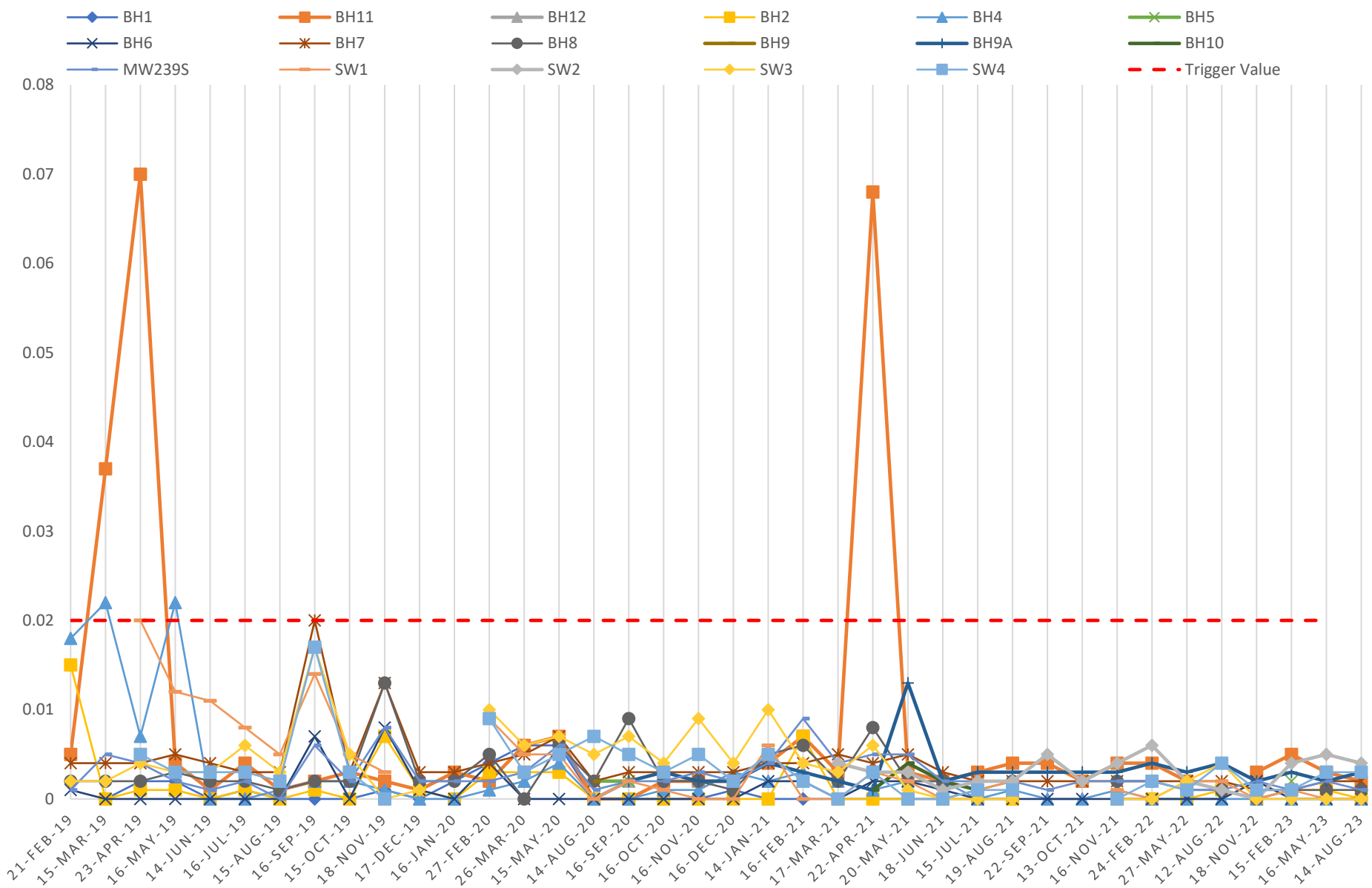
Iron (Fe) mg/L

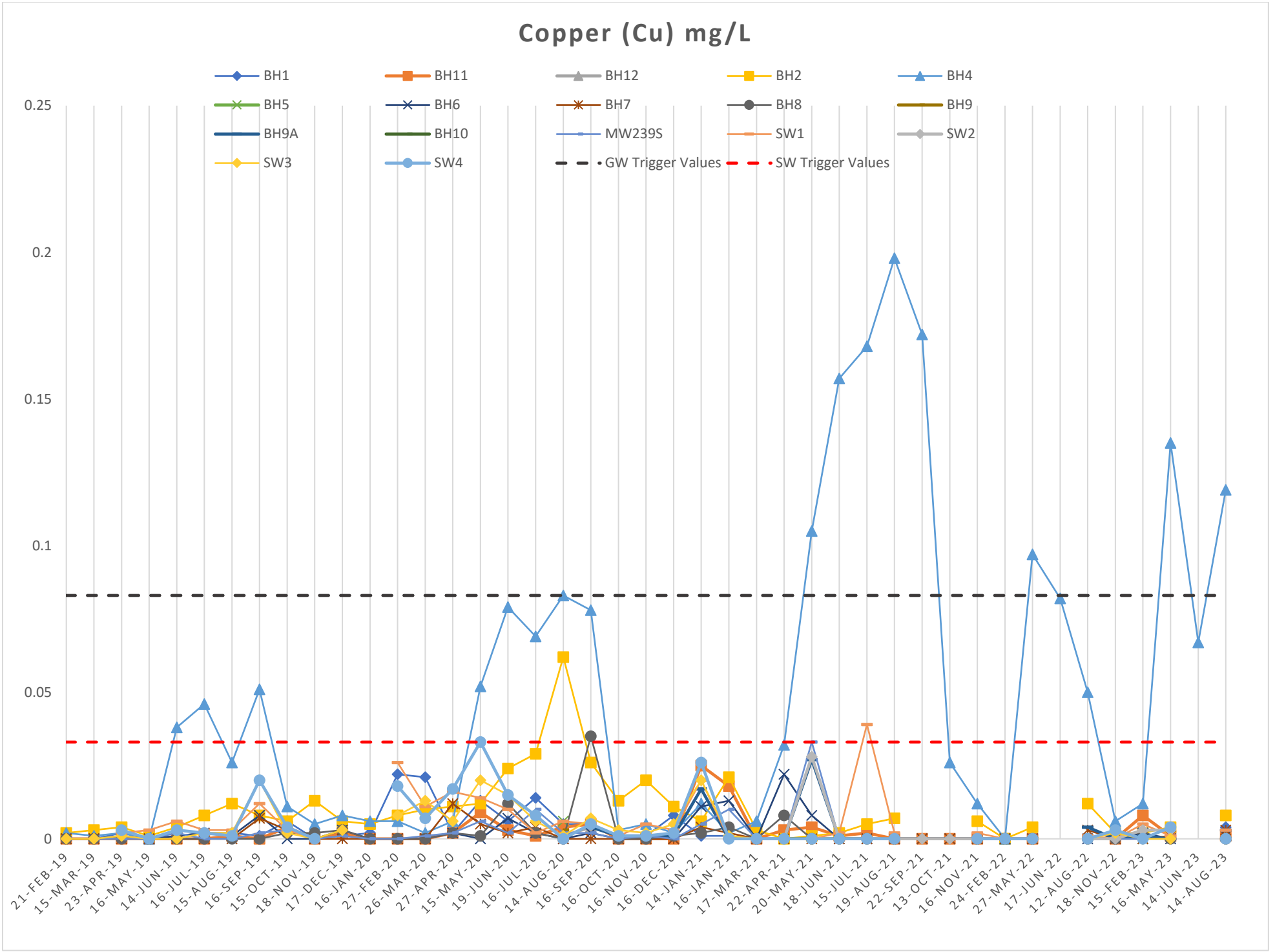

BH1/BH1A
BH11
BH12/BH12A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
40.05
35.05
30.05
25.05
20.05
15.05
10.05
5.05
0.05
21-FEB-19
23-APR-19
14-JUN-19
15-AUG-19
15-OCT-19
17-DEC-19
27-FEB-20
27-APR-20
19-JUN-20
14-AUG-20
16-OCT-20
16-DEC-20
16-FEB-21
22-APR-21
18-JUN-21
19-AUG-21
13-OCT-21
15-DEC-21
24-FEB-22
12-APR-22
17-JUN-22
12-AUG-22
24-OCT-22
14-DEC-22
