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

April 2023 Monitoring Event

NCA23R153155

20 May 2023

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20 May 2023
NCA23R153155

Williamtown Sand Syndicate (WSS)
PO Box 898
Newcastle, NSW 2300

Attention: Darren Williams

Subject: Monthly Water Quality Monitoring Results, Cabbage Tree Road Sand Quarry, NSW
April 2023 Monitoring Event

Please find enclosed the monthly water quality monitoring results for the April 2023 monitoring event undertaken by 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 monthly groundwater 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**, **Attachment 1** presents the groundwater sampling locations.

The scheduled April 2023 monitoring event included gauging of 10 monitoring wells, recording of field parameters for groundwater, and sampling from seven monitoring wells and one Wash Plant Water (WPW) sample as outlined in the Soil and Water Management Plan (SWMP, 2021) for the quarry.

2 SITE WORK

The monthly monitoring round was conducted on the 18th of April 2023 and comprised:

- Gauging of 10 monitoring wells (BH1A, BH2, BH4, BH6, BH7, BH9, BH9A, BH11, BH12A & MW239S).
- Groundwater sampling from seven monitoring wells (BH2, BH4, BH6, BH7, BH9A, BH11 & MW239S) as summarised in **Table 5** and detailed in **Attachment 2**.
- One WPW sample as summarised in **Table 6** 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 taken.

The WPW sample was collected directly into laboratory supplied sample containers using a nitrile-gloved hand.

All samples collected were placed into an ice chilled esky and then submitted to a NATA accredited laboratory under a chain of custody (COC) for the analytical schedule as per **Table 1**.

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

Analysis	Number of Samples				
	Primary	Intra-lab (Duplicate)	Inter-lab (Triplicate)	Transport Blank	Rinsate Blank
Metals*	8	1	1	1	1
PFAS (28 analytes, standard level)	1	0	0	1	1

* Metals Suite (dissolved) – Arsenic (As), Iron (Fe), Manganese (Mn).

Table 2 provides a summary of the gauging data for April 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 was no instances of TARP Level Exceedances during the April monitoring event.

Table 2: Summary of Gauging Data (April 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	5.216	3.764	12.155	N/A	4.5[2]	0.736	Gauge only
BH2	7.79	5.087	2.703	8.861	9.45	3.8	1.097	Light Brown, no odour / sheen, well in good condition
BH4	3.06	1.228	1.832	6.018	6.45	3.0[3]	1.168	Clear, no odour / sheen, well in good condition
BH6	3.62	1.04	2.58	4.535	4.95	4.4	1.82	Clear, no odour, no sheen, well in good condition
BH7	2.98	1.191	1.789	4.52	4.95	3.7	1.911	Light yellow, no odour, no sheen, well in good condition
BH9	17.75	15.846	1.904	16.095	18.8	3.0[3]	1.096	Gauge only
BH9A	10.75	8.816	1.934	12.215	16.16	3.0[3]	1.066	Light brown, moderate sulphur odour, no sheen, well in good condition
BH11	6.63	2.11	4.52	5.3	5.95	5.5	0.98	Light yellow, strong sulphur odour, no sheen, well in good condition
BH12A	5.62	2.874	2.746	7.312	NA	4.0[5]	1.254	Gauge only
MW239S	3.04	0.885	2.155	3.827	4.0	3.9[4]	1.745	Orange/brown, moderate sulphur odour, no sheen, well in good condition

[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 April 2023 monitoring event. 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	ND	ND	ND	ND	ND	ND	ND
BH2	44.8	20.2	4.84	64.6	4.6	4.88	224.5
BH4	8.45	18.7	4.84	70.3	52	5.27	196.7
BH6	19.48	21	2.64	195.4	137	4.85	-60.1
BH7	51.83	21	4.02	82.9	58	4.8	174.3
BH9	ND	ND	ND	ND	ND	ND	ND
BH9A	69.85	19.5	3.5	123.5	90	4.83	9.5
BH11	417.6	20.1	3.11	100.1	72	4.61	-69.5
BH12A	ND	ND	ND	ND	ND	ND	ND
MW239S	84.02	20.1	3.29	87.2	63	4.78	-85
WPW2	56.08	20	8.61	226.3	163	5	203.3

ND: No Data – no sample taken

Table 5 below presents a summary of the water monitoring results for key analytes found to be elevated above the laboratory limit of reporting (LOR) for groundwater. **Table 6** presents a summary of the wash plant sample results for PFAS analytes in water. 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.

Concentrations of Iron at BH6 (4.13mg/L) were found to be marginally in exceedance of the site-specific trigger value (4.1mg/L). This recorded concentration has decreased since the March monitoring event where BH6 recorded the highest Iron concentration at this location since monitoring began (4.76mg/L). The WPW2 sample recorded three detections for PFAS compounds PFOA (0.01µg/L), PFHxS (0.02µg/L) and PFOS (0.02µg/L) during this monitoring round.

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 (April 2023)

Analyte	Metals			Discussion of results relative to previous monitoring (details on specific data trends provided in Section 4 below)
	Arsenic	Iron	Manganese	
LOR	0.001	0.05	0.001	
Units	mg/L	mg/L	mg/L	
Adopted Site Specific Trigger Values (SWMP 2021)	0.003	4.1 (8.84 for BH1A)	0.136	
Samples				
BH1A	NS	NS	NS	Metals for BH1A were not analysed - gauge only.
BH2	<0.001	0.09	0.004	Metal concentrations were generally consistent with historical results and remain below the adopted criteria. BH2 is located marginally down hydraulic gradient from the current quarry operations footprint.
BH4	<0.001	0.05	0.012	Metal concentrations were generally consistent with historical variations and remain below the adopted criteria. BH4 is located down hydraulic gradient (approximately 700 m) from current quarry operations and on the southernmost boundary of the site adjacent to Cabbage Tree Road.
BH6	<0.001	4.13	0.003	Metal concentrations are generally consistent with historical results and remain below the adopted criteria, except for Iron which has exceeded the site-specific trigger value. BH6 is considered up hydraulic gradient (approximately 860 m) from current quarry operations and the most north-eastern location at the site.
BH7	<0.001	0.46	0.003	Metal concentrations were generally consistent with historical results and are below the adopted criteria. BH7 is located (approximately 960 m) east of the current quarry operations.
BH9	NS	NS	NS	Metals for BH9 were not analysed - gauge only.
BH9A	<0.001	0.5	0.033	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	1.07	0.003	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	NS	NS	NS	Metals for BH12A were not analysed - gauge only.
MW239S	<0.001	0.27	0.004	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: 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	0.02	0.02	0.04	PFOS and PFHxS were detected at this location at concentrations below the adopted criteria during this reporting period. The findings for PFAS compounds are generally consistent with historical results.

Notes:
< - Less than laboratory limit of reporting

3 RAINWATER DATA

Table 7 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 total monthly rainfall for April 2023 was recorded to be below the monthly mean and has remained stable when compared to the previous two months. Based on current rainfall data (mean and monthly totals) for April 2023, it is expected that groundwater elevations will continue to increase during the subsequent months due to a lag in groundwater response, consistent with current groundwater trend data.

Table 7: 2022-2023 Rainfall data (12-month period)

Date	May (22)	Jun (22)	Jul (22)	Aug (22)	Sep (22)	Oct (22)	Nov (22)	Dec (22)	Jan (23)	Feb (23)	Mar (23)	Apr (23)
1st	2.0	0	0	0	2.0	4.4	9	0	0	0	0.2	0
2nd	0	0	14.6	0.2	0	0	0	0	0	0	0	11.2
3rd	0	0	42.0	0	28.0	0	0	0	0	0	0	2.4
4th	0	1.6	59.8	0	4.2	0	0.4	0	0	0.6	1	3.4
5th	4.0	0	49.8	12.0	0.4	0	0	0	13.8	0	0	
6th	ND	0	36.6	0	0	23.4	0	0.4	5.6	0	0	6.8
7th	0	0	37.0	0	0.2	0.2	0	0	21.2	0	0	3
8th	0	0	0	0	0	6.6	0	0	4.8	0	0	10.6
9th	0	0	0	1.4	0.2	32.6	0	0	-	0	0	0.2
10th	1.8	0	3.2	18.4	2.2	0	0	0	0	0	0	0
11th	15.8	0	44.2	0.2	0	1.2	0	0	0	0.2	0	0
12th	8.8	0	0.2	0	0	0.2	0	0	0	0	0	0
13th	5.8	0	0	5.2	0	0	2.8	5.6	0	0	4.2	11.6
14th	4.0	0	12.4	0.2	0.6	0.2	24.2	0	0	21.2	1.6	25.4
15th	0	0	12.0	0	0.2	0.2	-	0	-	1	7.4	2
16th	0	0	0	0	5.4	0	-	0.2	0	0.2	0.2	0
17th	0	0	0	0	0	0.4	0	4.2	0	0	0	0
18th	0	1.0	0	0	0	0	0	2.8	0	0	0	0
19th	0	18.4	0.2	0	0	0	0	3	0.2	1.8	0	0
20th	2.6	7.4	7.8	0	0	1.6	0	0	21.4	0.2	0	3.2
21st	15.0	0.2	0.4	0	0	4	0	2	0.8	0	0.6	29.4
22nd	4.4	0	2.0	0	7.2	3.4	0	0	9.0	45.6	0	0.8
23rd	33.0	0	0	0	5.4	2.2	0	0.2	4.4	35	0	0
24th	8.0	0	1.8	0.6	0.4	3.4	0	0.8	0	1.2	25.6	0.2
25th	4.6	0	1.4	0	4.6	5.6	0	0	0	0	31.4	0
26th	0	0	1.2	0	0.2	0.4	1.6	0	0	0	1.8	0
27th	0	0	0.6	0	0	0	0	0	3.6	0	0	0
28th	0.2	0	0	0.2	0.2	0.8	12	0	0	0.4	22.4	0
29th	0	0	0	0	0	0	0	0	0	-	8.8	0

30th	0	0	0.2	0	13.0	0	0	0	3.4	-	0.8	8.2
31st	4.2	-	0	0	-	0	-	0	18.0	-	0	-
Total	114.2	28.6	327.4	38.4	74.4	90.8	50.0	19.2	106.2	107.4	106	118.4
Historical Mean	108.6	124.6	72.6	72.8	60.6	75.9	82.9	77.8	99.5	118.8	128.3	109.5

Notes:
ND – no data retrieved.

4 DATA TRENDS

Data trends, taken from analyses undertaken throughout the duration of the sampling program (January 2019 – current), are provided as **Attachment 4.** Generally, groundwater elevations have been steadily increasing 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 more recent monitoring events (March & April 2023) recording a rebound, steadily increasing in elevation and most likely due to recent above average rainfall as noted in **Section 3**.

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

- Iron – The reported Iron concentration at BH6 (4.13mg/L) had been on a generally increasing trend since April 2022. The concentration reported during this monitoring event was found to be slightly above the site-specific trigger value (4.1mg/L) and marks a slight downward trend in concentration.
- Field pH – Field pH results recorded at BH6 and BH9A have returned to levels within the site-specific trigger value range during this monitoring event after reporting results that fell below the range during the previous March 2023 GME.
- PFAS – PFOS and PFHxS were again detected in the WPW2 sample during the current April 2023 GME. This is the second sample taken from the new sand wash plant whilst operational. These analytes were within the range expected based on historical results and all found below the site-specific trigger values.

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 April 2023 monitoring event.

One marginal analyte exceedance, Iron (4.13mg/L) was recorded during the April 2023 GME and occurred at BH6, located 860m upgradient from current quarrying activities. This result is in line with past reported concentrations at this location and was found to be below the value reported during the previous March 2023 GME.

There is no cause to suggest that the elevated concentrations 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 and will continue to be monitored during future sampling rounds, as per Section 3 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

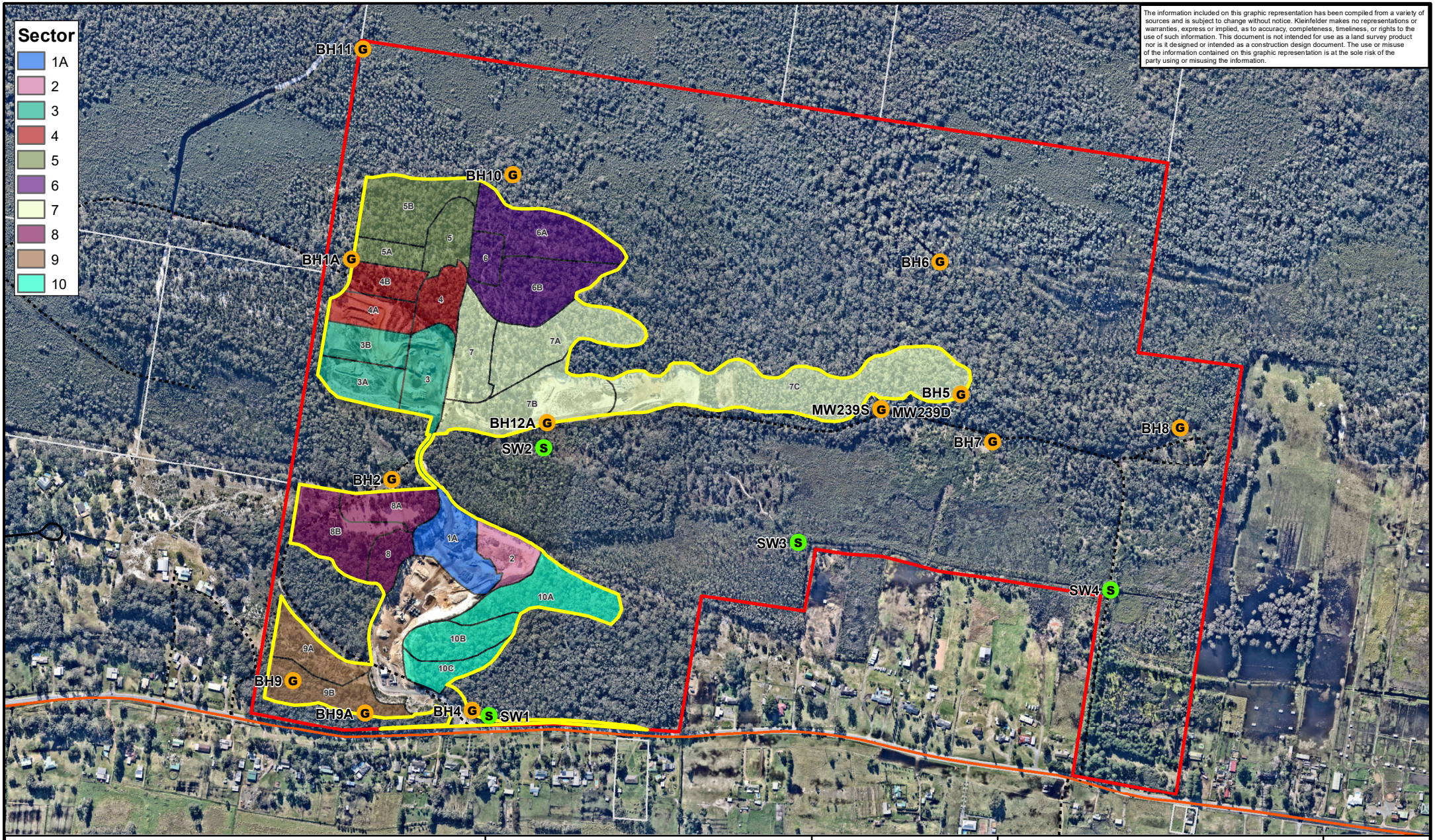
Aaron King

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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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

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION (YSI)

Plant Number: 1090142

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 4	pH 4		# 371300	☑
	pH 7	pH 7		# 384001	☑
Conductivity	12.88 mS/cm	12.88 mS/cm		# 381242	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.0ppm in Sodium Sulphite	ppm Saturation in Air	# 11897	☑
ORP	240mV	240mV	Zobell Part A	# 375760	☑
			Zobell Part B	# 374424	
Turbidity	90 NTU	90 NTU		# 398152	☑

Battery Status 100 (%)	Temperature 20.3 °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: Jacob Arnott Date: 12/04/23 Signed: _____

Accessories List:

User's Manual	pH and ORP Storage Solution	Transit Case

KLEINFELDER

HYDRASLEEVE™ SAMPLING LOG

Project Number:	Date:	Site Address:
2023207.	18/4/22	Cabbage tree Rd

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

					Field Measurements								
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)
BH2	0947	5.087	8.81		20.2	4.84	64.6	46	4.88	224.5	44.80	lt brown no o/s
BH4	0840	1.228	6.018		18.7	4.84	70.3	52	5.27	196.7	8.45	Clear no o/s
BH6	1117	1.640	4.535		21.0	2.64	195.4	137	4.85	-60.1	19.48	Clear no o/s
BH7	1139	1.191	4.520		21.0	4.02	82.9	58	4.80	124.3	51.83	Lt yellow no o/s
BH9	0932	15.846	16.095									Gauge only
BH9A	0907	8.816	12.215		19.5	3.50	123.7	90	4.83	9.5	69.85	lt brown mod o no s
BH11	1018	2.110	5.300		20.4	3.11	100.1	72	4.61	-69.4	417.6	Lt yellow-std od no s
MW2395	1104	0.885	3.827		20.1	3.39	87.2	63	4.78	-25.0	84.62	lt brown mod o no she
WFW2	1042				20.0	8.61	226.3	163	5.0	203.3	56.68	lt brown Low earthy odour no sheen
BH1A	0959	5.216	12.155									Gauge only
BH12A	1056	2.874	7.312									Gauge only

Damaged wells (identify how damaged): _____

*Sample Depth is reported as bottom of hydrasleeve depth

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QA/QC SAMPLE REGISTER

Project Number:	Site Name:	Site Address:
20232071	WSS	Cabbage tree road

Date:	Field Manager:
18/4/23	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
~~QC0~~ 18/4	AK	QC01	Duplicate	BH6				Dissolved metals ~~B PFAS~~
"	"	QC01A	Triplicate	"				"
"	"	RB01	Rinsate		IP			Dissolved metals PFAS
"	"	TB01	Trip Blank					"

COMMENTS: _____

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydro	
		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}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup
LOR		1	2	2	2	2	2	5	1	20	50	100	50	50	50	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	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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**	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	**40**	< 50	< 100	< 50	< 50	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 100	< 100
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH1A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH2	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH3	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	**250**	< 50	**250**	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	**130**
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

KLEINFELDER
Bright People. Right Solutions.

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydro	
		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}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup
LOR		1	2	2	2	2	2	5	1	20	50	100	50	50	50	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	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BH4	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	**340**
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH5	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH6	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH7	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydro	
		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}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup
LOR		1	2	2	2	2	2	5	1	20	50	100	50	50	50	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	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH8	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH9A	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH11	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

KLEINFELDER
Bright People. Right Solutions.

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydro	
		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}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup
LOR		1	2	2	2	2	2	5	1	20	50	100	50	50	50	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	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	06-Mar-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH12	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
BH12A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
MW239S	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100

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
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

Analyte		ocarbons - Silica Clean-up		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		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}	$>C_{10}$ - 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		50	50	20	20	100	100	100	100	100	100	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	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date														
BH1	15-Mar-19	< 50	< 50	**1,690**	**1,690**	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	**30**	**30**	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 50	< 50	< 20	< 20	-	-	-	-	-	-	< 100	< 100	< 100	< 100
	13-Oct-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH1A	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH2	22-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH3	21-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH4	21-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	< 20	< 20	< 100	< 100	**280**	< 100	**280**	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	**130**	< 20	< 20	-	-	-	-	-	< 100	< 100	**140**	< 100	**140**
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

Analyte		ocarbons - Silica Clean-up		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		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}	$>C_{10}$ - 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		50	50	20	20	100	100	100	100	100	100	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	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	20	20	100	--	100	100	--	--	--	--	--	--
BH4	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	**340**	< 20	< 20	-	-	-	-	-	< 100	< 100	**370**	< 100	**370**
	27-May-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH5	22-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH6	22-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH7	22-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

KLEINFELDER
Bright People. Right Solutions.

Analyte		ocarbons - Silica Clean-up		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		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}	$>C_{10}$ - 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		50	50	20	20	100	100	100	100	100	100	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	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	20	20	100	--	100	100	--	--	--	--	--	--
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH8	21-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH9A	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH11	21-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 1
Groundwater Hydrocarbons

Analyte		ocarbons - Silica Clean-up		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		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}	$>C_{10}$ - 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		50	50	20	20	100	100	100	100	100	100	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	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	20	20	100	--	100	100	--	--	--	--	--	--
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	06-Mar-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH12	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH12A	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Feb-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	-	-	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
MW239S	16-Oct-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 50	< 50	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes,
Bold indicates a detection above the laboratory limit of
Highlighting indicates an exceedance of the correspond

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2(

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 2
Groundwater Inorganics

Analyte		Inorganics													
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N
LOR		1	1	1	1	1	1	0.1	0.01	0.01	0.01	0.01	0.01	0.01	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	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		77	5.0	11	2.0	70	148	0.2	--	--	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	-	< 0.01	-	< 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**	-	< 0.01	-	< 0.01
	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	-	-	< 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**	-	< 0.01	-	< 0.01
	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	-	< 0.01	-	**0.02**
	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	< 0.01	-	**0.02**	-
BH1A	15-Feb-23	**9.0**	< 1.0	< 1.0	< 1.0	**7.0**	**13**	< 0.1	-	< 0.01	< 0.01	-	< 0.01	-	**0.26**
BH2	22-Feb-19	**12**	**2.0**	**2.0**	< 1.0	**6.0**	**22**	**0.1**	-	< 0.01	**0.28**	-	< 0.01	-	**2.76**
	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**	-	< 0.01	-	**0.38**
	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**	-	< 0.01	-	**1.07**
	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	-	-	< 0.01	**1.01**	-
	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**	-	< 0.01	-	**2.88**
	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**	-	< 0.01	-	**2.58**
	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**	< 0.01	-	**0.05**	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-
	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**	-	< 0.01	-	**0.04**
BH3	21-Feb-19	**4.0**	**4.0**	**1.0**	< 1.0	**4.0**	**10**	< 0.1	-	< 0.01	**2.76**	-	< 0.01	-	**0.78**
BH4	21-Feb-19	**8.0**	**2.0**	**1.0**	**1.0**	**5.0**	**17**	< 0.1	-	< 0.01	**0.19**	-	< 0.01	-	**0.35**
	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**	-	< 0.01	-	**0.29**
	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**	-	< 0.01	-	**0.24**
	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	-	-	< 0.01	**0.29**	-
	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	-	-	-	-	-	-	-

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 2
Groundwater Inorganics

KLEINFELDER
Bright People. Right Solutions.