15-FEB-23
18-APR-23
14-JUN-23
14-AUG-23

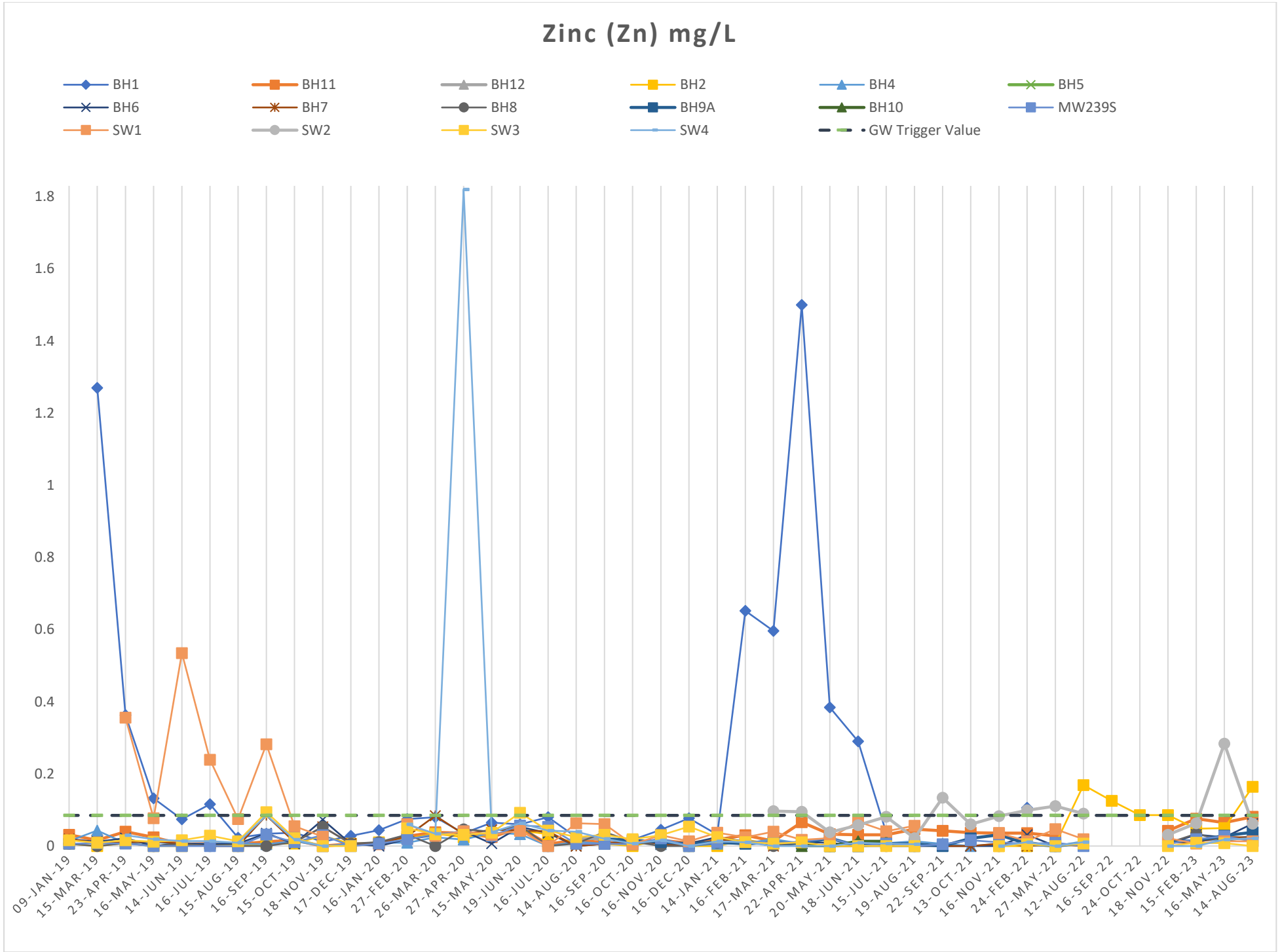
Manganese (Mn) mg/L

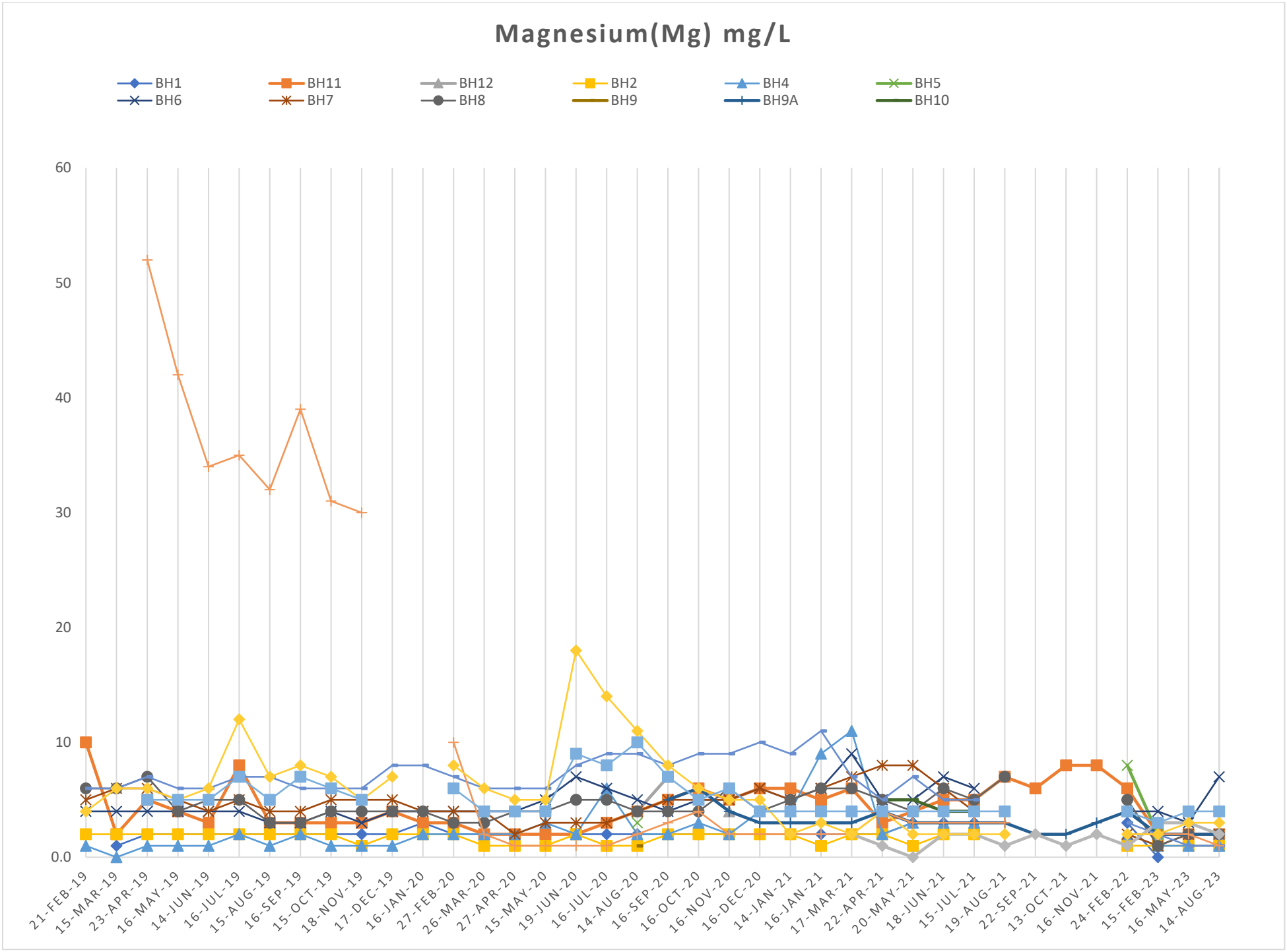


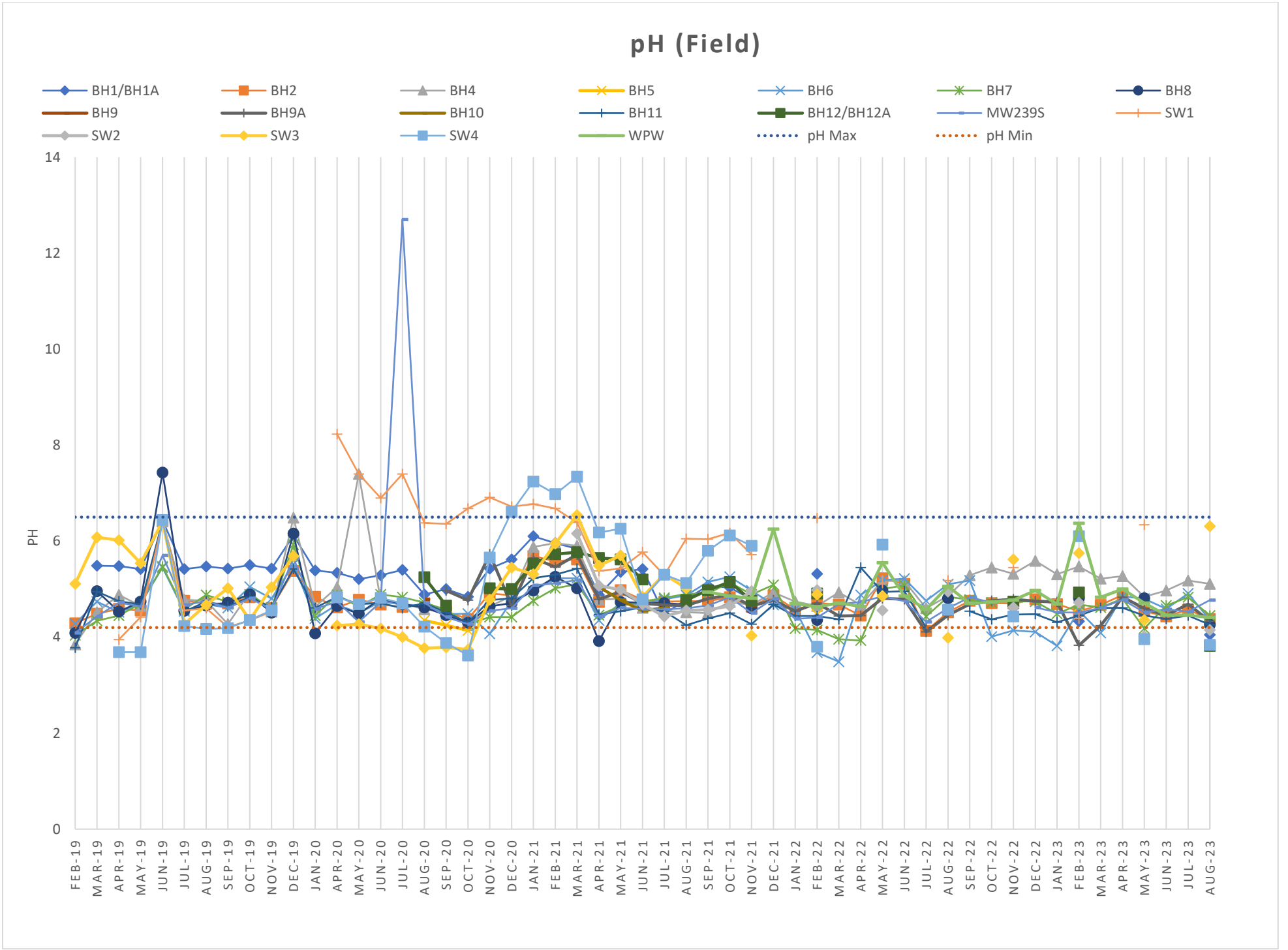
Nickel (Ni) mg/L

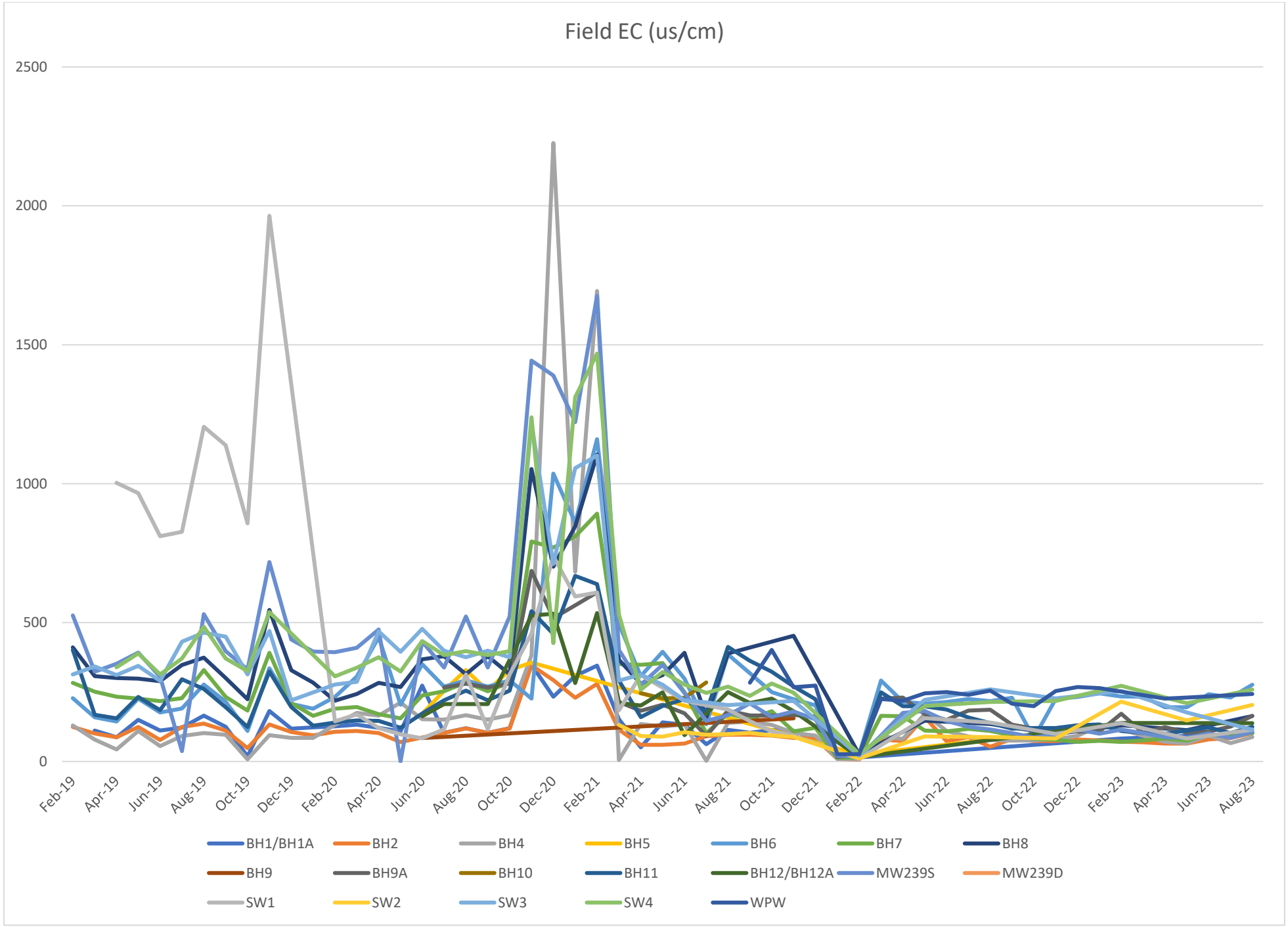



Copper (Cu) mg/L
BH1
BH11
BH12
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
GW Trigger Values
SW Trigger Values
0.25
0.2
0.15
0.1
0.05
0
21-FEB-19
15-MAR-19
23-APR-19
16-MAY-19
14-JUN-19
16-JUL-19
15-AUG-19
16-SEP-19
15-OCT-19
18-NOV-19
17-DEC-19
16-JAN-20
27-FEB-20
26-MAR-20
27-APR-20
15-MAY-20
19-JUN-20
16-JUL-20
14-AUG-20
16-SEP-20
16-OCT-20
16-NOV-20
16-DEC-20
14-JAN-21
16-JAN-21
17-MAR-21
22-APR-21
20-MAY-21
18-JUN-21
15-JUL-21
19-AUG-21
22-SEP-21
13-OCT-21
16-NOV-21
24-FEB-22
27-MAY-22
17-JUN-22
12-AUG-22
18-NOV-22
15-FEB-23
16-MAY-23
14-JUN-23
14-AUG-23


Zinc (Zn) mg/L
BH1
BH11
BH12
BH2
BH4
BH5
BH6
BH7
BH8
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
GW Trigger Value
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
09-JAN-19
15-MAR-19
23-APR-19
16-MAY-19
14-JUN-19
16-JUL-19
15-AUG-19
16-SEP-19
15-OCT-19
18-NOV-19
17-DEC-19
16-JAN-20
27-FEB-20
26-MAR-20
27-APR-20
15-MAY-20
19-JUN-20
16-JUL-20
14-AUG-20
16-SEP-20
16-OCT-20
16-NOV-20
16-DEC-20
14-JAN-21
16-FEB-21
17-MAR-21
22-APR-21
20-MAY-21
18-JUN-21
15-JUL-21
19-AUG-21
22-SEP-21
13-OCT-21
16-NOV-21
24-FEB-22
27-MAY-22
12-AUG-22
16-SEP-22
24-OCT-22