Analyte		Inorganics													
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N
LOR		1	1	1	1	1	1	0.1	0.01	0.01	0.01	0.01	0.01	0.01	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	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		77	5.0	11	2.0	70	148	0.2	--	--	2.0	--	--	--	--
BH4	16-Nov-20	**18**	< 1.0	**2.0**	< 1.0	**12**	**27**	< 0.1	-	< 0.01	**0.06**	-	< 0.01	-	**0.1**
	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**	-	< 0.01	-	< 0.01
	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**	< 0.01	-	**0.21**	-
	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**	-	< 0.01	-	**0.33**
BH5	22-Feb-19	**42**	< 1.0	**6.0**	**1.0**	**19**	**69**	**0.2**	-	< 0.01	**0.34**	-	< 0.01	-	< 0.01
	24-Feb-22	**40**	< 1.0	**8.0**	< 1.0	**42**	**60**	< 0.1	-	-	**0.29**	< 0.01	-	**0.02**	-
	15-Feb-23	**18**	< 1.0	**2.0**	< 1.0	**17**	**24**	< 0.1	-	< 0.01	**0.32**	-	< 0.01	-	**0.01**
BH6	22-Feb-19	**28**	**3.0**	**4.0**	**1.0**	**28**	**42**	< 0.1	-	< 0.01	**0.05**	-	< 0.01	-	**0.09**
	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**	-	< 0.01	-	< 0.01
	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**	-	< 0.01	-	**0.07**
	15-Oct-19	**25**	**2.0**	**4.0**	**1.0**	**13**	**41**	< 0.1	-	-	-	-	-	-	-
	18-Nov-19	**27**	**3.0**	**3.0**	**1.0**	**18**	**45**	< 0.1	**0.06**	< 0.01	-	-	< 0.01	< 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**	-	< 0.01	-	**0.01**
	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**	-	< 0.01	-	< 0.01
	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**	< 0.01	-	**0.02**	-
	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**	-	< 0.01	-	< 0.01
BH7	22-Feb-19	**34**	< 1.0	**5.0**	**2.0**	**12**	**64**	**0.2**	-	< 0.01	**0.13**	-	< 0.01	-	**0.02**
	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**	-	< 0.01	-	< 0.01
	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**	-	< 0.01	-	**0.06**
	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	-	-	< 0.01	< 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	-	< 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	-	< 0.01	-	< 0.01
	17-Mar-21	**36**	< 1.0	**7.0**	**2.0**	**11**	**68**	< 0.1	-	-	-	-	-	-	-
	19-Aug-21	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 2
Groundwater Inorganics

KLEINFELDER
Bright People. Right Solutions.

Analyte		Inorganics													
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N
LOR		1	1	1	1	1	1	0.1	0.01	0.01	0.01	0.01	0.01	0.01	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	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		77	5.0	11	2.0	70	148	0.2	--	--	2.0	--	--	--	--
BH8	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**17**	< 1.0	**2.0**	**1.0**	**8.0**	**25**	< 0.1	-	-	**0.12**	< 0.01	-	**0.02**	-
	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**	-	< 0.01	-	< 0.01
	21-Feb-19	**52**	< 1.0	**6.0**	< 1.0	**11**	**90**	< 0.1	-	< 0.01	**1.97**	-	< 0.01	-	< 0.01
	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	-	< 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**	-	< 0.01	-	< 0.01
	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	-	-	< 0.01	**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**	-	< 0.01	-	< 0.01
	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**	-	< 0.01	-	< 0.01
	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**	< 0.01	-	**0.72**	-
	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**	-	< 0.01	-	< 0.01
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**	-	< 0.01	-	**2.35**
	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**	-	< 0.01	-	< 0.01
	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	-	< 0.01	-	< 0.01
	22-Sep-21	**22**	**1.0**	**2.0**	**1.0**	**12**	**35**	< 0.1	-	< 0.01	**0.16**	-	< 0.01	-	**0.03**
	13-Oct-21	**24**	< 1.0	**2.0**	**1.0**	**11**	**38**	< 0.1	-	< 0.01	**0.13**	-	< 0.01	-	< 0.01
	16-Nov-21	**24**	**2.0**	**3.0**	**1.0**	**17**	**32**	< 0.1	-	< 0.01	**0.05**	-	< 0.01	-	**0.04**
	24-Feb-22	**21**	**2.0**	**4.0**	**1.0**	**17**	**32**	< 0.1	-	-	**0.19**	< 0.01	-	< 0.01	-
	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**	-	< 0.01	-	< 0.01
	21-Feb-19	**48**	< 1.0	**10**	< 1.0	**24**	**80**	**0.1**	-	< 0.01	**0.03**	-	< 0.01	-	**0.04**
	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**	-	< 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**	-	< 0.01	-	< 0.01
	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	-	-	< 0.01	**0.06**	-
	16-Sep-20	**29**	< 1.0	**5.0**	< 1.0	**6.0**	**48**	< 0.1	-	-	-	-	-	-	-

Table 2
Groundwater Inorganics

Analyte		Inorganics													
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N
LOR		1	1	1	1	1	1	0.1	0.01	0.01	0.01	0.01	0.01	0.01	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	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		77	5.0	11	2.0	70	148	0.2	--	--	2.0	--	--	--	--
BH11	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**	-	< 0.01	-	< 0.01
	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	-	< 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**	-	< 0.01	-	< 0.01
	22-Sep-21	**49**	< 1.0	**6.0**	< 1.0	**12**	**101**	**0.1**	-	< 0.01	**0.01**	-	< 0.01	-	**0.01**
	13-Oct-21	**51**	< 1.0	**8.0**	< 1.0	**29**	**90**	< 0.1	-	< 0.01	**0.03**	-	< 0.01	-	< 0.01
	16-Nov-21	**37**	< 1.0	**8.0**	< 1.0	**24**	**55**	< 0.1	-	< 0.01	**0.03**	-	< 0.01	-	< 0.01
	24-Feb-22	**41**	< 1.0	**6.0**	< 1.0	**4.0**	**80**	< 0.1	-	-	< 0.01	< 0.01	-	< 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**	-	< 0.01	-	< 0.01
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	-	< 0.01	-	**0.02**
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**20**	< 1.0	**4.0**	**2.0**	**18**	**28**	< 0.1	-	-	**0.12**	< 0.01	-	**0.01**	-
BH12A	15-Feb-23	**16**	< 1.0	**2.0**	< 1.0	**8.0**	**29**	< 0.1	-	< 0.01	**1.74**	-	**0.02**	-	**0.02**
MW239S	22-Feb-19	**61**	< 1.0	**6.0**	< 1.0	**6.0**	**104**	< 0.1	-	< 0.01	**0.56**	-	< 0.01	-	< 0.01
	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**	-	< 0.01	-	< 0.01
	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**	-	< 0.01	-	< 0.01
	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	-	-	< 0.01	< 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**	-	< 0.01	-	< 0.01
	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**	-	< 0.01	-	< 0.01
	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**	< 0.01	-	**0.16**	-
	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**	-	< 0.01	-	< 0.01

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
April 2023
Monthly Monitoring

Table 2
Groundwater Inorganics

KLEINFELDER
Bright People. Right Solutions.

Analyte		Nitrite + Nitrate as N	Ammonia as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Anions and Cations: Total Cations	Anions and Cations: Total Anions	Anions and Cations: Ionic Balance	Anions and Cations: Sodium Adsorption Ratio	Alkalinity: Bicarbonate	Alkalinity: Bicarbonate Alkalinity as CaCO3	Alkalinity: Carbonate Alkalinity as CaCO3	Alkalinity: Hydroxide Alkalinity as CaCO3	Alkalinity: Total Alkalinity as CaCO3
LOR		0.01	0.1	0.1	0.01	0.01	0.01	0.01	0.01	1	1	1	1	1
Units		mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	-	mg/L	mg/L	mg/L	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	0.5	5.9	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date													
BH1	15-Mar-19	-	-	-	-	**0.66**	**0.88**	-	-	-	**9.0**	< 1.0	< 1.0	**9.0**
	23-Apr-19	-	-	-	-	**0.82**	**0.99**	-	-	-	**10**	< 1.0	< 1.0	**10**
	16-May-19	< 0.01	**0.11**	**0.3**	**0.3**	**0.69**	**1.01**	-	**1.7**	-	**10**	< 1.0	< 1.0	**10**
	14-Jun-19	-	-	-	-	**0.6**	**0.94**	-	-	-	**10**	< 1.0	< 1.0	**10**
	16-Jul-19	-	-	-	-	**0.82**	**0.95**	-	-	-	**11**	< 1.0	< 1.0	**11**
	15-Aug-19	-	-	-	-	**0.77**	**0.91**	-	-	-	**14**	< 1.0	< 1.0	**14**
	16-Sep-19	< 0.01	**0.12**	**0.3**	**0.3**	**0.73**	**0.76**	-	**1.84**	-	**8.0**	< 1.0	< 1.0	**8.0**
	15-Oct-19	-	-	-	-	**0.73**	**0.71**	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**
	18-Nov-19	**0.01**	**0.13**	**0.3**	**0.3**	**0.86**	**1.19**	-	**2.26**	-	**24**	< 1.0	< 1.0	**24**
	16-Sep-20	-	-	-	-	**0.73**	**0.81**	-	-	-	**9.0**	< 1.0	< 1.0	**9.0**
	16-Oct-20	-	-	-	-	**0.77**	**0.84**	-	-	-	**8.0**	< 1.0	< 1.0	**8.0**
	16-Nov-20	< 0.01	**0.07**	**0.2**	**0.2**	**1.02**	**1.05**	-	**1.55**	-	**22**	< 1.0	< 1.0	**22**
	16-Dec-20	-	-	-	-	**0.93**	**1.16**	-	-	-	**21**	< 1.0	< 1.0	**21**
	14-Jan-21	-	-	-	-	**0.96**	**1.07**	-	-	-	**16**	< 1.0	< 1.0	**16**
	16-Feb-21	**0.02**	**0.05**	< 0.1	< 0.1	**0.8**	**1.05**	-	**1.98**	-	**12**	< 1.0	< 1.0	**12**
	17-Mar-21	-	-	-	-	**0.82**	**0.95**	-	-	-	**11**	< 1.0	< 1.0	**11**
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.02**	**0.11**	**0.2**	**0.2**	**0.9**	**1.18**	-	-	**16**	-	< 1.0	< 1.0	**16**
BH1A	15-Feb-23	**0.26**	**0.04**	**0.5**	**0.2**	**0.39**	**0.51**	-	**2.15**	-	< 1.0	< 1.0	< 1.0	< 1.0
BH2	22-Feb-19	**2.76**	**0.05**	**4.0**	**1.2**	**0.79**	**0.74**	-	**1.44**	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Mar-19	-	-	-	-	**0.75**	**0.79**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	-	-	**0.87**	**0.77**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-May-19	**0.38**	**0.01**	**1.3**	**0.9**	**0.79**	**1.06**	-	**1.44**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	-	-	**0.69**	**0.75**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	-	-	**0.83**	**0.75**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	-	-	**0.74**	**0.73**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-19	**1.07**	**0.04**	**2.7**	**1.6**	**0.74**	**0.67**	-	**1.32**	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	-	-	**0.79**	**0.67**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	18-Nov-19	**1.01**	**0.05**	**2.1**	**1.1**	**0.79**	**0.68**	-	**2.02**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	-	-	**0.74**	**0.62**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	-	-	**0.74**	**0.58**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Nov-20	**2.88**	< 0.01	**4.8**	**1.9**	**0.74**	**0.7**	-	**1.32**	-	**3.0**	< 1.0	< 1.0	**3.0**
	16-Dec-20	-	-	-	-	**0.74**	**0.57**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	-	-	**0.66**	**0.57**	-	-	-	**3.0**	< 1.0	< 1.0	**3.0**
	16-Feb-21	**2.58**	< 0.01	**3.5**	**0.9**	**0.65**	**0.5**	-	**2.03**	-	< 1.0	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	-	-	**0.7**	**0.53**	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.05**	**0.01**	**0.4**	**0.3**	**0.53**	**0.6**	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.04**	**0.01**	**1.4**	**1.4**	**0.47**	**0.62**	-	**1.69**	-	**2.0**	< 1.0	< 1.0	**2.0**
BH3	21-Feb-19	**0.78**	**0.3**	**5.9**	**5.1**	**0.46**	**0.54**	-	**0.46**	-	**9.0**	< 1.0	< 1.0	**9.0**
BH4	21-Feb-19	**0.35**	**0.04**	**0.6**	**0.3**	**0.56**	**0.7**	-	**1.15**	-	**6.0**	< 1.0	< 1.0	**6.0**
	15-Mar-19	-	-	-	-	**0.49**	**0.61**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	-	-	**0.64**	**0.6**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-May-19	**0.29**	< 0.01	**1.0**	**0.7**	**0.6**	**0.99**	-	**1.3**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	-	-	**0.39**	**0.59**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	-	-	**0.72**	**0.63**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	-	-	**0.56**	**0.56**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-19	**0.24**	**0.02**	**0.6**	**0.4**	**0.74**	**0.7**	-	**1.32**	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	-	-	**0.57**	**0.59**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	18-Nov-19	**0.29**	< 0.01	**0.3**	< 0.1	**0.61**	**0.63**	-	**1.86**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	-	-	**1.03**	**1.1**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	-	-	**1.12**	**1.21**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 2
Groundwater Inorganics

KLEINFELDER
Bright People. Right Solutions.

Analyte		Anions and Cations								Alkalinity				
		Nitrite + Nitrate as N	Ammonia as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3
LOR		0.01	0.1	0.1	0.01	0.01	0.01	0.01	0.01	1	1	1	1	1
Units		mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	-	mg/L	mg/L	mg/L	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	0.5	5.9	--	--	--	--	--	--	--	--	--	--
BH4	16-Nov-20	**0.1**	< 0.01	**0.1**	< 0.1	**0.95**	**1.03**	-	**2.54**	-	**1.0**	< 1.0	< 1.0	**1.0**
	16-Dec-20	-	-	-	-	**1.47**	**1.58**	-	-	-	**3.0**	< 1.0	< 1.0	**3.0**
	14-Jan-21	-	-	-	-	**1.94**	**2.02**	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**
	16-Feb-21	< 0.01	**0.03**	< 0.1	< 0.1	**3.87**	**3.82**	**0.65**	**4.63**	-	**1.0**	< 1.0	< 1.0	**1.0**
	17-Mar-21	-	-	-	-	**4.38**	**4.21**	**1.96**	-	-	**3.0**	< 1.0	< 1.0	**3.0**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.21**	**0.01**	**0.6**	**0.4**	**0.52**	**0.61**	-	-	**2.0**	-	< 1.0	< 1.0	**2.0**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.33**	**0.02**	**0.7**	**0.4**	**0.59**	**0.65**	-	**1.69**	-	< 1.0	< 1.0	< 1.0	< 1.0
BH5	22-Feb-19	< 0.01	**0.09**	**3.0**	**3.0**	**2.35**	**2.34**	-	**3.59**	-	< 1.0	< 1.0	< 1.0	< 1.0
	24-Feb-22	**0.02**	**0.21**	**1.2**	**1.2**	**2.4**	**2.63**	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**
	15-Feb-23	**0.01**	**0.06**	**3.9**	**3.9**	**0.95**	**1.07**	-	**2.54**	-	**2.0**	< 1.0	< 1.0	**2.0**
BH6	22-Feb-19	**0.09**	**0.14**	**0.5**	**0.4**	**1.72**	**1.77**	-	**2.49**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	-	-	**1.46**	**1.44**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**
	23-Apr-19	-	-	-	-	**1.59**	**1.56**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-May-19	< 0.01	**0.14**	**0.6**	**0.6**	**1.5**	**1.64**	-	**2.04**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	-	-	**1.32**	**1.52**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	-	-	**1.46**	**1.4**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	-	-	**1.37**	**1.51**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-19	**0.07**	**0.19**	**0.8**	**0.7**	**1.51**	**1.55**	-	**2.44**	-	**2.0**	< 1.0	< 1.0	**2.0**
	15-Oct-19	-	-	-	-	**1.54**	**1.43**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	18-Nov-19	< 0.01	**0.23**	**0.4**	**0.4**	**1.6**	**1.64**	-	**2.64**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	-	-	**2.02**	**1.9**	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**
	16-Oct-20	-	-	-	-	**2.1**	**2.14**	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**
	16-Nov-20	**0.01**	**0.22**	**0.3**	**0.3**	**2.22**	**2.2**	-	**3.04**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	-	-	**2.7**	**2.43**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	-	-	**2.31**	**2.5**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Feb-21	< 0.01	**0.25**	< 0.1	< 0.1	**2.56**	**2.46**	-	**3.3**	-	**3.0**	< 1.0	< 1.0	**3.0**
	17-Mar-21	-	-	-	-	**3.18**	**2.82**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.02**	**0.04**	**0.4**	**0.4**	**1.63**	**1.93**	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.03**	**0.4**	**0.4**	**1.93**	**2.1**	-	**3.31**	-	< 1.0	< 1.0	< 1.0	< 1.0
BH7	22-Feb-19	**0.02**	**0.34**	**2.2**	**2.2**	**1.94**	**2.06**	-	**3.16**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	-	-	**2.11**	**2.05**	**1.37**	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	-	-	**2.2**	**2.1**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-May-19	< 0.01	**0.27**	**0.9**	**0.9**	**1.98**	**2.23**	-	**3.26**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	-	-	**1.73**	**1.81**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	-	-	**2.03**	**1.55**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	-	-	**1.77**	**1.85**	-	-	-	**8.0**	< 1.0	< 1.0	**8.0**
	16-Sep-19	**0.06**	**0.2**	**1.2**	**1.1**	**1.53**	**1.86**	-	**2.79**	-	**5.0**	< 1.0	< 1.0	**5.0**
	15-Oct-19	-	-	-	-	**1.94**	**1.74**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	18-Nov-19	< 0.01	**0.17**	**0.5**	**0.5**	**1.78**	**1.89**	-	**2.89**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	-	-	**1.9**	**2.0**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	-	-	**1.94**	**1.99**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Nov-20	< 0.01	**0.3**	**0.6**	**0.6**	**1.77**	**1.71**	-	**2.79**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	-	-	**1.85**	**1.82**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	-	-	**1.81**	**1.98**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Feb-21	< 0.01	**0.3**	**0.6**	**0.6**	**2.02**	**2.06**	-	**2.9**	-	< 1.0	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	-	-	**2.19**	**2.15**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 2
Groundwater Inorganics

Analyte		Nitrite + Nitrate as N	Ammonia as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Anions and Cations: Total Cations	Anions and Cations: Total Anions	Anions and Cations: Ionic Balance	Anions and Cations: Sodium Adsorption Ratio	Alkalinity: Bicarbonate	Alkalinity: Bicarbonate Alkalinity as CaCO3	Alkalinity: Carbonate Alkalinity as CaCO3	Alkalinity: Hydroxide Alkalinity as CaCO3	Alkalinity: Total Alkalinity as CaCO3
LOR		0.01	0.1	0.1	0.01	0.01	0.01	0.01	0.01	1	1	1	1	1
Units		mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	-	mg/L	mg/L	mg/L	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	0.5	5.9	--	--	--	--	--	--	--	--	--	--
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.02**	**0.08**	**1.0**	**1.0**	**0.93**	**0.87**	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.03**	**1.6**	**1.6**	**0.52**	**0.46**	-	**1.88**	-	**2.0**	< 1.0	< 1.0	**2.0**
BH8	21-Feb-19	< 0.01	**0.5**	**2.4**	**2.4**	**2.76**	**2.77**	-	**4.44**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	-	-	**2.45**	**2.27**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	-	-	**2.88**	**2.68**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-May-19	< 0.01	**0.12**	**0.4**	**0.4**	**2.37**	**2.43**	-	**4.86**	-	**1.0**	< 1.0	< 1.0	**1.0**
	14-Jun-19	-	-	-	-	**2.46**	**2.59**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	-	-	**2.89**	**4.87**	**26**	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	-	-	**2.07**	**1.86**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-19	< 0.01	**0.13**	**1.1**	**1.1**	**2.25**	**2.06**	-	**5.43**	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	-	-	**2.29**	**2.06**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	18-Nov-19	**0.01**	**0.17**	**1.3**	**1.3**	**2.46**	**2.42**	-	**5.06**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	-	-	**3.1**	**3.26**	**2.57**	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Oct-20	-	-	-	-	**2.2**	**2.22**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Nov-20	< 0.01	**0.13**	**0.6**	**0.6**	**2.58**	**2.35**	-	**4.1**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	-	-	**1.85**	**1.87**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	-	-	**2.32**	**2.44**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Feb-21	< 0.01	**0.12**	< 0.1	< 0.1	**2.67**	**2.58**	-	**4.27**	-	< 1.0	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	-	-	**2.67**	**2.51**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.72**	**0.13**	**1.7**	**1.0**	**2.8**	**3.2**	**6.58**	-	**5.0**	-	< 1.0	< 1.0	**5.0**
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.06**	**1.7**	**1.7**	**0.78**	**0.93**	-	**3.0**	-	< 1.0	< 1.0	< 1.0	< 1.0
BH9A	16-Sep-20	-	-	-	-	**2.21**	**2.06**	-	-	-	**7.0**	< 1.0	< 1.0	**7.0**
	16-Oct-20	-	-	-	-	**2.06**	**2.06**	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**
	16-Nov-20	**2.35**	< 0.01	**2.8**	**0.5**	**1.46**	**1.51**	-	**2.16**	-	**2.0**	< 1.0	< 1.0	**2.0**
	16-Dec-20	-	-	-	-	**1.32**	**1.23**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	-	-	**1.37**	**1.52**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Feb-21	< 0.01	**0.15**	**5.1**	**5.1**	**1.41**	**1.42**	-	**2.82**	-	**2.0**	< 1.0	< 1.0	**2.0**
	17-Mar-21	-	-	-	-	**1.38**	**1.32**	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**
	19-Aug-21	< 0.01	< 0.01	**0.8**	**0.8**	**1.41**	**1.42**	-	**2.82**	-	**4.0**	< 1.0	< 1.0	**4.0**
	22-Sep-21	**0.03**	**0.25**	**1.0**	**1.0**	**1.2**	**1.36**	-	**2.92**	-	**6.0**	< 1.0	< 1.0	**6.0**
	13-Oct-21	< 0.01	**0.31**	**0.9**	**0.9**	**1.23**	**1.46**	-	**3.39**	-	**8.0**	< 1.0	< 1.0	**8.0**
	16-Nov-21	**0.04**	**0.21**	**1.1**	**1.1**	**1.42**	**1.36**	-	**2.51**	-	**5.0**	< 1.0	< 1.0	**5.0**
	24-Feb-22	< 0.01	**0.25**	**1.0**	**1.0**	**1.37**	**1.26**	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.27**	**2.0**	**2.0**	**0.97**	**1.01**	-	**2.54**	-	**3.0**	< 1.0	< 1.0	**3.0**
	21-Feb-19	**0.04**	**0.06**	**1.8**	**1.8**	**2.91**	**2.76**	-	**3.21**	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Mar-19	-	-	-	-	**1.3**	**1.51**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	23-Apr-19	-	-	-	-	**1.8**	**1.65**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-May-19	< 0.01	**0.12**	**0.4**	**0.4**	**1.59**	**1.59**	-	**3.0**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	-	-	**1.38**	**1.5**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Jul-19	-	-	-	-	**2.79**	**2.22**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	-	-	**1.46**	**1.41**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-19	< 0.01	**0.15**	**0.7**	**0.7**	**1.42**	**1.4**	-	**3.18**	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	-	-	**1.46**	**1.3**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	18-Nov-19	**0.06**	**0.18**	**5.9**	**5.8**	**1.46**	**1.5**	-	**3.3**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	-	-	**1.67**	**1.48**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0

Table 2
Groundwater Inorganics

Analyte		Nitrite + Nitrate as N	Ammonia as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Anions and Cations: Total Cations	Anions and Cations: Total Anions	Anions and Cations: Ionic Balance	Anions and Cations: Sodium Adsorption Ratio	Alkalinity: Bicarbonate	Alkalinity: Bicarbonate Alkalinity as CaCO3	Alkalinity: Carbonate Alkalinity as CaCO3	Alkalinity: Hydroxide Alkalinity as CaCO3	Alkalinity: Total Alkalinity as CaCO3
LOR		0.01	0.1	0.1	0.01	0.01	0.01	0.01	0.01	1	1	1	1	1
Units		mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	-	mg/L	mg/L	mg/L	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	0.5	5.9	--	--	--	--	--	--	--	--	--	--
	16-Oct-20	-	-	-	-	**1.76**	**1.8**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
BH11	16-Nov-20	< 0.01	**0.08**	**0.5**	**0.5**	**1.58**	**1.51**	-	**2.51**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	-	-	**1.84**	**1.84**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	-	-	**1.88**	**2.03**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Feb-21	< 0.01	**0.08**	< 0.1	< 0.1	**1.83**	**1.8**	-	**2.98**	-	< 1.0	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	-	-	**1.76**	**1.71**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	19-Aug-21	< 0.01	< 0.01	**1.4**	**1.4**	**3.1**	**3.29**	**3.0**	**4.6**	-	< 1.0	< 1.0	< 1.0	< 1.0
	22-Sep-21	**0.01**	**0.01**	**0.8**	**0.8**	**3.01**	**3.1**	**1.54**	**4.18**	-	< 1.0	< 1.0	< 1.0	< 1.0
	13-Oct-21	< 0.01	< 0.01	**0.8**	**0.8**	**2.88**	**3.14**	**4.42**	**3.79**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Nov-21	< 0.01	< 0.01	**0.9**	**0.9**	**2.27**	**2.05**	-	**2.75**	-	< 1.0	< 1.0	< 1.0	< 1.0
	24-Feb-22	< 0.01	**0.02**	**0.6**	**0.6**	**2.28**	**2.4**	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**
	06-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.07**	**1.0**	**1.0**	**0.9**	**0.82**	-	**2.4**	-	< 1.0	< 1.0	< 1.0	< 1.0
BH12	16-Sep-20	-	-	-	-	**1.64**	**1.57**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**
	16-Nov-20	**0.02**	< 0.01	**0.2**	**0.2**	**1.31**	**1.52**	-	**2.27**	-	**7.0**	< 1.0	< 1.0	**7.0**
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.01**	**0.01**	**0.4**	**0.4**	**1.25**	**1.2**	-	-	**2.0**	-	< 1.0	< 1.0	**2.0**
BH12A	15-Feb-23	**0.04**	**0.21**	**3.2**	**3.2**	**0.86**	**0.98**	-	**2.26**	-	< 1.0	< 1.0	< 1.0	< 1.0
MW239S	22-Feb-19	< 0.01	**0.18**	**3.9**	**3.9**	**3.15**	**3.06**	**1.43**	**5.21**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Mar-19	-	-	-	-	**3.28**	**3.64**	**5.18**	-	-	**2.0**	< 1.0	< 1.0	**2.0**
	23-Apr-19	-	-	-	-	**3.38**	**2.92**	**7.32**	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-May-19	< 0.01	**0.09**	**1.7**	**1.7**	**2.76**	**2.75**	-	**4.44**	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jun-19	-	-	-	-	**2.67**	**2.86**	-	-	-	**7.0**	< 1.0	< 1.0	**7.0**
	16-Jul-19	-	-	-	-	**2.86**	**2.39**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Aug-19	-	-	-	-	**2.92**	**2.71**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-19	< 0.01	**0.1**	**1.4**	**1.4**	**2.91**	**2.69**	-	**4.7**	-	< 1.0	< 1.0	< 1.0	< 1.0
	15-Oct-19	-	-	-	-	**3.02**	**3.21**	**3.15**	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	18-Nov-19	< 0.01	**0.17**	**1.2**	**1.2**	**3.26**	**3.5**	**3.48**	**5.38**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Sep-20	-	-	-	-	**2.99**	**3.24**	**3.95**	-	-	**3.0**	< 1.0	< 1.0	**3.0**
	16-Oct-20	-	-	-	-	**4.14**	**4.57**	**4.99**	-	-	**2.0**	< 1.0	< 1.0	**2.0**
	16-Nov-20	< 0.01	**0.01**	**2.6**	**2.6**	**4.21**	**4.3**	**1.0**	**4.78**	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Dec-20	-	-	-	-	**3.81**	**4.05**	**3.15**	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	14-Jan-21	-	-	-	-	**3.31**	**3.65**	**4.78**	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	16-Feb-21	< 0.01	**0.06**	**2.5**	**2.5**	**4.03**	**4.29**	**3.1**	**4.21**	-	< 1.0	< 1.0	< 1.0	< 1.0
	17-Mar-21	-	-	-	-	**2.73**	**2.76**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.16**	**0.04**	**1.8**	**1.6**	**1.29**	**1.3**	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 0.01	**0.04**	**1.5**	**1.5**	**0.77**	**0.89**	-	**1.98**	-	**2.0**	< 1.0	< 1.0	**2.0**

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 re
Highlighting indicates an exceedance of the corresponding

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

Williamtown Sand Syndicate
April 2023
Monthly Monitoring

Table 2
Groundwater Inorganics

Analyte			Inorganics						
		Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1	1	1	1	0.01	0.01	0.1	0.01
Units		mg/L	mg/L	µS/cm	mg/L	mg/L	pH units	NTU	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	500	--	--	4.2-6.5	--	--
Sample Name	Sample Date								
BH1	15-Mar-19	**9.0**	-	**104**	**68**	**78**	**5.67**	-	-
	23-Apr-19	**11**	-	**84**	**97**	**248**	**5.83**	-	-
	16-May-19	**8.0**	-	**105**	**164**	**80**	**5.82**	-	-
	14-Jun-19	**8.0**	-	**99**	**72**	**39**	**5.52**	-	-
	16-Jul-19	**8.0**	-	**102**	**84**	**26**	**5.62**	-	-
	15-Aug-19	**8.0**	-	**128**	**82**	**181**	**6.22**	-	-
	16-Sep-19	**8.0**	-	**102**	**88**	**108**	**5.44**	-	-
	15-Oct-19	**8.0**	-	**98**	**64**	-	**5.5**	-	-
	18-Nov-19	**8.0**	-	**126**	**82**	-	**6.29**	-	-
	16-Sep-20	**8.0**	-	**95**	**81**	**58**	**5.87**	-	-
	16-Oct-20	**8.0**	-	**88**	**57**	-	**5.7**	-	-
	16-Nov-20	**8.0**	-	**120**	**78**	**41**	**5.98**	-	-
	16-Dec-20	**8.0**	-	**134**	**87**	-	**5.76**	-	-
	14-Jan-21	**8.0**	-	**124**	**81**	-	**5.63**	-	-
	16-Feb-21	**8.0**	-	**116**	**75**	**20**	**5.57**	-	-
	17-Mar-21	**11**	-	**111**	**72**	-	**6.02**	-	-
	13-Oct-21	-	-	-	-	-	**5.66**	**98**	-
	24-Feb-22	**15**	-	**127**	**82**	-	**5.95**	-	< 0.01
BH1A	15-Feb-23	< 1.0	-	**70**	**46**	-	**4.49**	-	-
BH2	22-Feb-19	**13**	-	**91**	**128**	**376**	**4.87**	-	-
	15-Mar-19	**16**	-	**101**	**66**	**352**	**4.71**	-	-
	23-Apr-19	**13**	-	**70**	**84**	**575**	**4.82**	-	-
	16-May-19	**13**	-	**94**	**144**	**111**	**4.85**	-	-
	14-Jun-19	**11**	-	**91**	**51**	**215**	**4.76**	-	-
	16-Jul-19	**13**	-	**90**	**63**	**92**	**4.84**	-	-
	15-Aug-19	**11**	-	**110**	**61**	**310**	**5.2**	-	-
	16-Sep-19	**13**	-	**96**	**60**	**216**	**4.72**	-	-
	15-Oct-19	**13**	-	**102**	**66**	-	**5.06**	-	-
	18-Nov-19	**9.0**	-	**102**	**66**	-	**5.47**	-	-
	16-Sep-20	**13**	-	**99**	**76**	**356**	**4.85**	-	-
	16-Oct-20	**13**	-	**90**	**58**	-	**5.07**	-	-
	16-Nov-20	**13**	-	**119**	**77**	**952**	**5.09**	-	-
	16-Dec-20	**13**	-	**105**	**68**	-	**4.66**	-	-
	14-Jan-21	**13**	-	**93**	**60**	-	**5.04**	-	-
	16-Feb-21	**7.0**	-	**89**	**58**	**86**	**4.84**	-	-
	17-Mar-21	**13**	-	**88**	**57**	-	**5.28**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	**5.09**	**101**	-
	16-Nov-21	-	-	-	-	-	-	-	-
	24-Feb-22	**9.0**	-	**70**	**46**	-	**5.18**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	**462**	-
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**4.0**	-	**73**	**47**	-	**4.67**	-	-
BH3	21-Feb-19	**14**	-	**60**	**438**	**3,800**	**5.55**	-	-
	21-Feb-19	**9.0**	-	**73**	**96**	**122**	**5.4**	-	-
	15-Mar-19	**5.0**	-	**77**	**50**	**45**	**5.12**	-	-
	23-Apr-19	**9.0**	-	**54**	**61**	**147**	**5.05**	-	-
	16-May-19	**9.0**	-	**73**	**100**	**44**	**4.99**	-	-
	14-Jun-19	**7.0**	-	**69**	**36**	**186**	**4.84**	-	-
	16-Jul-19	**13**	-	**75**	**42**	**74**	**4.96**	-	-
	15-Aug-19	**9.0**	-	**85**	**49**	**30**	**5.01**	-	-
	16-Sep-19	**13**	-	**95**	**58**	**49**	**4.83**	-	-
	15-Oct-19	**7.0**	-	**85**	**55**	-	**4.93**	-	-
	18-Nov-19	**7.0**	-	**86**	**56**	-	**5.34**	-	-
	16-Sep-20	**8.0**	-	**148**	**74**	**24**	**4.66**	-	-
	16-Oct-20	**15**	-	**133**	**86**	-	**5.21**	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater Inorganics

Analyte			Inorganics						
		Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1	1	1	1	0.01	0.01	0.1	0.01
Units		mg/L	mg/L	µS/cm	mg/L	mg/L	pH units	NTU	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	500	--	--	4.2-6.5	--	--
BH4	16-Nov-20	**8.0**	-	**146**	**95**	**15**	**4.98**	-	-
	16-Dec-20	**19**	-	**193**	**125**	-	**4.81**	-	-
	14-Jan-21	**19**	-	**258**	**168**	-	**5.23**	-	-
	16-Feb-21	**42**	-	**445**	**289**	**56**	**4.86**	-	-
	17-Mar-21	**50**	-	**501**	**326**	-	**5.07**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	**4.51**	**56**	-
	24-Feb-22	**11**	-	**74**	**48**	-	**5.07**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	**61**	-
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**7.0**	-	**84**	**55**	-	**5.06**	-	-
BH5	22-Feb-19	**25**	-	**250**	**211**	**458**	**4.87**	-	-
	24-Feb-22	**33**	-	**276**	**179**	-	**4.67**	-	< 0.01
	15-Feb-23	**8.0**	-	**126**	**82**	-	**4.64**	-	-
BH6	22-Feb-19	**24**	-	**177**	**144**	**41**	**4.37**	-	-
	14-Mar-19	**21**	-	**179**	**116**	**144**	**4.95**	-	-
	23-Apr-19	**24**	-	**136**	**115**	**62**	**4.64**	-	-
	16-May-19	**24**	-	**175**	**214**	**106**	**4.88**	-	-
	14-Jun-19	**21**	-	**174**	**90**	**32**	**4.82**	-	-
	16-Jul-19	**21**	-	**161**	**82**	**23**	**4.73**	-	-
	15-Aug-19	**17**	-	**201**	**104**	**16**	**4.87**	-	-
	16-Sep-19	**20**	-	**197**	**124**	**71**	**4.68**	-	-
	15-Oct-19	**21**	-	**202**	**131**	-	**5.17**	-	-
	18-Nov-19	**20**	-	**204**	**133**	-	**5.32**	-	-
	16-Sep-20	**21**	-	**273**	**121**	**49**	**4.98**	-	-
	16-Oct-20	**26**	-	**249**	**162**	-	**5.3**	-	-
	16-Nov-20	**28**	-	**321**	**209**	**12**	**4.45**	-	-
	16-Dec-20	**32**	-	**321**	**209**	-	**4.63**	-	-
	14-Jan-21	**28**	-	**332**	**216**	-	**4.33**	-	-
	16-Feb-21	**32**	-	**316**	**205**	**20**	**4.89**	-	-
	17-Mar-21	**47**	-	**358**	**233**	-	**5.07**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	**6.1**	**51**	-
	24-Feb-22	**16**	-	**241**	**157**	-	**3.92**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	**33**	-
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**16**	-	**265**	**172**	-	**3.95**	-	-
BH7	22-Feb-19	**20**	-	**213**	**196**	**152**	**4.76**	-	-
	14-Mar-19	**25**	-	**271**	**176**	**149**	**4.73**	-	-
	23-Apr-19	**25**	-	**205**	**185**	**20**	**4.51**	-	-
	16-May-19	**20**	-	**235**	**310**	**29**	**4.87**	-	-
	14-Jun-19	**16**	-	**213**	**145**	**39**	**4.91**	-	-
	16-Jul-19	**20**	-	**202**	**164**	**61**	**5.0**	-	-
	15-Aug-19	**16**	-	**232**	**168**	**44**	**5.53**	-	-
	16-Sep-19	**16**	-	**222**	**181**	**44**	**5.07**	-	-
	15-Oct-19	**20**	-	**252**	**164**	-	**4.95**	-	-
	18-Nov-19	**20**	-	**239**	**155**	-	**4.97**	-	-
	16-Sep-20	**20**	-	**248**	**140**	**24**	**4.81**	-	-
	16-Oct-20	**20**	-	**243**	**158**	-	**4.87**	-	-
	16-Nov-20	**20**	-	**245**	**159**	**6.0**	**4.57**	-	-
	16-Dec-20	**25**	-	**265**	**172**	-	**4.34**	-	-
	14-Jan-21	**20**	-	**267**	**174**	-	**4.62**	-	-
	16-Feb-21	**25**	-	**270**	**176**	**9.0**	**4.54**	-	-
	17-Mar-21	**29**	-	**279**	**181**	-	**4.9**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater Inorganics

Analyte			Inorganics						
		Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1	1	1	1	0.01	0.01	0.1	0.01
Units		mg/L	mg/L	µS/cm	mg/L	mg/L	pH units	NTU	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	500	--	--	4.2-6.5	--	--
	13-Oct-21	-	-	-	-	-	**5.22**	**170**	-
	24-Feb-22	**8.0**	-	**124**	**81**	-	**4.43**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	**33**	-
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**4.0**	-	**66**	**43**	-	**4.83**	-	-
BH8	21-Feb-19	**25**	-	**352**	**258**	**438**	**4.46**	-	-
	14-Mar-19	**25**	-	**319**	**207**	**138**	**4.77**	-	-
	23-Apr-19	**29**	-	**264**	**223**	**121**	**4.76**	-	-
	16-May-19	**16**	-	**302**	**354**	**312**	**4.9**	-	-
	14-Jun-19	**20**	-	**315**	**194**	**83**	**4.82**	-	-
	16-Jul-19	**20**	-	**353**	**226**	**145**	**4.78**	-	-
	15-Aug-19	**12**	-	**260**	**140**	**98**	**5.0**	-	-
	16-Sep-19	**12**	-	**293**	**206**	**79**	**4.85**	-	-
	15-Oct-19	**16**	-	**303**	**197**	-	**5.02**	-	-
	18-Nov-19	**16**	-	**316**	**205**	-	**5.12**	-	-
	16-Sep-20	**16**	-	**391**	**216**	**34**	**4.79**	-	-
	16-Oct-20	**16**	-	**268**	**174**	-	**5.01**	-	-
	16-Nov-20	**25**	-	**341**	**222**	**14**	**4.75**	-	-
	16-Dec-20	**16**	-	**256**	**166**	-	**4.82**	-	-
	14-Jan-21	**20**	-	**317**	**206**	-	**4.76**	-	-
	16-Feb-21	**25**	-	**335**	**218**	**63**	**4.68**	-	-
	17-Mar-21	**25**	-	**329**	**214**	-	**4.57**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-
	24-Feb-22	**20**	-	**329**	**214**	-	**4.67**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**4.0**	-	**135**	**88**	-	**4.93**	-	-
BH9A	16-Sep-20	**33**	-	**276**	**310**	**1,060**	**5.78**	-	-
	16-Oct-20	**32**	-	**237**	**154**	-	**5.15**	-	-
	16-Nov-20	**21**	-	**195**	**127**	**2,220**	**4.93**	-	-
	16-Dec-20	**15**	-	**175**	**114**	-	**4.83**	-	-
	14-Jan-21	**15**	-	**196**	**127**	-	**4.96**	-	-
	16-Feb-21	**15**	-	**181**	**118**	**2,030**	**4.72**	-	-
	17-Mar-21	**15**	-	**164**	**107**	-	**5.23**	-	-
	19-Aug-21	**15**	-	**180**	**117**	-	**5.03**	-	-
	22-Sep-21	**11**	-	**172**	**112**	-	**4.99**	-	-
	13-Oct-21	**8.0**	-	**156**	**101**	-	**5.21**	**105**	-
	16-Nov-21	-	**17**	**163**	**106**	-	**5.51**	-	-
	24-Feb-22	**21**	-	**164**	**107**	-	**4.85**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	**289**	-
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**8.0**	-	**141**	**92**	-	**4.65**	-	-
	21-Feb-19	**41**	-	**346**	**278**	**144**	**4.67**	-	-
	15-Mar-19	**8.0**	-	**186**	**121**	**152**	**4.82**	-	-
	23-Apr-19	**20**	-	**150**	**135**	**112**	**4.99**	-	-
	16-May-19	**16**	-	**188**	**216**	**156**	**4.91**	-	-
	14-Jun-19	**12**	-	**175**	**107**	**136**	**4.84**	-	-
	16-Jul-19	**33**	-	**318**	**192**	**223**	**4.68**	-	-
	15-Aug-19	**12**	-	**197**	**135**	**303**	**4.88**	-	-
	16-Sep-19	**12**	-	**195**	**140**	**533**	**4.66**	-	-
	15-Oct-19	**12**	-	**194**	**126**	-	**4.92**	-	-
	18-Nov-19	**12**	-	**193**	**125**	-	**5.12**	-	-
	16-Sep-20	**20**	-	**223**	**111**	**136**	**4.61**	-	-