18-NOV-22
15-FEB-23
16-MAY-23
14-AUG-23


Magnesium(Mg) mg/L
BH1
BH11
BH12
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
60
50
40
30
20
10
0.0
21-FEB-19
15-MAR-19
23-APR-19
16-MAY-19
14-JUN-19
16-JUL-19
15-AUG-19
16-SEP-19
15-OCT-19
18-NOV-19
17-DEC-19
16-JAN-20
27-FEB-20
26-MAR-20
27-APR-20
15-MAY-20
19-JUN-20
16-JUL-20
14-AUG-20
16-SEP-20
16-OCT-20
16-NOV-20
16-DEC-20
14-JAN-21
16-JAN-21
17-MAR-21
22-APR-21
20-MAY-21
18-JUN-21
15-JUL-21
19-AUG-21
22-SEP-21
13-OCT-21
16-NOV-21
24-FEB-22
15-FEB-23
16-MAY-23
14-AUG-23


pH (Field)
BH1/BH1A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12/BH12A
MW239S
SW1
SW2
SW3
SW4
WPW
pH Max
pH Min
PH
14
12
10
8
6
4
2
0
FEB-19
MAR-19
APR-19
MAY-19
JUN-19
JUL-19
AUG-19
SEP-19
OCT-19
NOV-19
DEC-19
JAN-20
APR-20
MAY-20
JUN-20
JUL-20
AUG-20
SEP-20
OCT-20
NOV-20
DEC-20
JAN-21
FEB-21
MAR-21
APR-21
MAY-21
JUN-21
JUL-21
AUG-21
SEP-21
OCT-21
NOV-21
DEC-21
JAN-22
FEB-22
MAR-22
APR-22
MAY-22
JUN-22
JUL-22
AUG-22
SEP-22
OCT-22
NOV-22
DEC-22
JAN-23
FEB-23
MAR-23
APR-23
MAY-23
JUN-23
JUL-23
AUG-23


Field EC (us/cm)
2500
2000
1500
1000
500
0
Feb-19
Apr-19
Jun-19
Aug-19
Oct-19
Dec-19
Feb-20
Apr-20
Jun-20
Aug-20
Oct-20
Dec-20
Feb-21
Apr-21
Jun-21
Aug-21
Oct-21
Dec-21
Feb-22
Apr-22
Jun-22
Aug-22
Oct-22
Dec-22
Feb-23
Apr-23
Jun-23
Aug-23
BH1/BH1A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12/BH12A
MW239S
MW239D
SW1
SW2
SW3
SW4
WPW