Williamtown Sand Syndicate
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Table 2
Groundwater Inorganics

Analyte			Inorganics						
		Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1	1	1	1	0.01	0.01	0.1	0.01
Units		mg/L	mg/L	µS/cm	mg/L	mg/L	pH units	NTU	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	500	--	--	4.2-6.5	--	--
BH11	16-Oct-20	**25**	-	**218**	**142**	-	**4.8**	-	-
	16-Nov-20	**20**	-	**217**	**141**	**100**	**4.81**	-	-
	16-Dec-20	**25**	-	**249**	**162**	-	**4.74**	-	-
	14-Jan-21	**25**	-	**264**	**172**	-	**4.41**	-	-
	16-Feb-21	**20**	-	**235**	**153**	**386**	**4.73**	-	-
	17-Mar-21	**25**	-	**223**	**145**	-	**4.66**	-	-
	19-Aug-21	**29**	-	**403**	**262**	-	**4.38**	-	-
	22-Sep-21	**25**	-	**382**	**248**	-	**4.47**	-	-
	13-Oct-21	**33**	-	**373**	**242**	-	**4.27**	**18**	-
	16-Nov-21	-	**33**	**268**	**174**	-	**4.54**	-	-
	24-Feb-22	**25**	-	**260**	**169**	-	**4.57**	-	< 0.01
	06-Mar-22	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	**24**	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**8.0**	-	**118**	**77**	-	**4.54**	-	-
BH12	16-Sep-20	**29**	-	**206**	**118**	**446**	**5.37**	-	-
	16-Nov-20	**16**	-	**190**	**124**	**438**	**5.92**	-	-
	13-Oct-21	-	-	-	-	-	**5.75**	**398**	-
	24-Feb-22	**16**	-	**148**	**96**	-	**5.03**	-	< 0.01
BH12A	15-Feb-23	**8.0**	-	**129**	**84**	-	**4.91**	-	-
MW239S	22-Feb-19	**25**	-	**329**	**234**	**149**	**4.89**	-	-
	14-Mar-19	**25**	-	**410**	**266**	**504**	**5.02**	-	-
	23-Apr-19	**29**	-	**294**	**208**	**385**	**4.92**	-	-
	16-May-19	**25**	-	**327**	**320**	**371**	**4.87**	-	-
	14-Jun-19	**25**	-	**334**	**220**	**427**	**5.39**	-	-
	16-Jul-19	**29**	-	**353**	**188**	**70**	**4.85**	-	-
	15-Aug-19	**29**	-	**359**	**195**	**363**	**4.83**	-	-
	16-Sep-19	**25**	-	**373**	**224**	**179**	**4.66**	-	-
	15-Oct-19	**25**	-	**404**	**263**	-	**4.86**	-	-
	18-Nov-19	**25**	-	**419**	**272**	-	**4.76**	-	-
	16-Sep-20	**33**	-	**390**	**244**	**350**	**5.2**	-	-
	16-Oct-20	**37**	-	**458**	**298**	-	**4.73**	-	-
	16-Nov-20	**37**	-	**489**	**318**	**562**	**4.55**	-	-
	16-Dec-20	**41**	-	**484**	**315**	-	**4.68**	-	-
	14-Jan-21	**37**	-	**430**	**280**	-	**4.44**	-	-
	16-Feb-21	**45**	-	**488**	**317**	**346**	**4.61**	-	-
	17-Mar-21	**29**	-	**343**	**223**	-	**4.73**	-	-
	13-Oct-21	-	-	-	-	-	**4.87**	**295**	-
	24-Feb-22	**12**	-	**159**	**103**	-	**4.67**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	**104**	-
	27-May-22	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-
	15-Feb-23	**8.0**	-	**111**	**72**	-	**4.63**	-	-

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 re
Highlighting indicates an exceedance of the corresponding

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

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Table 3
Groundwater - Metals

Analyte		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium
LOR		0.001	0.001	0.001	0.05	0.0001	0.001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.003	0.07	0.002	0.1	0.0002	0.004
Sample Name	Sample Date						
BH1	15-Mar-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.004**
	23-Apr-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.004**
	16-May-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	14-Jun-19	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Jul-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	15-Aug-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	16-Sep-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.004**
	15-Oct-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.003**
	18-Nov-19	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	**0.004**
	16-Sep-20	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Oct-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Nov-20	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	16-Dec-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Feb-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**
	17-Mar-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	24-Feb-22	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**
BH1A	15-Feb-23	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	22-Feb-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Mar-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	23-Apr-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-May-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Jun-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001

BH2	16-Jul-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Aug-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Sep-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Oct-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	18-Nov-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Sep-20	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Oct-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Nov-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Dec-20	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Feb-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001
	17-Mar-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**
	19-Aug-21	< 0.001	**0.003**	-	-	-	< 0.001
	22-Sep-21	< 0.001	-	-	-	-	-
	13-Oct-21	< 0.001	-	-	-	-	-
	16-Nov-21	< 0.001	**0.003**	-	-	-	< 0.001
	15-Dec-21	< 0.001	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-
	24-Feb-22	**0.002**	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001
	17-Mar-22	< 0.001	-	-	-	-	-
	12-Apr-22	**0.001**	-	-	-	-	-
	27-May-22	< 0.001	**0.002**	-	-	-	< 0.001
	17-Jun-22	< 0.001	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-
	12-Aug-22	< 0.001	**0.005**	-	-	-	< 0.001
	16-Sep-22	< 0.001	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-
	18-Nov-22	< 0.001	**0.004**	-	-	-	< 0.001
	14-Dec-22	< 0.001	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Mar-23	< 0.001	-	-	-	-	-
	18-Apr-23	< 0.001	**0.003**	< 0.001	**0.05**	< 0.0001	< 0.001

Table 3
Groundwater - Metals

BH3	21-Feb-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**
BH4	21-Feb-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Mar-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001
	23-Apr-19	< 0.001	**0.013**	< 0.001	**0.05**	< 0.0001	< 0.001
	16-May-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Jun-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Jul-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Aug-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Sep-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Oct-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001
	18-Nov-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Oct-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Nov-20	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Dec-20	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Jan-21	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Feb-21	< 0.001	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001
	17-Mar-21	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001
	19-Aug-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001
	22-Sep-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001
	13-Oct-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Nov-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Dec-21	< 0.001	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-
	24-Feb-22	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001
	17-Mar-22	< 0.001	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-
	27-May-22	< 0.001	**0.011**	-	-	-	< 0.001
	17-Jun-22	< 0.001	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-
	12-Aug-22	< 0.001	**0.013**	-	-	-	< 0.001
	16-Sep-22	< 0.001	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-

Table 3
Groundwater - Metals

	18-Nov-22	< 0.001	**0.012**	-	-	-	< 0.001
	14-Dec-22	< 0.001	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-
	15-Feb-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Mar-23	< 0.001	-	-	-	-	-
	18-Apr-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001
BH5	22-Feb-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**
	24-Feb-22	< 0.001	**0.024**	< 0.001	< 0.05	< 0.0001	**0.001**
	15-Feb-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001
BH6	22-Feb-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Mar-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001
	23-Apr-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-May-19	< 0.001	**0.029**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Jun-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Jul-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Aug-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Sep-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Oct-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001
	18-Nov-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Sep-20	< 0.001	**0.047**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Oct-20	< 0.001	**0.04**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Nov-20	< 0.001	**0.061**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Dec-20	< 0.001	**0.07**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Jan-21	< 0.001	**0.054**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Feb-21	< 0.001	**0.048**	< 0.001	< 0.05	< 0.0001	< 0.001
	17-Mar-21	< 0.001	**0.068**	< 0.001	< 0.05	< 0.0001	< 0.001
	19-Aug-21	**0.005**	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001
	22-Sep-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001
	13-Oct-21	**0.002**	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Nov-21	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Dec-21	< 0.001	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-
	24-Feb-22	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001

	17-Mar-22	< 0.001	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001
	17-Jun-22	< 0.001	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-
	12-Aug-22	< 0.001	**0.008**	-	-	-	< 0.001
	16-Sep-22	**0.001**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-
	18-Nov-22	< 0.001	**0.009**	-	-	-	< 0.001
	14-Dec-22	< 0.001	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-
	15-Feb-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**
	15-Mar-23	< 0.001	-	-	-	-	-
	18-Apr-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001
	22-Feb-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Mar-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**
	23-Apr-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-May-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Jul-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Aug-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Sep-19	< 0.001	**0.016**	< 0.001	**0.06**	< 0.0001	**0.002**
	15-Oct-19	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**
	18-Nov-19	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Nov-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Dec-20	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Jan-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Feb-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	17-Mar-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**
	19-Aug-21	**0.003**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**
BH7	22-Sep-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**

BH7	13-Oct-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.003**
	16-Nov-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	15-Dec-21	< 0.001	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-
	24-Feb-22	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	17-Mar-22	< 0.001	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-
	27-May-22	< 0.001	**0.003**	-	-	-	**0.003**
	17-Jun-22	< 0.001	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-
	12-Aug-22	< 0.001	**0.003**	-	-	-	**0.002**
	16-Sep-22	**0.001**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-
	18-Nov-22	**0.001**	**0.002**	-	-	-	**0.002**
	14-Dec-22	< 0.001	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Mar-23	< 0.001	-	-	-	-	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**
BH8	21-Feb-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**
	14-Mar-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**
	23-Apr-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-May-19	**0.003**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**
	14-Jun-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Jul-19	**0.001**	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**
	15-Aug-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Sep-19	**0.001**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Oct-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**
	18-Nov-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Sep-20	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Oct-20	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Nov-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Dec-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**

	14-Jan-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Feb-21	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**
	17-Mar-21	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**
	19-Aug-21	**0.003**	**0.008**	-	-	-	**0.002**
	16-Nov-21	**0.001**	**0.01**	-	-	-	**0.002**
	16-Dec-21	-	-	-	-	-	-
	24-Feb-22	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**
	27-May-22	**0.001**	**0.004**	-	-	-	**0.002**
	12-Aug-22	**0.001**	**0.006**	-	-	-	**0.002**
	18-Nov-22	**0.002**	**0.004**	-	-	-	**0.002**
	15-Feb-23	**0.001**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
BH9	16-Nov-21	< 0.001	-	-	-	-	-
BH9A	16-Sep-20	< 0.001	**0.028**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Oct-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Nov-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Dec-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Feb-21	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001
	17-Mar-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001
	19-Aug-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001
	22-Sep-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001
	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001
	16-Nov-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Dec-21	< 0.001	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-
	24-Feb-22	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001
	17-Mar-22	< 0.001	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001
	17-Jun-22	< 0.001	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-
	12-Aug-22	< 0.001	**0.009**	-	-	-	< 0.001
	16-Sep-22	< 0.001	-	-	-	-	-

Table 3
Groundwater - Metals

	24-Oct-22	< 0.001	-	-	-	-	-
	18-Nov-22	< 0.001	**0.007**	-	-	-	< 0.001
	14-Dec-22	< 0.001	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-
	15-Feb-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001
	15-Mar-23	< 0.001	-	-	-	-	-
	18-Apr-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**
BH11	21-Feb-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Mar-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**
	23-Apr-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-May-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Jun-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Jul-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Aug-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Sep-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**
	15-Oct-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	18-Nov-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Sep-20	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Oct-20	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Nov-20	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Dec-20	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**
	14-Jan-21	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Feb-21	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**
	17-Mar-21	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**
	19-Aug-21	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.003**
	22-Sep-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**
	13-Oct-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Nov-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.003**
	15-Dec-21	< 0.001	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-
	24-Feb-22	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.003**
	06-Mar-22	< 0.001	**0.004**	-	-	-	**0.002**
	17-Mar-22	< 0.001	-	-	-	-	-

	12-Apr-22	< 0.001	-	-	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-
	18-Nov-22	< 0.001	**0.002**	-	-	-	**0.003**
	14-Dec-22	< 0.001	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	15-Mar-23	< 0.001	-	-	-	-	-
	18-Apr-23	**0.001**	**0.001**	< 0.001	< 0.05	< 0.0001	**0.004**
BH12	16-Nov-20	< 0.001	-	-	-	< 0.0001	**0.002**
	24-Feb-22	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
BH12A	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**
	22-Feb-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Mar-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**
	23-Apr-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-May-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Jul-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Aug-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Sep-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Oct-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	18-Nov-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Sep-20	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Nov-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Dec-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**
	14-Jan-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**
	16-Feb-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**
	17-Mar-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**
	19-Aug-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.001**
MW239S	22-Sep-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**

MW2393	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**
	16-Nov-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**
	15-Dec-21	< 0.001	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-
	24-Feb-22	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**
	17-Mar-22	< 0.001	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-
	27-May-22	< 0.001	**0.004**	-	-	-	**0.002**
	17-Jun-22	< 0.001	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-
	12-Aug-22	< 0.001	**0.002**	-	-	-	**0.002**
	16-Sep-22	< 0.001	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-
	18-Nov-22	< 0.001	**0.003**	-	-	-	**0.001**
	14-Dec-22	< 0.001	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-
	15-Feb-23	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.001**
	15-Mar-23	< 0.001	-	-	-	-	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**

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 ana

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

Williamtown Sand Syndicate
April 2023
Monthly monitoring

Table 3
Groundwater - Metals

Metals								
Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium
0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0.006	0.083	4.1 (8.84 for BH1)	0.001	0.136	0.0001	0.02	0.01	0.01
< 0.001	< 0.001	**13**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.002**	**10**	**0.001**	**0.015**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**8.33**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.001**	**6.31**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.002**	**7.35**	< 0.001	**0.01**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.002**	**7.96**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.001**	**8.84**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.006**	-	< 0.001	**0.007**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**11**	< 0.001	**0.008**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.005**	**5.48**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.001**	**5.55**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.001**	**7.05**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.008**	**3.21**	< 0.001	**0.011**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.001**	**5.21**	< 0.001	**0.013**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.001**	**3.24**	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**4.0**	< 0.001	**0.027**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**7.7**	< 0.001	**0.018**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	< 0.05	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.002**	**0.14**	< 0.001	**0.021**	< 0.0001	**0.015**	< 0.01	< 0.01
< 0.001	**0.003**	< 0.05	< 0.001	**0.02**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.004**	**0.19**	< 0.001	**0.018**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.001**	**0.06**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.004**	**0.08**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01

< 0.001	**0.008**	**0.05**	< 0.001	**0.013**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.012**	**0.08**	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.008**	**0.26**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.006**	-	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.013**	**0.08**	< 0.001	**0.011**	< 0.0001	**0.007**	< 0.01	< 0.01
< 0.001	**0.026**	**0.07**	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.013**	< 0.05	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.02**	**0.36**	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.011**	< 0.05	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.006**	< 0.05	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.021**	< 0.05	< 0.001	**0.009**	< 0.0001	**0.007**	< 0.01	< 0.01
< 0.001	**0.003**	< 0.05	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01
-	**0.007**	< 0.05	-	**0.015**	-	< 0.001	-	-
-	-	< 0.05	-	**0.013**	-	-	-	-
-	-	**0.08**	-	**0.012**	-	-	-	-
-	**0.006**	< 0.05	-	-	-	< 0.001	-	-
-	-	**0.05**	-	**0.008**	-	-	-	-
-	-	**0.49**	-	**0.012**	-	-	-	-
< 0.001	< 0.001	< 0.05	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01
-	-	< 0.05	-	**0.01**	-	-	-	-
-	-	**0.25**	-	**0.009**	-	-	-	-
-	**0.004**	< 0.05	-	-	-	< 0.001	-	-
-	-	< 0.05	-	**0.007**	-	-	-	-
-	-	< 0.05	-	**0.008**	-	-	-	-
-	**0.012**	< 0.05	-	-	-	**0.001**	-	-
-	-	**0.15**	-	**0.009**	-	-	-	-
-	-	< 0.05	-	**0.005**	-	-	-	-
0.001	**0.002**	**0.14**	-	**0.005**	-	< 0.001	-	-
-	-	**0.09**	-	**0.004**	-	-	-	-
-	-	**0.12**	-	**0.005**	-	-	-	-
< 0.001	**0.002**	< 0.05	< 0.001	**0.002**	< 0.0001	**0.001**	< 0.01	< 0.01
-	-	< 0.05	-	**0.003**	-	-	-	-
< 0.001	**0.003**	**0.09**	< 0.001	**0.004**	< 0.0001	**0.003**	< 0.01	< 0.01

Table 3
Groundwater - Metals

< 0.001	< 0.001	**0.06**	< 0.001	**0.005**	< 0.0001	**0.053**	< 0.01	< 0.01
< 0.001	**0.002**	**0.16**	< 0.001	**0.039**	< 0.0001	**0.018**	< 0.01	< 0.01
< 0.001	**0.001**	< 0.05	< 0.001	**0.014**	< 0.0001	**0.022**	< 0.01	< 0.01
< 0.001	**0.002**	**0.99**	< 0.001	**0.045**	< 0.0001	**0.007**	< 0.01	< 0.01
< 0.001	< 0.001	**0.27**	< 0.001	**0.022**	< 0.0001	**0.022**	< 0.01	< 0.01
< 0.001	**0.038**	< 0.05	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.046**	< 0.05	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.026**	< 0.05	< 0.001	**0.018**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.051**	**0.19**	< 0.001	**0.026**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.011**	-	< 0.001	**0.136**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.005**	< 0.05	< 0.001	**0.013**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.078**	**0.06**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.003**	**0.25**	< 0.001	**0.021**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.005**	**0.18**	< 0.001	**0.008**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.002**	**0.46**	< 0.001	**0.027**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	**0.012**	**0.27**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.002**	**0.94**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	**0.006**	**1.39**	< 0.001	**0.029**	< 0.0001	**0.002**	< 0.01	< 0.01
0.001	**0.198**	**0.14**	< 0.001	**0.022**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	**0.172**	**0.1**	< 0.001	**0.02**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.026**	**1.65**	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.012**	**0.38**	< 0.001	**0.021**	< 0.0001	**0.001**	< 0.01	< 0.01
-	-	**0.69**	-	**0.016**	-	-	-	-
-	-	**0.52**	-	**0.018**	-	-	-	-
< 0.001	< 0.001	**0.62**	< 0.001	**0.017**	< 0.0001	< 0.001	< 0.01	< 0.01
-	-	**0.09**	-	**0.018**	-	-	-	-
-	-	**0.27**	-	**0.017**	-	-	-	-
-	**0.097**	< 0.05	-	-	-	< 0.001	-	-
-	**0.082**	< 0.05	-	**0.014**	-	-	-	-
-	-	**0.09**	-	**0.014**	-	-	-	-
-	**0.05**	< 0.05	-	-	-	< 0.001	-	-
-	-	**0.11**	-	**0.014**	-	-	-	-
-	-	**0.19**	-	**0.016**	-	-	-	-

< 0.001	**0.006**	**0.13**	-	**0.016**	-	< 0.001	-	-
-	-	**0.14**	-	**0.015**	-	-	-	-
-	-	**0.12**	-	**0.022**	-	-	-	-
< 0.001	**0.012**	**0.06**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01
-	-	< 0.05	-	**0.022**	-	-	-	-
< 0.001	**0.059**	**0.05**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**1.4**	< 0.001	**0.005**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**1.64**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.47**	< 0.001	**0.002**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**1.03**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	< 0.001	**1.9**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.001**	**0.96**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**2.57**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.001**	**2.86**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.002**	**2.41**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.001**	**2.19**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.008**	**2.08**	< 0.001	**0.012**	< 0.0001	**0.007**	< 0.01	< 0.01
< 0.001	< 0.001	-	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**1.58**	< 0.001	**0.009**	< 0.0001	**0.008**	< 0.01	< 0.01
< 0.001	**0.002**	**1.78**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**1.84**	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**1.72**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**1.64**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.011**	**1.06**	< 0.001	**0.014**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.013**	**1.18**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**1.39**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**0.55**	< 0.001	**0.005**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**0.83**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01
-	-	**0.66**	-	**0.002**	-	-	-	-
-	-	**0.7**	-	**0.003**	-	-	-	-
< 0.001	< 0.001	**0.55**	< 0.001	**0.001**	< 0.0001	< 0.001	< 0.01	< 0.01

-	-	**0.81**	-	**0.002**	-	-	-	-
-	-	**3.24**	-	**0.016**	-	-	-	-
-	< 0.001	**3.45**	-	-	-	< 0.001	-	-
-	-	**2.7**	-	**0.005**	-	-	-	-
-	-	**2.38**	-	**0.001**	-	-	-	-
-	< 0.001	**2.38**	-	-	-	< 0.001	-	-
-	-	**3.45**	-	**0.002**	-	-	-	-
-	-	**3.44**	-	**0.002**	-	-	-	-
< 0.001	< 0.001	**4.39**	-	**0.006**	-	**0.002**	-	-
-	-	**3.23**	-	**0.012**	-	-	-	-
-	-	**3.61**	-	**0.014**	-	-	-	-
< 0.001	**0.002**	**3.82**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01
-	-	**4.97**	-	**0.006**	-	-	-	-
< 0.001	< 0.001	**4.13**	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01
0.003	< 0.001	**1.8**	< 0.001	**0.026**	< 0.0001	**0.004**	< 0.01	< 0.01
0.003	< 0.001	**1.8**	< 0.001	**0.02**	< 0.0001	**0.004**	< 0.01	< 0.01
0.003	< 0.001	**2.0**	< 0.001	**0.026**	< 0.0001	**0.004**	< 0.01	< 0.01
0.003	< 0.001	**2.32**	< 0.001	**0.035**	< 0.0001	**0.005**	< 0.01	< 0.01
0.002	< 0.001	**2.06**	< 0.001	**0.03**	< 0.0001	**0.004**	< 0.01	< 0.01
0.002	< 0.001	**1.66**	< 0.001	**0.025**	< 0.0001	**0.003**	< 0.01	< 0.01
0.002	< 0.001	**1.54**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01
0.002	**0.007**	**1.42**	**0.001**	**0.024**	< 0.0001	**0.02**	< 0.01	< 0.01
0.002	**0.003**	-	< 0.001	**0.018**	< 0.0001	**0.003**	< 0.01	< 0.01
0.002	< 0.001	**1.1**	< 0.001	**0.015**	< 0.0001	**0.013**	< 0.01	< 0.01
0.002	< 0.001	**1.67**	< 0.001	**0.021**	< 0.0001	**0.003**	< 0.01	< 0.01
0.002	< 0.001	**1.49**	< 0.001	**0.015**	< 0.0001	**0.003**	< 0.01	< 0.01
0.003	< 0.001	**1.72**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01
0.002	< 0.001	**1.79**	< 0.001	**0.024**	< 0.0001	**0.003**	< 0.01	< 0.01
0.002	**0.004**	**1.65**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01
0.002	**0.002**	**1.74**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01
0.003	< 0.001	**2.28**	< 0.001	**0.028**	< 0.0001	**0.005**	< 0.01	< 0.01
0.001	< 0.001	**0.79**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.62**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01

< 0.001	< 0.001	**0.69**	**0.002**	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.39**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01
-	-	**0.47**	-	**0.002**	-	-	-	-
-	-	**0.45**	-	**0.002**	-	-	-	-
< 0.001	< 0.001	**0.66**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01
-	-	**0.45**	-	**0.003**	-	-	-	-
-	-	**0.43**	-	**0.004**	-	-	-	-
-	< 0.001	**0.52**	-	-	-	**0.002**	-	-
-	-	**0.56**	-	**0.004**	-	-	-	-
-	-	**0.51**	-	**0.004**	-	-	-	-
-	**0.003**	**0.56**	-	-	-	**0.002**	-	-
-	-	**0.54**	-	**0.004**	-	-	-	-
-	-	**0.5**	-	**0.003**	-	-	-	-
< 0.001	< 0.001	**0.43**	-	**0.001**	-	**0.001**	-	-
-	-	**0.32**	-	**0.002**	-	-	-	-
-	-	**0.29**	-	**0.002**	-	-	-	-
< 0.001	< 0.001	**0.31**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01
-	-	**0.34**	-	**0.003**	-	-	-	-
< 0.001	**0.002**	**0.46**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**4.1**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**3.25**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**3.2**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**3.0**	< 0.001	**0.01**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**2.5**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**2.6**	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**1.72**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	< 0.001	**2.06**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.002**	-	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.002**	**2.49**	< 0.001	**0.01**	< 0.0001	**0.013**	< 0.01	< 0.01
< 0.001	**0.035**	**3.35**	**0.001**	**0.009**	< 0.0001	**0.009**	< 0.01	< 0.01
< 0.001	< 0.001	**3.03**	< 0.001	**0.007**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**3.48**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.001**	**2.98**	< 0.001	**0.01**	< 0.0001	**0.001**	< 0.01	< 0.01

< 0.001	**0.002**	**2.71**	< 0.001	**0.01**	< 0.0001	**0.005**	< 0.01	< 0.01
< 0.001	**0.004**	**2.99**	< 0.001	**0.01**	< 0.0001	**0.006**	< 0.01	< 0.01
< 0.001	< 0.001	**3.86**	< 0.001	**0.01**	< 0.0001	**0.002**	< 0.01	< 0.01
-	< 0.001	**3.72**	-	-	-	**0.002**	-	-
-	< 0.001	**4.23**	-	-	-	**0.002**	-	-
-	-	**3.78**	-	-	-	-	-	-
< 0.001	< 0.001	**2.98**	< 0.001	**0.007**	< 0.0001	**0.002**	< 0.01	< 0.01
-	< 0.001	**1.1**	-	-	-	**0.001**	-	-
-	< 0.001	**1.54**	-	-	-	**0.001**	-	-
< 0.001	< 0.001	**1.16**	-	**0.001**	-	< 0.001	-	-
< 0.001	**0.001**	**0.96**	< 0.001	**0.002**	< 0.0001	**0.001**	< 0.01	< 0.01
-	-	< 0.05	-	**0.014**	-	-	-	-
0.002	**0.004**	**0.14**	< 0.001	**0.076**	< 0.0001	**0.002**	< 0.01	< 0.01
0.001	**0.001**	**0.06**	< 0.001	**0.042**	< 0.0001	**0.003**	< 0.01	< 0.01
0.001	**0.001**	**0.11**	< 0.001	**0.03**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.001**	**0.31**	< 0.001	**0.024**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.017**	**0.14**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01
0.001	< 0.001	**0.35**	< 0.001	**0.024**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**0.27**	< 0.001	**0.024**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.26**	< 0.001	**0.03**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**0.32**	< 0.001	**0.027**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**0.51**	< 0.001	**0.033**	< 0.0001	**0.003**	< 0.01	< 0.01
0.001	< 0.001	**0.33**	< 0.001	**0.025**	< 0.0001	**0.003**	< 0.01	< 0.01
-	-	**0.48**	-	**0.025**	-	-	-	-
-	-	**0.44**	-	**0.03**	-	-	-	-
0.001	< 0.001	**0.5**	< 0.001	**0.042**	< 0.0001	**0.004**	< 0.01	< 0.01
-	-	**0.32**	-	**0.036**	-	-	-	-
-	-	**0.48**	-	**0.038**	-	-	-	-
-	< 0.001	**0.35**	-	-	-	**0.003**	-	-
-	-	**0.42**	-	**0.032**	-	-	-	-
-	-	**0.16**	-	**0.019**	-	-	-	-
-	**0.004**	**0.53**	-	-	-	**0.004**	-	-
-	-	**0.54**	-	**0.031**	-	-	-	-

-	-	**0.27**	-	**0.022**	-	-	-	-
< 0.001	< 0.001	**0.56**	-	**0.034**	-	**0.002**	-	-
-	-	**0.18**	-	**0.023**	-	-	-	-
-	-	**0.49**	-	**0.035**	-	-	-	-
< 0.001	**0.001**	**0.61**	< 0.001	**0.041**	< 0.0001	**0.003**	< 0.01	< 0.01
-	-	**0.15**	-	**0.02**	-	-	-	-
< 0.001	**0.004**	**0.5**	< 0.001	**0.033**	< 0.0001	**0.004**	< 0.01	< 0.01
0.001	< 0.001	**0.26**	< 0.001	**0.003**	< 0.0001	**0.005**	< 0.01	< 0.01
< 0.001	< 0.001	**1.49**	< 0.001	**0.007**	< 0.0001	**0.037**	< 0.01	< 0.01
< 0.001	< 0.001	**0.98**	< 0.001	**0.007**	< 0.0001	**0.07**	< 0.01	< 0.01
< 0.001	< 0.001	**0.97**	< 0.001	**0.006**	< 0.0001	**0.004**	< 0.01	< 0.01
< 0.001	< 0.001	**0.98**	< 0.001	**0.005**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	< 0.001	**0.47**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01
< 0.001	**0.001**	**0.87**	< 0.001	**0.007**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	< 0.001	**0.79**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.004**	-	< 0.001	**0.006**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**0.95**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.005**	**0.9**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**1.06**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.84**	< 0.001	**0.011**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**1.0**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.025**	**0.56**	< 0.001	**0.006**	< 0.0001	**0.004**	< 0.01	< 0.01
< 0.001	**0.018**	**0.59**	< 0.001	**0.008**	< 0.0001	**0.007**	< 0.01	< 0.01
< 0.001	< 0.001	**0.2**	< 0.001	**0.002**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**0.62**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01
< 0.001	< 0.001	**0.72**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01
< 0.001	< 0.001	**0.69**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.92**	< 0.001	**0.002**	< 0.0001	**0.004**	< 0.01	< 0.01
-	-	**0.92**	-	**0.003**	-	-	-	-
-	-	**1.06**	-	**0.003**	-	-	-	-
< 0.001	< 0.001	**1.25**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01
-	< 0.001	**1.27**	-	-	-	**0.002**	-	-
-	-	**1.06**	-	**0.004**	-	-	-	-

-	-	**1.06**	-	**0.004**	-	-	-	-
-	-	**1.24**	-	**0.004**	-	-	-	-
-	-	**1.03**	-	**0.004**	-	-	-	-
-	-	**1.14**	-	**0.004**	-	-	-	-
-	-	**1.14**	-	**0.003**	-	-	-	-
< 0.001	< 0.001	**1.06**	-	**0.003**	-	**0.003**	-	-
-	-	**0.96**	-	**0.003**	-	-	-	-
-	-	**0.86**	-	**0.003**	-	-	-	-
< 0.001	**0.008**	**0.91**	< 0.001	**0.003**	< 0.0001	**0.005**	< 0.01	< 0.01
-	-	**0.99**	-	**0.002**	-	-	-	-
< 0.001	< 0.001	**1.07**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01
-	**0.002**	-	< 0.001	-	< 0.0001	**0.002**	-	-
< 0.001	< 0.001	**0.33**	< 0.001	**0.006**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.003**	**3.64**	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	< 0.001	**1.11**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	< 0.001	**1.25**	< 0.001	**0.005**	< 0.0001	**0.005**	< 0.01	< 0.01
< 0.001	< 0.001	**1.01**	< 0.001	**0.004**	< 0.0001	**0.004**	< 0.01	< 0.01
< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.002**	**0.8**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01
< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**1.0**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01
< 0.001	**0.002**	**0.94**	< 0.001	**0.006**	< 0.0001	**0.006**	< 0.01	< 0.01
< 0.001	**0.003**	-	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**1.1**	< 0.001	**0.004**	< 0.0001	**0.008**	< 0.01	< 0.01
< 0.001	**0.002**	**0.51**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**1.17**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.001**	**0.3**	< 0.001	**0.011**	< 0.0001	**0.003**	< 0.01	< 0.01
< 0.001	< 0.001	**1.06**	< 0.001	**0.011**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	**0.005**	**0.77**	< 0.001	**0.012**	< 0.0001	**0.004**	< 0.01	< 0.01
0.001	**0.01**	**0.92**	< 0.001	**0.012**	< 0.0001	**0.009**	< 0.01	< 0.01
< 0.001	< 0.001	**0.95**	< 0.001	**0.01**	< 0.0001	**0.004**	< 0.01	< 0.01
< 0.001	< 0.001	**0.53**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01

Table 3
Groundwater - Metals

< 0.001	< 0.001	**0.79**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01
< 0.001	< 0.001	**0.68**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01
-	-	**0.77**	-	**0.005**	-	-	-	-
-	-	**0.48**	-	**0.003**	-	-	-	-
< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01
-	-	**0.48**	-	**0.005**	-	-	-	-
-	-	**0.93**	-	**0.007**	-	-	-	-
-	< 0.001	**0.56**	-	-	-	**0.001**	-	-
-	-	**0.36**	-	**0.004**	-	-	-	-
-	-	**0.43**	-	**0.004**	-	-	-	-
-	< 0.001	**0.4**	-	-	-	**0.001**	-	-
-	-	**0.44**	-	**0.006**	-	-	-	-
-	-	**0.38**	-	**0.004**	-	-	-	-
< 0.001	< 0.001	**0.28**	-	**0.002**	-	**0.002**	-	-
-	-	**0.26**	-	**0.003**	-	-	-	-
-	-	**0.2**	-	**0.003**	-	-	-	-
< 0.001	< 0.001	**0.17**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01
-	-	**0.29**	-	**0.004**	-	-	-	-
< 0.001	< 0.001	**0.27**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01

alytical result exceeds more than one guideline)

Table 3
Groundwater - Metals

Zinc
0.005
mg/L
0.085 (0.1 for BH1)
1.27
0.363
0.132
0.074
0.116
0.023
0.034
0.037
0.012
0.016
0.017
0.045
0.077
0.032
0.652
0.596
0.106
0.013
0.006
< 0.005
0.008
< 0.005
< 0.005

0.006
< 0.005
0.007
0.007
0.028
0.006
< 0.005
0.018
< 0.005
< 0.005
0.017
0.006
< 0.005
-
-
< 0.005
-
-
< 0.005
-
-
0.005
-
-
0.169
0.125
0.086
0.086
-
-
0.048
-
0.039

< 0.005
0.014
0.043
0.008
0.011
0.005
0.007
0.007
0.005
0.014
< 0.005
0.006
0.018
0.005
< 0.005
0.006
0.008
0.019
0.013
0.006
< 0.005
0.006
-
-
0.008
-
-
< 0.005
-
-
0.013
-
-

0.011
-
-
0.015
-
0.008
0.008
< 0.005
0.018
0.019
0.012
0.022
< 0.005
0.008
0.005
0.007
0.035
0.006
0.073
0.006
0.007
0.01
0.007
0.025
0.012
0.006
< 0.005
< 0.005
< 0.005
< 0.005
-
-
0.031

-
-
< 0.005
-
-
0.008
-
-
0.005
-
-
0.032
-
< 0.005
0.019
0.009
0.01
0.013
0.006
< 0.005
< 0.005
0.085
0.011
0.053
0.006
0.015
0.006
< 0.005
0.017
0.013
< 0.005
0.006
< 0.005

< 0.005
0.007
-
-
< 0.005
-
-
0.005
-
-
< 0.005
-
-
0.009
-
-
0.011
-
0.011
0.005
< 0.005
0.008
< 0.005
0.006
< 0.005
< 0.005
< 0.005
0.011
0.053
0.039
0.012
< 0.005
< 0.005

0.009
0.013
< 0.005
< 0.005
< 0.005
-
0.012
< 0.005
0.007
0.008
0.034
-
0.02
0.016
0.011
0.006
0.011
0.006
0.01
0.006
< 0.005
0.021
0.031
-
-
0.006
-
-
< 0.005
-
-
0.008
-

-
0.012
-
-
0.015
-
0.038
0.031
0.016
0.04
0.024
0.005
0.007
0.005
0.012
0.016
< 0.005
0.009
0.01
0.016
0.008
0.018
0.03
0.014
0.047
0.042
0.037
0.036
-
-
0.036
0.028
-

-
-
-
-
-
0.042
-
-
0.076
-
0.029
0.017
< 0.005
0.015
0.006
0.008
0.007
< 0.005
< 0.005
< 0.005
< 0.005
0.032
0.011
0.03
0.006
0.005
0.021
< 0.005
0.011
0.014
0.009
< 0.005
0.005

0.016
0.01
-
-
0.006
-
-
0.009
-
-
< 0.005
-
-
0.006
-
-
0.019
-
0.006

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte		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)	Perfluoroheptanoic acid (PFHpA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	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	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02
BH5	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 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	< 0.02

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte		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)	Perfluoroheptanoic acid (PFHpA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	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	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
BH6	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02
BH7	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02
	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 0.02

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte		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)	Perfluoroheptanoic acid (PFHpA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	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	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
BH8	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02

Table 4
Grondwater PFAS

Analyte		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)	Perfluoroheptanoic acid (PFHpA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	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	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 0.02
MW239S	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02

Notes:
< - 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
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte		PFAS Compounds									
		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)	Perfluorohexanesulfonic acid (PFHxS)
LOR		0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.56	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
BH1	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH1A	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH2	22-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH3	21-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
BH4	21-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Mar-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	23-Apr-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-May-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jun-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Jul-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Aug-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Oct-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	18-Nov-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH5	22-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	22-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Mar-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte		PFAS Compounds									
		Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)
LOR		0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.56	--	--	--	--	--	--	--	--	--
BH6	23-Apr-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-May-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jun-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Jul-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Aug-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Oct-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	18-Nov-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH7	22-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Mar-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	23-Apr-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-May-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jun-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Jul-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Aug-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Oct-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	18-Nov-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	21-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Mar-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	23-Apr-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

KLEINFELDER
Bright People. Right Solutions.

Analyte		PFAS Compounds									
		Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)
LOR		0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.56	--	--	--	--	--	--	--	--	--
BH8	16-May-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jun-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Jul-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Aug-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	15-Oct-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	18-Nov-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH9A	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	22-Sep-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	13-Oct-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH11	21-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	22-Sep-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	13-Oct-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	06-Mar-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01

Table 4
Grondwater PFAS

Analyte		PFAS Compounds									
		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)	Perfluorohexanesulfonic acid (PFHxS)
LOR		0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.56	--	--	--	--	--	--	--	--	--
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH12	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
BH12A	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
MW239S	22-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	22-Sep-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	13-Oct-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of rep

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

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte									Sum of PFAS		
		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)	Sum of PFAS
LOR		0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date										
BH1	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH1A	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH2	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH3	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH4	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Mar-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.01	**0.02**	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	**0.02**
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	**0.15**	< 0.05	< 0.05	< 0.01	**0.15**	**0.15**
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	**0.06**	< 0.05	< 0.05	< 0.01	**0.06**	**0.06**
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH5	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte									Sum of PFAS		
		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 (WA DER List)	Sum of PFAS
LOR		0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	0.07	--	--
BH6	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH7	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 4
Grondwater PFAS

Analyte									Sum of PFAS		
		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 (WA DER List)	Sum of PFAS
LOR		0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	0.07	--	--
BH8	16-May-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH9A	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH11	21-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	06-Mar-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

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Table 4
Grondwater PFAS

Analyte		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 PFAS		
									Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	0.07	--	--
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH12	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	**0.07**	< 0.05	< 0.05	< 0.01	**0.07**	**0.07**
BH12A	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
MW239S	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of rep

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

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Table 5
Surface Water Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydroc		
		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}
LOR		1	2	2	2	2	2	5	1	20	50	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
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
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
	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
	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	-	-
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	-	-
SW3	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
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
	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
	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	-	-

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Table 5
Surface Water Hydrocarbons

Analyte		BTEXN								Total Petroleum Hydroc		
		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}
LOR		1	2	2	2	2	2	5	1	20	50	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
SW3	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	-	-
SW4	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
	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
	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	-	-

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

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

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Table 5
Surface Water Hydrocarbons

Analyte		arbons		Total Petroleum Hydrocarbons - Silica Clean-up				Total Recoverable Hydrocar			
		C_{29} - C_{36}	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)
LOR		50	50	50	100	50	50	20	20	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	20	20	100	--
Sample Name	Sample Date										
SW1	23-Apr-19	< 50	< 50	-	-	-	-	< 20	< 20	< 100	< 100
	16-May-19	< 50	< 50	-	-	-	-	< 20	< 20	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	15-Aug-19	< 50	< 50	-	-	-	-	< 20	< 20	< 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	-	-
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	-	-
SW3	22-Feb-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	14-Mar-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	23-Apr-19	< 50	< 50	-	-	-	-	< 20	< 20	< 100	< 100
	16-May-19	< 50	< 50	-	-	-	-	< 20	< 20	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	15-Aug-19	< 50	< 50	-	-	-	-	< 20	< 20	< 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	-	-

Williamtown Sand Syndicate
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Monitoring

Table 5
Surface Water Hydrocarbons

Analyte		arbons		Total Petroleum Hydrocarbons - Silica Clean-up				Total Recoverable Hydrocar			
		C_{29} - C_{36}	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)
LOR		50	50	50	100	50	50	20	20	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	20	20	100	--
SW3	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	-	-
SW4	23-Apr-19	< 50	< 50	-	-	-	-	< 20	< 20	< 100	< 100
	16-May-19	< 50	< 50	-	-	-	-	< 20	< 20	< 100	< 100
	14-Jun-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	16-Jul-19	-	-	< 50	< 100	< 50	< 50	< 20	< 20	-	-
	15-Aug-19	< 50	< 50	-	-	-	-	< 20	< 20	< 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	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, nap
Bold indicates a detection above the laboratory limit of repo

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

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 5
Surface Water Hydrocarbons

Analyte		rbons			Total Recoverable Hydrocarbons - Silica Clean-up				
		>C_{16} - C_{34}	>C_{34} - C_{40}	>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	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		100	100	--	--	--	--	--	--
Sample Name	Sample Date								
SW1	23-Apr-19	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	< 100	< 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
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
SW3	22-Feb-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	< 100	< 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

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 5
Surface Water Hydrocarbons

Analyte		rbons			Total Recoverable Hydrocarbons - Silica Clean-up				
		>C_{16} - C_{34}	>C_{34} - C_{40}	>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	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		100	100	--	--	--	--	--	--
SW3	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
SW4	23-Apr-19	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 100	< 100	< 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

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, nap
Bold indicates a detection above the laboratory limit of repo

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

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 6
Surface Water Inorganics

Analyte		Inorganics											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N
LOR		1	1	1	1	1	1	0.1	0.01	0.01	0.01	0.01	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
Adopted Site Specific Trigger Values (SWMP 2021)		142	40	52	8.0	324	234	0.8	--	--	0.17	--	--
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**	-	< 0.01	**0.13**	-	< 0.01
	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**	-	< 0.01	**0.05**	-	< 0.01
	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**	< 0.01	-	-	< 0.01
	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	-	< 0.01	**0.03**	-	< 0.01
	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**	-	< 0.01	**0.02**	-	< 0.01
	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	-	-	**0.11**	< 0.01	-
	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**	-	**0.06**	**0.06**	-	< 0.01
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	-	< 0.01	**0.07**	-	< 0.01
	22-Sep-21	**14**	**2.0**	**2.0**	**2.0**	**16**	**30**	**0.1**	-	< 0.01	**0.08**	-	< 0.01
	13-Oct-21	**10**	< 1.0	**1.0**	< 1.0	**6.0**	**18**	< 0.1	-	< 0.01	**0.03**	-	< 0.01
	16-Nov-21	**10**	**2.0**	**2.0**	< 1.0	**7.0**	**16**	**0.1**	-	< 0.01	**0.09**	-	< 0.01
	24-Feb-22	**10**	**1.0**	**1.0**	< 1.0	**2.0**	**21**	**0.1**	-	-	**0.63**	< 0.01	-
	17-Mar-22	-	-	-	-	-	-	-	-	-	< 0.01	-	-
	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**	-	< 0.01	**0.16**	-	< 0.01
SW3	22-Feb-19	**40**	**4.0**	**4.0**	**1.0**	**16**	**82**	< 0.1	-	< 0.01	**0.06**	-	< 0.01
	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	-	< 0.01	< 0.01	-	< 0.01
	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**	-	-	-	-	-
	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**	-	< 0.01	< 0.01	-	< 0.01
	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**	< 0.01	-	-	< 0.01
	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	-	< 0.01	< 0.01	-	< 0.01
	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	-	< 0.01	< 0.01	-	< 0.01

Williamtown Sand Syndicate
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Table 6
Surface Water Inorganics

Analyte		Inorganics											
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N
LOR		1	1	1	1	1	1	0.1	0.01	0.01	0.01	0.01	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
Adopted Site Specific Trigger Values (SWMP 2021)		142	40	52	8.0	324	234	0.8	--	--	0.17	--	--
SW4	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	-	-	**0.03**	< 0.01	-
	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	-	< 0.01	< 0.01	-	**0.02**
	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	-	**0.01**	< 0.01	-	< 0.01
	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**	-	< 0.01	**0.01**	-	< 0.01
	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	< 0.01	-	-	< 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**	-	< 0.01	< 0.01	-	< 0.01
	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**	-	< 0.01	**0.03**	-	< 0.01
	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	-	-	< 0.01	< 0.01	-
	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	-	< 0.01	**0.02**	-	< 0.01

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
March 2023
Monthly Monitoring

Table 6
Surface Water Inorganics

Analyte		Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Anions and Cations: Total Cations	Anions and Cations: Total Anions	Anions and Cations: Ionic Balance	Anions and Cations: Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3
LOR		0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01	0.01	0.01	1	1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	-	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	0.2	5.9	--	--	--	--	--	--	--
Sample Name	Sample Date												
SW1	23-Apr-19	-	-	-	-	-	-	**10**	**9.13**	**5.6**	-	-	< 1.0
	16-May-19	-	< 0.01	< 0.01	< 0.01	**1.8**	**1.8**	**8.94**	**9.9**	**5.13**	**2.45**	-	< 1.0
	14-Jun-19	-	-	-	-	-	-	**7.27**	**6.95**	**2.28**	-	-	< 1.0
	16-Jul-19	-	-	-	-	-	-	**7.9**	**8.66**	**4.64**	-	-	< 1.0
	15-Aug-19	-	-	-	-	-	-	**7.85**	**8.19**	**2.12**	-	-	< 1.0
	16-Sep-19	-	**0.02**	**0.02**	< 0.01	**1.2**	**1.2**	**9.45**	**11**	**5.38**	**3.49**	-	< 1.0
	15-Oct-19	-	-	-	-	-	-	**8.82**	**8.03**	**4.68**	-	-	< 1.0
	18-Nov-19	< 0.01	-	< 0.01	**0.03**	**1.1**	**1.1**	**9.45**	**10**	**3.03**	**4.91**	-	< 1.0
	16-Sep-20	-	-	-	-	-	-	**1.51**	**1.1**	-	-	-	**55**
	16-Oct-20	-	-	-	-	-	-	**2.95**	**2.69**	-	-	-	**112**
	16-Nov-20	-	**0.04**	**0.04**	< 0.01	**0.6**	**0.6**	**1.24**	**1.12**	-	**0.54**	-	**42**
	16-Dec-20	-	-	-	-	-	-	**1.62**	**1.68**	-	-	-	**62**
	14-Jan-21	-	-	-	-	-	-	**1.57**	**1.46**	-	-	-	**55**
	16-Feb-21	-	< 0.01	< 0.01	< 0.01	**0.5**	**0.5**	**1.42**	**1.36**	-	**0.64**	-	**51**
	17-Mar-21	-	-	-	-	-	-	**1.4**	**1.26**	-	-	-	**45**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	< 0.01	**0.02**	**1.0**	**1.0**	**0.92**	**0.8**	-	-	**26**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	< 0.01	**0.03**	**1.1**	**1.1**	**1.32**	**1.36**	-	**1.13**	-	**31**
SW2	17-Mar-21	-	-	-	-	-	-	**0.79**	**0.58**	-	-	-	< 1.0
	19-Aug-21	-	< 0.01	< 0.01	**0.17**	**1.2**	**1.2**	**0.6**	**0.74**	-	**2.25**	-	< 1.0
	22-Sep-21	-	**1.77**	**1.77**	< 0.01	**3.0**	**1.2**	**0.92**	**1.18**	-	**1.67**	-	< 1.0
	13-Oct-21	-	**0.02**	**0.02**	< 0.01	**0.6**	**0.6**	**0.52**	**0.63**	-	**1.88**	-	< 1.0
	16-Nov-21	-	< 0.01	< 0.01	< 0.01	**1.8**	**1.8**	**0.7**	**0.6**	-	**1.2**	-	< 1.0
	24-Feb-22	< 0.01	-	< 0.01	**0.31**	**7.5**	**7.5**	**0.57**	**0.63**	-	-	< 1.0	-
	17-Mar-22	-	-	**0.04**	**0.13**	**0.4**	**0.4**	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	< 0.01	**0.05**	**5.4**	**5.4**	**0.96**	**1.14**	-	**1.46**	-	< 1.0
SW3	22-Feb-19	-	< 0.01	< 0.01	**0.16**	**1.0**	**1.0**	**2.55**	**2.87**	-	**3.38**	-	**11**
	14-Mar-19	-	-	-	-	-	-	**2.8**	**2.8**	-	-	-	**4.0**
	23-Apr-19	-	-	-	-	-	-	**2.53**	**2.37**	-	-	-	< 1.0
	16-May-19	-	< 0.01	< 0.01	< 0.01	**0.1**	**0.1**	**2.28**	**2.25**	-	**2.47**	-	**1.0**
	14-Jun-19	-	-	-	-	-	-	**2.24**	**2.4**	-	-	-	< 1.0
	16-Jul-19	-	-	-	-	-	-	**3.39**	**3.77**	**5.38**	-	-	< 1.0
	15-Aug-19	-	-	-	-	-	-	**2.53**	**2.7**	-	-	-	< 1.0
	16-Sep-19	-	< 0.01	< 0.01	**0.01**	**0.1**	**0.1**	**2.83**	**2.61**	-	**2.57**	-	< 1.0
	15-Oct-19	-	-	-	-	-	-	**2.56**	**2.48**	-	-	-	< 1.0
	18-Nov-19	**0.01**	-	**0.01**	**0.03**	**0.6**	**0.6**	**2.23**	**2.18**	-	**2.72**	-	< 1.0
	16-Sep-20	-	-	-	-	-	-	**3.12**	**2.9**	**3.5**	-	-	< 1.0
	16-Oct-20	-	-	-	-	-	-	**2.73**	**2.61**	-	-	-	< 1.0
	16-Nov-20	-	< 0.01	< 0.01	< 0.01	**0.3**	**0.3**	**2.6**	**2.89**	-	**2.92**	-	< 1.0
	16-Dec-20	-	-	-	-	-	-	**2.05**	**2.3**	-	-	-	**1.0**
	14-Jan-21	-	-	-	-	-	-	**1.82**	**2.06**	-	-	-	< 1.0
	16-Feb-21	-	< 0.01	< 0.01	< 0.01	**0.5**	**0.5**	**1.65**	**2.02**	-	**3.13**	-	< 1.0

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 6
Surface Water Inorganics

Analyte		Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Anions and Cations: Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3
LOR		0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01	0.01	0.01	1	1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	-	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	0.2	5.9	--	--	--	--	--	--	--
	17-Mar-21	-	-	-	-	-	-	**1.43**	**1.75**	-	-	-	< 1.0
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	< 0.01	**0.02**	**0.9**	**0.9**	**1.34**	**1.7**	-	-	**2.0**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	**0.02**	**0.21**	**2.8**	**2.8**	**2.13**	**2.56**	-	**4.66**	-	< 1.0
SW4	23-Apr-19	-	-	-	-	-	-	**2.36**	**3.05**	**13**	-	-	< 1.0
	16-May-19	-	**0.05**	**0.05**	< 0.01	**0.2**	**0.2**	**2.44**	**2.52**	-	**3.1**	-	< 1.0
	14-Jun-19	-	-	-	-	-	-	**2.4**	**2.5**	-	-	-	< 1.0
	16-Jul-19	-	-	-	-	-	-	**2.93**	**2.97**	-	-	-	< 1.0
	15-Aug-19	-	-	-	-	-	-	**2.4**	**2.45**	-	-	-	< 1.0
	16-Sep-19	-	< 0.01	< 0.01	< 0.01	**0.1**	**0.1**	**2.8**	**2.57**	-	**3.01**	-	< 1.0
	15-Oct-19	-	-	-	-	-	-	**2.71**	**2.4**	-	-	-	< 1.0
	18-Nov-19	**0.02**	-	**0.02**	< 0.01	**0.2**	**0.2**	**2.76**	**2.66**	-	**3.22**	-	< 1.0
	16-Sep-20	-	-	-	-	-	-	**2.83**	**2.87**	-	-	-	< 1.0
	16-Oct-20	-	-	-	-	-	-	**2.53**	**2.72**	-	-	-	< 1.0
	16-Nov-20	-	< 0.01	< 0.01	< 0.01	**0.1**	**0.1**	**2.55**	**2.4**	-	**2.41**	-	< 1.0
	16-Dec-20	-	-	-	-	-	-	**2.45**	**2.79**	-	-	-	**16**
	14-Jan-21	-	-	-	-	-	-	**2.74**	**2.69**	-	-	-	**37**
	16-Feb-21	-	< 0.01	< 0.01	**0.02**	**1.2**	**1.2**	**2.29**	**2.15**	-	**2.87**	-	**7.0**
	17-Mar-21	-	-	-	-	-	-	**2.44**	**2.25**	-	-	-	**26**
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 0.01	-	< 0.01	< 0.01	**0.3**	**0.3**	**2.0**	**2.34**	-	-	< 1.0	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	-	< 0.01	< 0.01	**0.04**	**0.7**	**0.7**	**1.78**	**2.02**	-	**3.84**	-	**3.0**

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 repc
Highlighting indicates an exceedance of the corresponding c

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

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 6
Surface Water Inorganics

Analyte		Alkalinity				Inorganics						
		Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1	1	1	1	1	1	1	0.01	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	pH units	NTU	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	500	--	--	4.2-6.5	--	--
Sample Name	Sample Date											
SW1	23-Apr-19	< 1.0	< 1.0	< 1.0	**299**	-	**893**	**707**	**32**	**4.01**	-	-
	16-May-19	< 1.0	< 1.0	< 1.0	**233**	-	**947**	**715**	**59**	**4.6**	-	-
	14-Jun-19	< 1.0	< 1.0	< 1.0	**190**	-	**847**	**512**	**26**	**4.5**	-	-
	16-Jul-19	< 1.0	< 1.0	< 1.0	**194**	-	**876**	**568**	**17**	**4.42**	-	-
	15-Aug-19	< 1.0	< 1.0	< 1.0	**177**	-	**813**	**548**	**5.0**	**4.53**	-	-
	16-Sep-19	< 1.0	< 1.0	< 1.0	**213**	-	**1,080**	**689**	**15**	**4.32**	-	-
	15-Oct-19	< 1.0	< 1.0	< 1.0	**168**	-	**1,050**	**682**	-	**5.32**	-	-
	18-Nov-19	< 1.0	< 1.0	< 1.0	**158**	-	**1,090**	**708**	-	**5.06**	-	-
	16-Sep-20	< 1.0	< 1.0	**55**	**52**	-	**137**	**152**	**8.0**	**6.5**	-	-
	16-Oct-20	< 1.0	< 1.0	**112**	**116**	-	**268**	**174**	-	**7.29**	-	-
	16-Nov-20	< 1.0	< 1.0	**42**	**41**	-	**127**	**82**	< 5.0	**6.5**	-	-
	16-Dec-20	< 1.0	< 1.0	**62**	**56**	-	**171**	**111**	-	**7.01**	-	-
	14-Jan-21	< 1.0	< 1.0	**55**	**53**	-	**154**	**100**	-	**6.71**	-	-
	16-Feb-21	< 1.0	< 1.0	**51**	**46**	-	**141**	**92**	**6.0**	**6.93**	-	-
	17-Mar-21	< 1.0	< 1.0	**45**	**46**	-	**139**	**90**	-	**6.63**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	**6.82**	**3.3**	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 1.0	< 1.0	**26**	**31**	-	**89**	**58**	-	**6.38**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	< 1.0	**31**	**33**	-	**141**	**92**	-	**6.59**	-	-
SW2	17-Mar-21	< 1.0	< 1.0	< 1.0	**13**	-	**83**	**54**	-	**5.08**	-	-
	19-Aug-21	< 1.0	< 1.0	< 1.0	**4.0**	-	**103**	**67**	-	**4.21**	-	-
	22-Sep-21	< 1.0	< 1.0	< 1.0	**13**	-	**235**	**153**	-	**3.55**	-	-
	13-Oct-21	< 1.0	< 1.0	< 1.0	**4.0**	-	**77**	**50**	-	**4.58**	**4.7**	-
	16-Nov-21	< 1.0	< 1.0	< 1.0	-	**13**	**93**	**60**	-	**4.39**	-	-
	24-Feb-22	< 1.0	< 1.0	< 1.0	**7.0**	-	**97**	**63**	-	**4.32**	-	< 0.01
	17-Mar-22	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	< 1.0	< 1.0	**17**	-	**150**	**98**	-	**4.2**	-	-
SW3	22-Feb-19	< 1.0	< 1.0	**11**	**26**	-	**262**	**228**	**58**	**6.21**	-	-
	14-Mar-19	< 1.0	< 1.0	**4.0**	**40**	-	**344**	**224**	**34**	**5.42**	-	-
	23-Apr-19	< 1.0	< 1.0	< 1.0	**45**	-	**220**	**190**	**9.0**	**5.2**	-	-
	16-May-19	< 1.0	< 1.0	**1.0**	**38**	-	**271**	**300**	**14**	**5.24**	-	-
	14-Jun-19	< 1.0	< 1.0	< 1.0	**42**	-	**300**	**170**	**12**	**4.58**	-	-
	16-Jul-19	< 1.0	< 1.0	< 1.0	**69**	-	**451**	**246**	**7.0**	**4.47**	-	-
	15-Aug-19	< 1.0	< 1.0	< 1.0	**44**	-	**338**	**192**	< 5.0	**4.47**	-	-
	16-Sep-19	< 1.0	< 1.0	< 1.0	**50**	-	**374**	**201**	**7.0**	**4.3**	-	-
	15-Oct-19	< 1.0	< 1.0	< 1.0	**41**	-	**383**	**249**	-	**4.75**	-	-
	18-Nov-19	< 1.0	< 1.0	< 1.0	**33**	-	**278**	**181**	-	**5.39**	-	-
	16-Sep-20	< 1.0	< 1.0	< 1.0	**40**	-	**402**	**224**	**6.0**	**4.41**	-	-
	16-Oct-20	< 1.0	< 1.0	< 1.0	**35**	-	**333**	**216**	-	**4.15**	-	-
	16-Nov-20	< 1.0	< 1.0	< 1.0	**26**	-	**460**	**299**	< 5.0	**3.95**	-	-
	16-Dec-20	< 1.0	< 1.0	**1.0**	**23**	-	**303**	**197**	-	**4.8**	-	-
	14-Jan-21	< 1.0	< 1.0	< 1.0	**8.0**	-	**301**	**196**	-	**4.06**	-	-
	16-Feb-21	< 1.0	< 1.0	< 1.0	**17**	-	**273**	**177**	< 5.0	**4.15**	-	-

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 6
Surface Water Inorganics

Analyte		Alkalinity				Inorganics						
		Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		1	1	1	1	1	1	1	0.01	0.01	0.1	0.01
Units		mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	pH units	NTU	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	500	--	--	4.2-6.5	--	--
	17-Mar-21	< 1.0	< 1.0	< 1.0	**8.0**	-	**237**	**154**	-	**4.65**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 1.0	< 1.0	**2.0**	**8.0**	-	**183**	**119**	-	**4.59**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	< 1.0	< 1.0	**8.0**	-	**247**	**160**	-	**4.08**	-	-
SW4	23-Apr-19	< 1.0	< 1.0	< 1.0	**33**	-	**293**	**198**	< 5.0	**4.0**	-	-
	16-May-19	< 1.0	< 1.0	< 1.0	**33**	-	**331**	**288**	**13**	**4.08**	-	-
	14-Jun-19	< 1.0	< 1.0	< 1.0	**33**	-	**316**	**163**	< 5.0	**4.31**	-	-
	16-Jul-19	< 1.0	< 1.0	< 1.0	**46**	-	**367**	**207**	**6.0**	**4.46**	-	-
	15-Aug-19	< 1.0	< 1.0	< 1.0	**33**	-	**308**	**160**	< 5.0	**4.48**	-	-
	16-Sep-19	< 1.0	< 1.0	< 1.0	**42**	-	**360**	**208**	< 5.0	**4.47**	-	-
	15-Oct-19	< 1.0	< 1.0	< 1.0	**40**	-	**365**	**237**	-	**4.48**	-	-
	18-Nov-19	< 1.0	< 1.0	< 1.0	**30**	-	**348**	**226**	-	**4.48**	-	-
	16-Sep-20	< 1.0	< 1.0	< 1.0	**44**	-	**421**	**228**	< 5.0	**4.16**	-	-
	16-Oct-20	< 1.0	< 1.0	< 1.0	**33**	-	**355**	**231**	-	**3.94**	-	-
	16-Nov-20	< 1.0	< 1.0	< 1.0	**45**	-	**338**	**220**	**6.0**	**4.21**	-	-
	16-Dec-20	< 1.0	< 1.0	**16**	**26**	-	**323**	**210**	-	**6.15**	-	-
	14-Jan-21	< 1.0	< 1.0	**37**	**56**	-	**316**	**205**	-	**6.38**	-	-
	16-Feb-21	< 1.0	< 1.0	**7.0**	**31**	-	**267**	**174**	**48**	**5.91**	-	-
	17-Mar-21	< 1.0	< 1.0	**26**	**41**	-	**271**	**176**	-	**6.23**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	**5.86**	**8.6**	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	< 1.0	< 1.0	< 1.0	**24**	-	**275**	**179**	-	**3.96**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	< 1.0	< 1.0	**3.0**	**15**	-	**250**	**162**	-	**5.44**	-	-

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 repc
Highlighting indicates an exceedance of the corresponding c

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

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 7
Surface Water Metals

Analyte		Metals										
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001
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	0.002	0.1	0.0002	0.004	0.006	0.033	7.25 (32 for SW3 & SW4)	0.003	0.841
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**
	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**
	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**
	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**
	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**
	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**
	15-Oct-19	< 0.001	**0.036**	< 0.001	**0.07**	< 0.0001	< 0.001	**0.005**	**0.003**	-	< 0.001	**0.383**
	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**
	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**
	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**
	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**
	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**
	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**
	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**
	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**
	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**
	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**
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**
	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**
	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**
	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**
	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**
	24-Feb-22	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**16**	< 0.001	**0.032**
	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**
SW3	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**
	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**
	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**
	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**
	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**
	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**
	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**
	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**
	15-Oct-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.005**	**0.002**	-	< 0.001	**0.027**
	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**
	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**
	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**

Williamtown Sand Syndicate
March 2023
Monitoring

Table 7
Surface Water Metals

Analyte		Metals										
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001
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	0.002	0.1	0.0002	0.004	0.006	0.033	7.25 (32 for SW3 & SW4)	0.003	0.841
SW3	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**
	16-Dec-20	**0.002**	**0.015**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	**0.005**	**16**	< 0.001	**0.023**
	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**
	16-Feb-21	**0.004**	**0.014**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	**0.001**	**11**	< 0.001	**0.015**
	17-Mar-21	**0.004**	**0.013**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	< 0.001	**12**	< 0.001	**0.016**
	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**
	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**
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**
	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**
	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**
	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**
	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**
	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**
	15-Oct-19	< 0.001	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.004**	-	< 0.001	**0.031**
	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**
	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**
	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**
	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**
	16-Dec-20	< 0.001	**0.017**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	**0.002**	**32**	< 0.001	**0.035**
	14-Jan-21	**0.002**	**0.028**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	**0.026**	**20**	< 0.001	**0.171**
	16-Feb-21	**0.003**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.003**	**0.001**	< 0.001	**27**	< 0.001	**0.054**
	17-Mar-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**16**	< 0.001	**0.057**
	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**
	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**

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
March 2023
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Table 7
Surface Water Metals

Analyte		Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.0001	0.02	0.01	0.01	0.535
Sample Name	Sample Date					
SW1	23-Apr-19	< 0.0001	**0.02**	< 0.01	< 0.01	**0.356**
	16-May-19	< 0.0001	**0.012**	< 0.01	< 0.01	**0.077**
	14-Jun-19	< 0.0001	**0.011**	< 0.01	< 0.01	**0.535**
	16-Jul-19	< 0.0001	**0.008**	< 0.01	< 0.01	**0.239**
	15-Aug-19	< 0.0001	**0.005**	< 0.01	< 0.01	**0.075**
	16-Sep-19	< 0.0001	**0.014**	< 0.01	< 0.01	**0.282**
	15-Oct-19	< 0.0001	**0.005**	< 0.01	< 0.01	**0.055**
	18-Nov-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.026**
	16-Sep-20	< 0.0001	**0.002**	< 0.01	< 0.01	**0.061**
	16-Oct-20	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	16-Nov-20	< 0.0001	< 0.001	< 0.01	< 0.01	**0.03**
	16-Dec-20	< 0.0001	< 0.001	< 0.01	< 0.01	**0.013**
	14-Jan-21	< 0.0001	**0.006**	< 0.01	< 0.01	**0.037**
	16-Feb-21	< 0.0001	< 0.001	< 0.01	< 0.01	**0.024**
	17-Mar-21	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	**0.001**	< 0.01	< 0.01	**0.007**
SW2	17-Mar-21	< 0.0001	**0.004**	< 0.01	< 0.01	**0.097**
	19-Aug-21	< 0.0001	**0.002**	< 0.01	< 0.01	**0.022**
	22-Sep-21	< 0.0001	**0.005**	< 0.01	< 0.01	**0.134**
	13-Oct-21	< 0.0001	**0.002**	< 0.01	< 0.01	**0.06**
	16-Nov-21	< 0.0001	**0.004**	< 0.01	< 0.01	**0.083**
	24-Feb-22	< 0.0001	**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	< 0.0001	**0.004**	< 0.01	< 0.01	**0.063**
SW3	22-Feb-19	< 0.0001	**0.002**	< 0.01	< 0.01	**0.016**
	14-Mar-19	< 0.0001	**0.002**	< 0.01	< 0.01	**0.009**
	23-Apr-19	< 0.0001	**0.004**	< 0.01	< 0.01	**0.016**
	16-May-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.012**
	14-Jun-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.016**
	16-Jul-19	< 0.0001	**0.006**	< 0.01	< 0.01	**0.029**
	15-Aug-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.013**
	16-Sep-19	< 0.0001	**0.017**	< 0.01	< 0.01	**0.094**
	15-Oct-19	< 0.0001	**0.005**	< 0.01	< 0.01	**0.022**
	18-Nov-19	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.0001	**0.007**	< 0.01	< 0.01	**0.031**
	16-Oct-20	< 0.0001	**0.004**	< 0.01	< 0.01	**0.019**

Williamtown Sand Syndicate
March 2023
Monitoring

Table 7
Surface Water Metals

Analyte		Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.0001	0.02	0.01	0.01	0.535
SW3	16-Nov-20	< 0.0001	**0.009**	< 0.01	< 0.01	**0.03**
SW4	16-Dec-20	< 0.0001	**0.004**	< 0.01	< 0.01	**0.054**
	14-Jan-21	< 0.0001	**0.01**	< 0.01	< 0.01	**0.025**
	16-Feb-21	< 0.0001	**0.004**	< 0.01	< 0.01	**0.011**
	17-Mar-21	< 0.0001	**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	< 0.0001	< 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	< 0.0001	< 0.001	< 0.01	< 0.01	**0.009**
	23-Apr-19	< 0.0001	**0.005**	< 0.01	< 0.01	**0.03**
	16-May-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.019**
	14-Jun-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.014**
	16-Jul-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.014**
	15-Aug-19	< 0.0001	**0.002**	< 0.01	< 0.01	**0.009**
	16-Sep-19	< 0.0001	**0.017**	< 0.01	< 0.01	**0.085**
	15-Oct-19	< 0.0001	**0.003**	< 0.01	< 0.01	**0.018**
	18-Nov-19	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.0001	**0.005**	< 0.01	< 0.01	**0.02**
	16-Oct-20	< 0.0001	**0.003**	< 0.01	< 0.01	**0.007**
	16-Nov-20	< 0.0001	**0.005**	< 0.01	< 0.01	**0.016**
	16-Dec-20	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.0001	**0.005**	< 0.01	< 0.01	**0.013**
	16-Feb-21	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	17-Mar-21	< 0.0001	< 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	< 0.0001	**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	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005

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

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

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 8
Surface Water PFAS

Analyte		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)	Perfluoroheptanoic acid (PFHpA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	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	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02
SW3	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 8
Surface Water PFAS

Analyte		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)	Perfluoroheptanoic acid (PFHpA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	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	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	--	--	--	--
SW4	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 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	< 0.02

Notes:
< - 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
March 2023
Monthly Monitoring

Table 8
Surface Water PFAS

Analyte		PFAS Compounds									
		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)	Perfluorohexanesulfonic acid (PFHxS)
LOR		0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.56	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date										
SW1	16-May-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	18-Nov-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	22-Sep-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	13-Oct-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
SW2	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	22-Sep-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	13-Oct-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
SW3	22-Feb-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-May-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	18-Nov-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	16-May-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02

Table 8
Surface Water PFAS

Analyte		PFAS Compounds									
		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)	Perfluorohexanesulfonic acid (PFHxS)
LOR		0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		0.56	--	--	--	--	--	--	--	--	--
SW4	16-Sep-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	18-Nov-19	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Sep-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Oct-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Dec-20	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	14-Jan-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.03**
	16-Feb-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	17-Mar-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.02**
	19-Aug-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	22-Sep-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	13-Oct-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02
	16-Nov-21	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	24-Feb-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	27-May-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	12-Aug-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	18-Nov-22	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
	15-Feb-23	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of report

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

Williamtown Sand Syndicate
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Table 8
Surface Water PFAS

Analyte									Sum of PFAS		
		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)	Sum of PFAS
LOR		0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date										
SW1	16-May-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW2	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW3	22-Feb-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Williamtown Sand Syndicate
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Monthly Monitoring

Table 8
Surface Water PFAS

Analyte		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 PFAS		
									Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Site Specific Trigger Values (SWMP 2021)		--	--	--	--	--	--	--	0.07	--	--
SW4	16-Sep-19	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	18-Nov-19	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
	16-Dec-20	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
	14-Jan-21	< 0.02	**0.04**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.07**	**0.07**	**0.07**
	16-Feb-21	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	17-Mar-21	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.04**	**0.04**
	19-Aug-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of report

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

Table 9
Wash Plant Water - Metals

Analyte		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample Name	Sample Date							
WPW	19-Aug-21	< 0.001	-	-	-	-	-	-
	22-Sep-21	< 0.001	-	-	-	-	-	-
	13-Oct-21	< 0.001	-	-	-	-	-	-
	16-Nov-21	< 0.001	-	-	-	-	-	-
	15-Dec-21	< 0.001	-	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-
	24-Feb-22	< 0.001	-	-	-	-	-	-
	17-Mar-22	< 0.001	-	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-
	27-May-22	< 0.001	-	-	-	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-
	12-Aug-22	< 0.001	-	-	-	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-
	24-Oct-22	**0.002**	-	-	-	-	-	-
	18-Nov-22	< 0.001	-	-	-	-	-	-
	14-Dec-22	< 0.001	-	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-
WPW2	15-Feb-23	< 0.001	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001
	15-Mar-23	< 0.001	-	-	-	-	-	-
	18-Apr-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.001**

Notes:

Table 9
Wash Plant Water - Metals

- - 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
April 2023
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Table 9
Wash Plant Water - Metals

Metals								
Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
-	< 0.05	-	**0.062**	-	-	-	-	-
-	**0.08**	-	**0.051**	-	-	-	-	-
-	**0.22**	-	**0.079**	-	-	-	-	-
-	**0.29**	-	**0.045**	-	-	-	-	-
-	**0.2**	-	**0.078**	-	-	-	-	-
-	**0.56**	-	**0.038**	-	-	-	-	-
-	**1.02**	-	**0.084**	-	-	-	-	-
-	**0.97**	-	**0.05**	-	-	-	-	-
-	**0.44**	-	**0.042**	-	-	-	-	-
-	**0.07**	-	**0.038**	-	-	-	-	-
-	**0.94**	-	**0.061**	-	-	-	-	-
-	**0.27**	-	**0.038**	-	-	-	-	-
-	**0.17**	-	**0.026**	-	-	-	-	-
-	**0.58**	-	**0.069**	-	-	-	-	-
-	**2.22**	-	**0.118**	-	-	-	-	-
-	**0.56**	-	**0.066**	-	-	-	-	-
-	**0.42**	-	**0.062**	-	-	-	-	-
-	**0.36**	-	**0.05**	-	-	-	-	-
0.003	< 0.05	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.115**
-	**0.15**	-	**0.061**	-	-	-	-	-
0.004	**0.6**	< 0.001	**0.049**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.053**

Table 10
Wash Plant Water - PFAS

Analyte		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)
LOR		0.02	0.05	0.05	0.05	0.05	0.02
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date						
WPW	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	15-Dec-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	18-Jan-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	17-Mar-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	12-Apr-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	17-Jun-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	27-Jul-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	16-Sep-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	24-Oct-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	14-Dec-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	17-Jan-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
WPW2	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	15-Mar-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
	18-Apr-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02

Notes:

Table 10
Wash Plant Water - PFAS

< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Table 10
Wash Plant Water - PFAS

N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)
0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02

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Table 10
Wash Plant Water - PFAS

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Table 10
Wash Plant Water - PFAS

PFAS Compounds							
Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)
0.02	0.02	0.02	0.05	0.02	0.02	0.01	0.02
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.01**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.01**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.01**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.01**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.02**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.01**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.01**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.01**	< 0.02
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	**0.02**	< 0.02

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Table 10
Wash Plant Water - PFAS

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Table 10
Wash Plant Water - PFAS

						Sum of PFAS	
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 (WA DER List)
0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
0.03	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**
0.03	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**
0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**
0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.05**
0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.04**
0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**
< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01
0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**
0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.05**

Wiliamtown Sand Syndicate
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Table 10
Wash Plant Water - PFAS

Table 10
Wash Plant Water - PFAS

Sum of PFAS
0.01
µg/L
< 0.01
< 0.01
0.01
< 0.01
0.03
0.03
0.01
0.03
< 0.01
< 0.01
< 0.01
0.03
< 0.01
< 0.01
0.03
0.05
0.04
0.02
< 0.01
0.03
0.05

Table 11
QAQC - Metals RPDs

Analyte			Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium
LOR			0.001	0.001	0.001	0.05	0.0001	0.001
Units			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample Name	Sample Date	Sample Type						
TB01_18042023	18-Apr-23	Trip Blank	< 0.001	< 0.001	< 0.001	< 0.05	< 0.0001	< 0.001
RB01_18042023	18-Apr-23	Rinsate	< 0.001	< 0.001	< 0.001	< 0.05	< 0.0001	< 0.001
BH6_18042023	18-Apr-23	Primary	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001
QC01_18042023	18-Apr-23	Duplicate	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001
Relative Percentage Difference			NC	**15%**	NC	NC	NC	NC
BH6_18042023	18-Apr-23	Primary	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001
QC01A_18042023	18-Apr-23	Triplicate	< 0.001	< 0.02	< 0.001	< 0.05	< 0.0002	< 0.001
Relative Percentage Difference			NC	**96%**	NC	NC	NC	NC

Notes:
< - Less than laboratory limit of reporting
NC - Not calculated
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
Orange highlighting indicates an RPD in excess of 30%
RPD - Relative Percentage Difference

Table 11
QAQC - Metals RPDs

Metals									
Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
< 0.001	< 0.001	< 0.05	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
< 0.001	< 0.001	< 0.05	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
< 0.001	< 0.001	**4.13**	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
< 0.001	< 0.001	**4.18**	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
NC	NC	**1%**	NC	**0%**	NC	NC	NC	NC	NC
< 0.001	< 0.001	**4.13**	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
< 0.001	< 0.001	**4.5**	< 0.001	< 0.005	< 0.0001	< 0.001	< 0.001	< 0.005	< 0.005
NC	NC	**9%**	NC	**50%**	NC	NC	NC	NC	NC

Analyte			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
LOR			0.02	0.05	0.05	0.05	0.05
Units			µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type					
TB01_18042023	18-Apr-23	Trip Blank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05
RB01_18042023	18-Apr-23	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre

Table 12
QAQC - PFAS

N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)
0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02
< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02

Table 12
QAQC - PFAS

PFAS Compounds							
Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)
0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01

Table 12
QAQC - PFAS

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
0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01
< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01

Sum of PFAS	
Sum of PFAS (WA DER List)	Sum of PFAS
0.01	0.01
µg/L	µg/L
< 0.01	< 0.01
< 0.01	< 0.01

Table 13
Gauging Data

Location	Date	TOC (mAHD)	DTW (mBTOC)	Well Depth (m)	Water Table Elevation (mAHD)	Remark	Technician
BH1	27-Jul-22	8.64	3.836	8.21	4.804		M Ferguson
	12-Aug-22	8.64	--	--	--		M Ferguson
BH1A	16-Sep-22	8.98	3.95	12.4	5.03		J Roby
	24-Oct-22	8.98	3.946	12.266	5.034		J Roby
	18-Nov-22	8.98	4.17	12.29	4.81	Gauge only	J. Roby
	14-Dec-22	8.98	4.467	12.163	4.513	Gauge only	M Ferguson
	17-Jan-23	8.98	4.838	12.181	4.142	Gauge only	A King
	15-Feb-23	8.98	5.095	12.19	3.885	Clear	A King
	15-Mar-23	8.98	5.214	12.16	3.766		A King
	18-Apr-23	8.98	5.216	12.155	3.764	Gauge only	A King
BH2	27-Jul-22	7.79	3.893	8.94	3.897	Clear	M Ferguson
	12-Aug-22	7.79	4.055	8	3.735	Clear	M Ferguson
	16-Sep-22	7.79	4.119	8.997	3.671	Dark brown	J Roby
	24-Oct-22	7.79	4.182	9.952	3.608	Clear	J Roby
	18-Nov-22	7.79	4.38	9.45	3.41	Light brown, NO, NS	J. Roby
	14-Dec-22	7.79	4.587	8.879	3.203	Very light brown	M Ferguson
	17-Jan-23	7.79	4.873	8.93	2.917	Brown, no odour / sheen	A King
	15-Feb-23	7.79	5.058	8.871	2.732	Odor, Light brown	A King
	15-Mar-23	7.79	5.135	8.842	2.655	Light brown	A King
	18-Apr-23	7.79	5.087	8.861	2.703	Light brown, no odour, no sheen	A King
BH4	27-Jul-22	3.06	0.764	5.98	2.296	Clear	M Ferguson
	12-Aug-22	3.06	0.799	5	2.261	Clear	M Ferguson
	16-Sep-22	3.06	0.826	5.99	2.234	Light brown	J Roby
	24-Oct-22	3.06	0.821	6.05	2.239	Clear	J Roby
	18-Nov-22	3.06	0.95	6.01	2.11	Clear, NO/NS	J. Roby
	14-Dec-22	3.06	1.119	6.025	1.941	Clear	M Ferguson
	17-Jan-23	3.06	1.299	6.006	1.761	Clear, no odour / sheen	A King
	15-Feb-23	3.06	1.433	6.015	1.627	Clear	A King
	15-Mar-23	3.06	1.435	6.015	1.625	Clear	A King
	18-Apr-23	3.06	1.228	6.018	1.832	Clear, no odour, no sheen	A King
BH5	12-Aug-22	7.36	5.04	0	2.32		M Ferguson
	18-Nov-22	7.36	5.191	8.82	2.169	Gauge only	J. Roby
	15-Feb-23	7.36	5.612	8.735	1.748	Odor, Light brown	A King
BH6	27-Jul-22	3.62	0.706	4.51	2.914	Odor, Clear	M Ferguson
	12-Aug-22	3.62	0.711	4	2.909	Odor, Clear	M Ferguson
	16-Sep-22	3.62	0.716	4.58	2.904	Odor, Clear	J Roby
	24-Oct-22	3.62	0.75	4.554	2.87	Odor, Clear	J Roby
	18-Nov-22	3.62	0.805	4.54	2.815	Cloudy, low sulfur odour, NS	J. Roby
	14-Dec-22	3.62	1.024	4.53	2.596	Odor, Light yellow	M Ferguson
	17-Jan-23	3.62	1.239	4.52	2.381	Yellow, moderate sulfur odour, NS	A King
	15-Feb-23	3.62	1.353	4.529	2.267	Odor, Clear	A King
	15-Mar-23	3.62	1.317	4.535	2.303	Odor, Clear	A King
	18-Apr-23	3.62	1.04	4.535	2.58	Clear, no odour, no sheen	A King
BH7	27-Jul-22	2.98	0.906	4.5	2.074	Weak Odor, Light yellow	M Ferguson
	12-Aug-22	2.98	0.945	4	2.035	Light yellow	M Ferguson
	16-Sep-22	2.98	0.953	4.499	2.027	Yello	J Roby
	24-Oct-22	2.98	0.94	4.53	2.04	Odor, Brown	J Roby
	18-Nov-22	2.98	1.09	5.5	1.89	Light brown, low sulfur odour, NS	J. Roby
	14-Dec-22	2.98	1.278	4.52	1.702	Odor, Light yellow	M Ferguson
	17-Jan-23	2.98	1.396	4.51	1.584	Light yellow, moderate sulfur odour, NS	A King
	15-Feb-23	2.98	1.469	4.52	1.511	Odor, Light brown	A King
	15-Mar-23	2.98	1.445	4.505	1.535	Odor, Lght yeloow	A King
	18-Apr-23	2.98	1.191	4.52	1.789	Light yellow, no odour, no sheen	A King
BH8	12-Aug-22	3.88	1.689	0	2.191	Strong Odor, Milky white	M Ferguson
	18-Nov-22	3.88	1.825	6.04	2.055	Cloudy, low sulfur odour, NS	J. Roby
	15-Feb-23	3.88	2.34	6.055	1.54	Odor, Light brown	A King
BH9	27-Jul-22	17.75	15.041	16.19	2.709		M Ferguson
	12-Aug-22	17.75	15.15	16	2.6		M Ferguson
	16-Sep-22	17.75	15.256	16.145	2.494		J Roby
	24-Oct-22	17.75	15.279	16	2.471		J Roby
	18-Nov-22	17.75	15.459	16.32	2.291	Gauge only	J. Roby
	14-Dec-22	17.75	15.659	16.11	2.091	Gauge only	M Ferguson
	17-Jan-23	17.75	15.855	16.24	1.895	Gauge only	A King
	15-Feb-23	17.75	16.003	16.108	1.747		A King

Table 13
Gauging Data

Location	Date	TOC (mAHD)	DTW (mBTOC)	Well Depth (m)	Water Table Elevation (mAHD)	Remark	Technician
	15-Mar-23	17.75	16.043	16.09	1.707		A King
	18-Apr-23	17.75	15.846	16.095	1.904	Gauge only	A King
BH9A	27-Jul-22	10.75	8.202	12.44	2.548	Weak Odor, Clear	M Ferguson
	12-Aug-22	10.75	8.295	12	2.455	Light yellow	M Ferguson
	16-Sep-22	10.75	8.355	12.283	2.395	Odor, Light brown	J Roby
	24-Oct-22	10.75	8.366	12.42	2.384	Clear	J Roby
	18-Nov-22	10.75	8.521	12.43	2.229	Brown, NO/NS	J. Roby
	14-Dec-22	10.75	8.697	12.295	2.053	Light yellow	M Ferguson
	17-Jan-22	10.75	8.869	12.264	1.881	Light brown, moderate sulfur odour, NS	A King
	15-Feb-23	10.75	9.006	12.235	1.744	Odor, Light bown	A King
	15-Mar-23	10.75	9.023	12.241	1.727	Light brown	A King
	18-Apr-23	10.75	8.816	12.215	1.934	Light brown, moderate sulfur odour, no sheen	A King
BH10	12-Aug-22	6.69	1.699	0	4.991	Gauge only	M Ferguson
	18-Nov-22	6.69	2.09	3.48	4.6	Gauge only	J. Roby
	15-Feb-23	6.69	2.919	3.486	3.771		A King
BH11	27-Jul-22	6.63	0.793	5.28	5.837	Strong Odor, Light yellow	M Ferguson
	16-Sep-22	6.63	0.847	5.304	5.783	Odor, Yellow	J Roby
	24-Oct-22	6.63	0.87	4.315	5.76	Odor, Yellow	J Roby
	18-Nov-22	6.63	1.18	5.29	5.45	Yellow, moderate sulfur odour, NS	J. Roby
	14-Dec-22	6.63	1.456	5.302	5.174	Odor, Light yellow	M Ferguson
	17-Jan-23	6.63	1.794	5.3	4.836	Light brown, moderate sulfur odour, NS	A King
	15-Feb-23	6.63	2.053	5.309	4.577	Odor, Yellow light	A King
	15-Mar-23	6.63	2.199	5.3	4.431	Odor, Yellow	A King
	18-Apr-23	6.63	2.11	5.3	4.52	Light yellow, strong sulfur odour, no sheen	A King
BH12A	16-Sep-22	5.62	2.298	7.337	3.322		J Roby
	24-Oct-22	5.62	2.291	7.34	3.329	Light brown	J Roby
	18-Nov-22	5.62	2.43	7.39	3.19	Gauge only	J. Roby
	14-Dec-22	5.62	2.587	7.37	3.033	Gauge only	M Ferguson
	17-Jan-23	5.62	2.713	7.327	2.907	Gauge only	A King
	15-Feb-23	5.62	2.903	7.335	2.717	Brown	A King
	15-Mar-23	5.62	2.956	7.31	2.664		A King
	18-Apr-23	5.62	2.874	7.312	2.746	Gauge only	A King
MW239D	18-Nov-22	3.04	0.74	20.49	2.3	Gauge only	J. Roby
	15-Feb-23	3.04	1.076	20.5	1.964		A King
MW239S	27-Jul-22	3.04	0.53	3.8	2.51	Strong Odor, Light yellow	M Ferguson
	12-Aug-22	3.04	0.595	3	2.445	Odor, Cloudy yellow	M Ferguson
	16-Sep-22	3.04	0.62	3.82	2.42	Odor, Yellow	J Roby
	24-Oct-22	3.04	0.61	3.62	2.43	Odor, Clear	J Roby
	18-Nov-22	3.04	0.76	3.82	2.28	Cloudy, low sulfur odour, NS	J. Roby
	14-Dec-22	3.04	0.911	3.81	2.129	Odor, Light brown	M Ferguson
	17-Jan-23	3.04	1.032	3.618	2.008	Light brown, strong sulfur odour, NS	A King
	15-Feb-23	3.04	1.101	3.815	1.939	Odor, Light brown	A King
	15-Mar-23	3.04	1.088	3.805	1.952	Odor, Orange brown	A King
	18-Apr-23	3.04	0.885	3.827	2.155	Light brown, moderate sulfur odour, no sheen	A King
WPW	27-Jul-22	--	--	--	--	Dark cloudy brown	M Ferguson
	12-Aug-22	--	--	--	--	Light brown	M Ferguson
	16-Sep-22	--	--	--	--	Brown	J Roby
	24-Oct-22	--	--	--	--	Dark brown	J Roby
	14-Dec-22	--	--	--	--	Brown, turbid, NO/NS	M Ferguson
	17-Jan-23	--	--	--	--	Brown, turbid, NO/NS	A King
WPW2	15-Feb-23	--	--	--	--	Clear	A King
	15-Mar-23	--	--	--	--	Odor, Brown	A King
	18-Apr-23	--	--	--	--	Light brown, low earthy odour, no sheen	A King

Notes:
DTW = Depth to water
mBTOC = Metres below top of casing
m = Metres
ND = Not detected

Williamtown Sand Syndicate
March 2023
Monthly Monitoring

Table 14
Field Water Quality Parameters

		DO	ORP	PH	SC	TDS	TEMP	TURB
Location	Date	mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
BH1A	15-Feb-23	5.8	192.5	4.33	82.6	55	23.8	
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	52.26
	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
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	20.29
	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
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	73.96
	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
BH7	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	22.45
	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
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	128.9
	15-Feb-23	1.7	-108.51	4.81	129.9	82	26.7	45.25
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	466.51

Williamtown Sand Syndicate
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Monthly Monitoring

Table 14
Field Water Quality Parameters

Location	Date	DO mg/L	ORP mV	PH pH units	SC uS/cm	TDS mg/L	TEMP deg C	TURB NTU
BH9A	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
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	14.15
	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
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
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	52.37
	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
	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
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	6.2
	15-Feb-23	4	117.8	6.37	138.5	97	21.1	20.69
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	13.67
	15-Feb-23	2.5	-27.9	4.39	137.7	90	23.9	80.7
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	17.11
	15-Feb-23	3	-72	4.72	215.5	138	25.6	43.33
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	3.96
	15-Feb-23	0.7	-74	5.75	253.3	172	22.7	4.1
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	23.44
	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
WPW2	15-Feb-23	8.2	470.7	6.1	272	164	29	4.88
	15-Mar-23	8.29	171.9	4.83	297.2	195	24.7	468.5
	18-Apr-23	8.61	203.3	5	226.3	163	20	56.08

ATTACHMENT 3: LAB RESULTS

CERTIFICATE OF ANALYSIS

Work Order	: **ES2312625**	Page	: 1 of 10
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 WSS Cabbage Tree Road April 2023	Date Samples Received	: 18-Apr-2023 12:39
Order number	: ----	Date Analysis Commenced	: 20-Apr-2023
C-O-C number	: ----	Issue Date	: 26-Apr-2023 18:21
Sampler	: AARON KING		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 11		
No. of samples analysed	: 11		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, 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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, 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.
- 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: WATER (Matrix: WATER)			Sample ID	BH2	BH4	BH6	BH7	BH9A
			Sampling date / time	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00
Compound	CAS Number	LOR	Unit	ES2312625-001	ES2312625-002	ES2312625-003	ES2312625-004	ES2312625-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	**0.003**	**0.011**	**0.007**	**0.002**	**0.006**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**0.001**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	**0.003**	**0.059**	<0.001	**0.002**	**0.004**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.004**	**0.012**	**0.003**	**0.003**	**0.033**
Nickel	7440-02-0	0.001	mg/L	**0.003**	<0.001	<0.001	**0.002**	**0.004**
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	**0.039**	**0.008**	<0.005	**0.011**	**0.038**
Boron	7440-42-8	0.05	mg/L	**0.05**	<0.05	<0.05	<0.05	<0.05
Iron	7439-89-6	0.05	mg/L	**0.09**	**0.05**	**4.13**	**0.46**	**0.50**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH11	MW239S	WPW2	QC01	RB01
				Sampling date / time	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00
Compound	CAS Number	LOR	Unit		ES2312625-006	ES2312625-007	ES2312625-008	ES2312625-009	ES2312625-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.001**	<0.001	<0.001	<0.001	<0.001
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		**0.001**	**0.002**	**0.009**	**0.006**	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		**0.004**	**0.002**	**0.001**	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	**0.001**	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	**0.004**	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		**0.003**	**0.004**	**0.049**	**0.003**	<0.001
Nickel	7440-02-0	0.001	mg/L		**0.002**	<0.001	**0.002**	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		**0.029**	**0.006**	**0.053**	<0.005	<0.005
Boron	7440-42-8	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	<0.05
Iron	7439-89-6	0.05	mg/L		**1.07**	**0.27**	**0.60**	**4.18**	<0.05
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	----	**0.02**	----	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	----	**0.02**	----	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	----	<0.02	----	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	----	<0.1	----	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	----	<0.02	----	<0.02

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH11	MW239S	WPW2	QC01	RB01
				Sampling date / time	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00
Compound	CAS Number	LOR	Unit		ES2312625-006	ES2312625-007	ES2312625-008	ES2312625-009	ES2312625-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	----	**0.01**	----	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		----	----	<0.02	----	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		----	----	<0.05	----	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		----	----	<0.02	----	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		----	----	<0.05	----	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		----	----	<0.05	----	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		----	----	<0.05	----	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		----	----	<0.05	----	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		----	----	<0.02	----	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		----	----	<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
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	----	<0.05	----	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	----	<0.05	----	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH11	MW239S	WPW2	QC01	RB01
				Sampling date / time	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00	18-Apr-2023 00:00
Compound	CAS Number	LOR	Unit		ES2312625-006	ES2312625-007	ES2312625-008	ES2312625-009	ES2312625-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	----	<0.05	----	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		----	----	**0.05**	----	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	----	**0.04**	----	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	----	**0.05**	----	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	----	**88.9**	----	**96.0**
13C8-PFOA	----	0.02	%		----	----	**90.8**	----	**93.5**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB01	----	----	----	----
				Sampling date / time	18-Apr-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2312625-011	--------	--------	--------	--------	
				Result	----	----	----	----	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----	
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	----	----	----	
Barium	7440-39-3	0.001	mg/L	<0.001	----	----	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----	
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----	
Cobalt	7440-48-4	0.001	mg/L	<0.001	----	----	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----	
Manganese	7439-96-5	0.001	mg/L	<0.001	----	----	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----	
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----	
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----	
Boron	7440-42-8	0.05	mg/L	<0.05	----	----	----	----	
Iron	7439-89-6	0.05	mg/L	<0.05	----	----	----	----	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB01	----	----	----	----
				Sampling date / time	18-Apr-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2312625-011	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<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	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB01	----	----	----	----
				Sampling date / time	18-Apr-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2312625-011	--------	--------	--------	--------
					Result	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.1**	----	----	----	----

Surrogate Control Limits

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

QUALITY CONTROL REPORT

Work Order	: **ES2312625**	Page	: 1 of 11
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 WSS Cabbage Tree Road April 2023	Date Samples Received	: 18-Apr-2023
Order number	: ----	Date Analysis Commenced	: 20-Apr-2023
C-O-C number	: ----	Issue Date	: 26-Apr-2023
Sampler	: AARON KING		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 11		
No. of samples analysed	: 11		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, 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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, 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: **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: 5005527)									
EN2303895-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.029	0.028	3.8	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	0.004	0.004	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.148	0.139	6.7	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.020	0.020	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.008	0.008	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	2.18	2.37	8.3	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EN2303897-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.033	0.037	9.4	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: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.390	0.398	1.9	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: 5005527) - continued									
EN2303897-004	Anonymous	EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.15	0.12	23.7	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: 5005530)									
ES2312625-004	BH7	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	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: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.003	0.003	0.0	No Limit
		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	0.011	0.011	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	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	0.46	0.45	0.0	No Limit
ES2312685-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.419	0.403	4.0	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	0.005	0.004	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.036	0.034	5.8	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.009	0.008	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.058	0.056	4.0	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	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	0.77	0.82	5.7	0% - 50%
EG035F: Dissolved Mercury by FIMS (QC Lot: 5005529)									
ES2312625-002	BH4	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2312625-010	RB01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5001019)									
ES2312629-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.51	0.49	3.8	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.43	0.41	6.4	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	15.3	14.3	6.8	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.05	<0.05	0.0	No Limit
ES2312629-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.10	0.17	53.3	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	13.7	15.1	9.8	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.05	<0.05	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5001019)									
ES2312629-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.91	1.76	8.2	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	3.03	2.82	7.1	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	4.41	4.28	3.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.69	0.72	3.1	0% - 50%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	0.0	No Limit
ES2312629-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.26	0.26	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.72	2.88	5.7	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	4.14	4.24	2.5	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.42	0.41	3.3	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5001019)									
ES2312629-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5001019) - continued									
ES2312629-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
ES2312629-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.12	<0.12	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5001019)									
ES2312629-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.71	0.66	6.9	0% - 50%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2312629-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.10	0.11	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5001019)									

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 (%)*
EP231P: PFAS Sums (QC Lot: 5001019) - continued									
ES2312629-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	27.0	25.4	5.9	0% - 20%
ES2312629-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	21.4	23.2	7.8	0% - 20%

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5005527)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.2	85.0	114
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.3	85.0	115
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.4	82.0	110
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.7	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.0	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	90.7	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.2	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.1	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.0	82.0	112
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.7	85.0	115
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	91.3	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	81.0	117
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	102	85.0	115
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	107	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5005530)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.6	85.0	114
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	89.3	85.0	115
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	93.1	82.0	110
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.1	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	91.7	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.2	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.7	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.1	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.3	82.0	112
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	90.9	85.0	115
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	93.1	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.7	81.0	117
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	99.9	85.0	115

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: 5005530) - continued								
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	109	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5005529)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.2	83.0	105
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5001019)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	87.8	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	86.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	82.9	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	82.5	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	77.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	84.1	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5001019)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	90.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	107	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	89.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.1	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	83.1	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	88.7	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.5	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.3	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	114	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5001019)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	74.3	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	92.6	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	81.8	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	72.9	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	77.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5001019)								

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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5001019) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	87.0	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	95.8	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	85.3	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	87.0	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: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5005527)							
EN2303895-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	103	70.0	130
		EG020A-F: Beryllium	7440-41-7	1 mg/L	89.0	70.0	130
		EG020A-F: Barium	7440-39-3	1 mg/L	101	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	94.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	81.1	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	88.6	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	88.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	107	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	80.1	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	95.4	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	83.7	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.0	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5005530)							
ES2312625-005	BH9A	EG020A-F: Arsenic	7440-38-2	1 mg/L	93.7	70.0	130
		EG020A-F: Beryllium	7440-41-7	1 mg/L	93.2	70.0	130
		EG020A-F: Barium	7440-39-3	1 mg/L	93.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	95.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	84.4	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	85.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	86.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	87.7	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	86.2	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	84.1	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	83.8	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	94.7	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG035F: Dissolved Mercury by FIMS (QCLot: 5005529)							
ES2312625-001	BH2	EG035F: Mercury	7439-97-6	0.01 mg/L	87.6	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5001019)							
ES2312629-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	# Not Determined	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	74.9	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	74.2	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	78.7	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	67.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	83.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5001019)							
ES2312629-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	102	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	111	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	75.5	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	89.3	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	78.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	80.2	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	91.5	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	95.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.1	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	94.9	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	116	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5001019)							
ES2312629-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	74.2	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	81.4	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	82.8	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	80.3	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	83.4	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	79.4	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5001019)							
ES2312629-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	93.4	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	77.9	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	73.8	67.0	138

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5001019) - continued							
ES2312629-001	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	74.0	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2312625**	Page	: 1 of 5
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: AARON KING	Telephone	: +6138549 9609
Project	: 20232071 WSS Cabbage Tree Road April 2023	Date Samples Received	: 18-Apr-2023
Site	: ----	Issue Date	: 26-Apr-2023
Sampler	: AARON KING	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	ES2312629--001	Anonymous	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
BH2, BH4, BH6, BH7, BH9A, BH11, MW239S, WPW2, QC01, RB01, TB01	**18-Apr-2023**	**----**	----	----	**21-Apr-2023**	15-Oct-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
BH2, BH4, BH6, BH7, BH9A, BH11, MW239S, WPW2, QC01, RB01, TB01	**18-Apr-2023**	**----**	----	----	**24-Apr-2023**	16-May-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
WPW2, RB01, TB01	**18-Apr-2023**	**20-Apr-2023**	15-Oct-2023	✓	**21-Apr-2023**	15-Oct-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
WPW2, RB01, TB01	**18-Apr-2023**	**20-Apr-2023**	15-Oct-2023	✓	**21-Apr-2023**	15-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) WPW2, RB01, TB01	**18-Apr-2023**	**20-Apr-2023**	15-Oct-2023	✓	**21-Apr-2023**	15-Oct-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) WPW2, RB01, TB01	**18-Apr-2023**	**20-Apr-2023**	15-Oct-2023	✓	**21-Apr-2023**	15-Oct-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) WPW2, RB01, TB01	**18-Apr-2023**	**20-Apr-2023**	15-Oct-2023	✓	**21-Apr-2023**	15-Oct-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

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COC number:

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NEWCASTLE

Client:	SITE, COC AND CONTACT DATA				Laboratory:
Kleinfelder Australia Pty Ltd **Suite 3, 240 - 244 Pacific Highway** **Charlestown** **NSW 2290** **Phone: 02 4949 5200**	*Site Name:*	WSS Cabbage Tree Road April 2023	*Sampler Name:*	Aaron King	ALS 5/585 Maitland Rd Mayfield West, Newcastle NSW 2304 Phone: (02) 4014 2500
	QUOTE NUMBER		*Contact Number:*	(+61) 457 426 013	
	Job No.:	20232071	*Contact e-mail:*	Aking@kleinfelder.com	
	Required TAT:	24 hrs 48 hrs 3 days 5 days 7 days	*PM e-mail:*	Dkousbroek@kleinfelder.com	
	Data QA level:	LAB minimum unless specified:	*EDD Format*	KLF_EFWEDD	

CHAIN OF CUSTODY								Send Results to:
Relinquished by (print):	A.King	*Received by (print):*		*Relinquished:*		*Received by:*		mferguson@kleinfelder.com, dkousbroek@kleinfelder.com, aking@kleinfelder.com,
(sign)		*(sign)*		*(sign)*		*(sign)*		
Date / Time:	18/4/23	*Date / Time:*	18/4/23 12:40	*Date / Time:*		*Date / Time:*	18/4/23 1940	
Notes:		*Temp. (°C)*	2.1	*Notes:*		*Temp. (°C)*	24 C	Suite 3, 240-244 Pacific Highway Charlestown, NSW 2290 Phone: 02 4949 5200
		Notes:	ice present / no ice seals intact / no seal			*Notes:*	ice present / no ice seals intact / no seal	

Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes: TRH, TPH, BTEXN (Silica Gel Clean up)	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Metals: 16 Metals: see below	Metals	Metals	Other Analytes: PFAS (28 analytes standard Level	Other Analytes: Extended Water quality suite B	Other Analytes	Other Analytes	Other Analytes	Comments
BH2	1		Water	18/4				1									X								
BH4	2		Water	"				1									X								
BH6	3		Water	"				1									X								
BH7	4		Water	"				1									X								
BH9A	5		Water	"				1									X								
BH11	6		Water	"				1									X								
MW239S	7		Water	"				1									X								
WPW2	8		Water	"				3									X			X					
QC01	9		Water	"				1									X								
QC01A			Water	"				1									X								please forawrd to Eurofins
RB01	10		Water	"				3									X			X					
TB01	11		Water	"				3									X			X					

Metals: As, B, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Ni, Se, V & Zn

Environmental Division
Sydney
Work Order Reference
ES2312625

Telephone : +61-2-8784 8555

KLEINFELDER

76/4

Client	SITE, COC AND CONTACT DATA			Laboratory
Kleinfelder Australia Pty Ltd Suite 1, 240 - 244 Pacific Highway Charlestown NSW 2290 Phone: 02 4949 5200	Site Name	WSS Cabbage Tree Road April 2023	Sampler Name: Agnes King	ALS 5/585 Maitland Rd Mayfield West Newcastle NSW 2304 Phone (02) 4014 2500

CHAIN OF CUSTODY

Relinquished by (name)	A King	Received by (name)	[illegible]	Relinquished by		Received by	Brandon
Sign	[illegible]	Sign		Sign		Sign	[illegible]
Date / Time		Date / Time	[illegible]	Date / Time		Date / Time	19/4 2:20
Notes		Temp		Notes		Temp	[illegible]

Send Results to: [illegible]

Suite 3, 240-244 Pacific Highway
Charlestown NSW 2290
Phone 02 4949 5200

Sample ID	Lab ID	Sample Type	# Containers	Metals	Other Analytes	Comments
BH2		Water		X		
BH3		Water	1	X		
BH6		Water	1	X		
BH7		Water	1	X		
BH8A		Water		X		
BH11		Water	1	X		
MW2/9S		Water		X		
WPW2		Water		X	X	
QC01		Water		X		
QC01A		Water		X		
RB01		Water		X	X	
TB01		Water		X	X	

Organic Analytes; Metals; Other Analytes: Extended Water Quality

&QC01A / Eurofins

Subcon / Forward Lab / Split WO: ______
Lab / Analysis: ______
Organised By / Date: ______
Relinquished By / Date: ______
Connote / Courier: ______
WO No: ______
Attached By PO / Internal Sheet: ______

Metals: As, B, Ba, Be, Cd, Co, Cr, Cu, Fe, Hg, Mn, Ni, Se, V & Zn

Environmental Division
Sydney
Work Order Reference
ES2312625

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982772

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Certificate of Analysis

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

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **AARON KING**

Report **982772-W**
Project name WSS CABBAGE TREE ROAD APRIL 2023
Project ID 20232071
Received Date Apr 20, 2023

Client Sample ID			**QC01A**
Sample Matrix			**Water**
Eurofins Sample No.			**S23-Ap0044737**
Date Sampled			**Apr 18, 2023**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Barium (filtered)	0.02	mg/L	< 0.02
Beryllium (filtered)	0.001	mg/L	< 0.001
Boron (filtered)	0.05	mg/L	< 0.05
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Iron (filtered)	0.05	mg/L	4.5
Lead (filtered)	0.001	mg/L	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001
Selenium (filtered)	0.001	mg/L	< 0.001
Vanadium (filtered)	0.005	mg/L	< 0.005
Zinc (filtered)	0.005	mg/L	< 0.005

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
Heavy Metals (filtered)	Sydney	Apr 21, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Mercury (filtered)	Sydney	Apr 21, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Tel: 0800 856 450
IANZ# 1290

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

Project Name: WSS CABBAGE TREE ROAD APRIL 2023
Project ID: 20232071

Order No.:
Report #: 982772
Phone: 02 4949 5200
Fax:

Received: Apr 20, 2023 3:30 PM
Due: Apr 26, 2023
Priority: 5 Day
Contact Name: AARON KING

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Arsenic (filtered)	Barium (filtered)	Beryllium (filtered)	Boron (filtered)	Cadmium (filtered)	Chromium (filtered)	Cobalt (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Selenium (filtered)	Vanadium (filtered)	Zinc (filtered)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																					
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																
1	QC01A	Apr 18, 2023		Water	S23-Ap0044737	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

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

Terms

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

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Barium (filtered)	mg/L	< 0.02			0.02	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron (filtered)	mg/L	< 0.05			0.05	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Vanadium (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	115			80-120	Pass	
Barium (filtered)	%	116			80-120	Pass	
Beryllium (filtered)	%	116			80-120	Pass	
Boron (filtered)	%	105			80-120	Pass	
Chromium (filtered)	%	119			80-120	Pass	
Cobalt (filtered)	%	117			80-120	Pass	
Copper (filtered)	%	116			80-120	Pass	
Iron (filtered)	%	117			80-120	Pass	
Lead (filtered)	%	94			80-120	Pass	
Manganese (filtered)	%	118			80-120	Pass	
Mercury (filtered)	%	119			80-120	Pass	
Nickel (filtered)	%	114			80-120	Pass	
Selenium (filtered)	%	117			80-120	Pass	
Vanadium (filtered)	%	117			80-120	Pass	
Zinc (filtered)	%	119			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S23-Ap0045127	NCP	%	94			75-125	Pass	
Barium (filtered)	S23-Ap0045127	NCP	%	89			75-125	Pass	
Beryllium (filtered)	S23-Ap0045127	NCP	%	97			75-125	Pass	
Boron (filtered)	S23-Ap0045127	NCP	%	82			75-125	Pass	
Cadmium (filtered)	S23-Ap0045127	NCP	%	97			75-125	Pass	
Chromium (filtered)	S23-Ap0045127	NCP	%	93			75-125	Pass	
Cobalt (filtered)	S23-Ap0045127	NCP	%	93			75-125	Pass	
Copper (filtered)	S23-Ap0045127	NCP	%	92			75-125	Pass	
Iron (filtered)	S23-Ap0045127	NCP	%	97			75-125	Pass	
Manganese (filtered)	S23-Ap0045127	NCP	%	89			75-125	Pass	
Mercury (filtered)	S23-Ap0045127	NCP	%	94			75-125	Pass	
Nickel (filtered)	S23-Ap0045127	NCP	%	89			75-125	Pass	
Selenium (filtered)	S23-Ap0045127	NCP	%	92			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Vanadium (filtered)	S23-Ap0045127	NCP	%	92			75-125	Pass	
Zinc (filtered)	S23-Ap0045127	NCP	%	94			75-125	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

Authorised by:

Andrew Black	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal

Glenn Jackson
General Manager

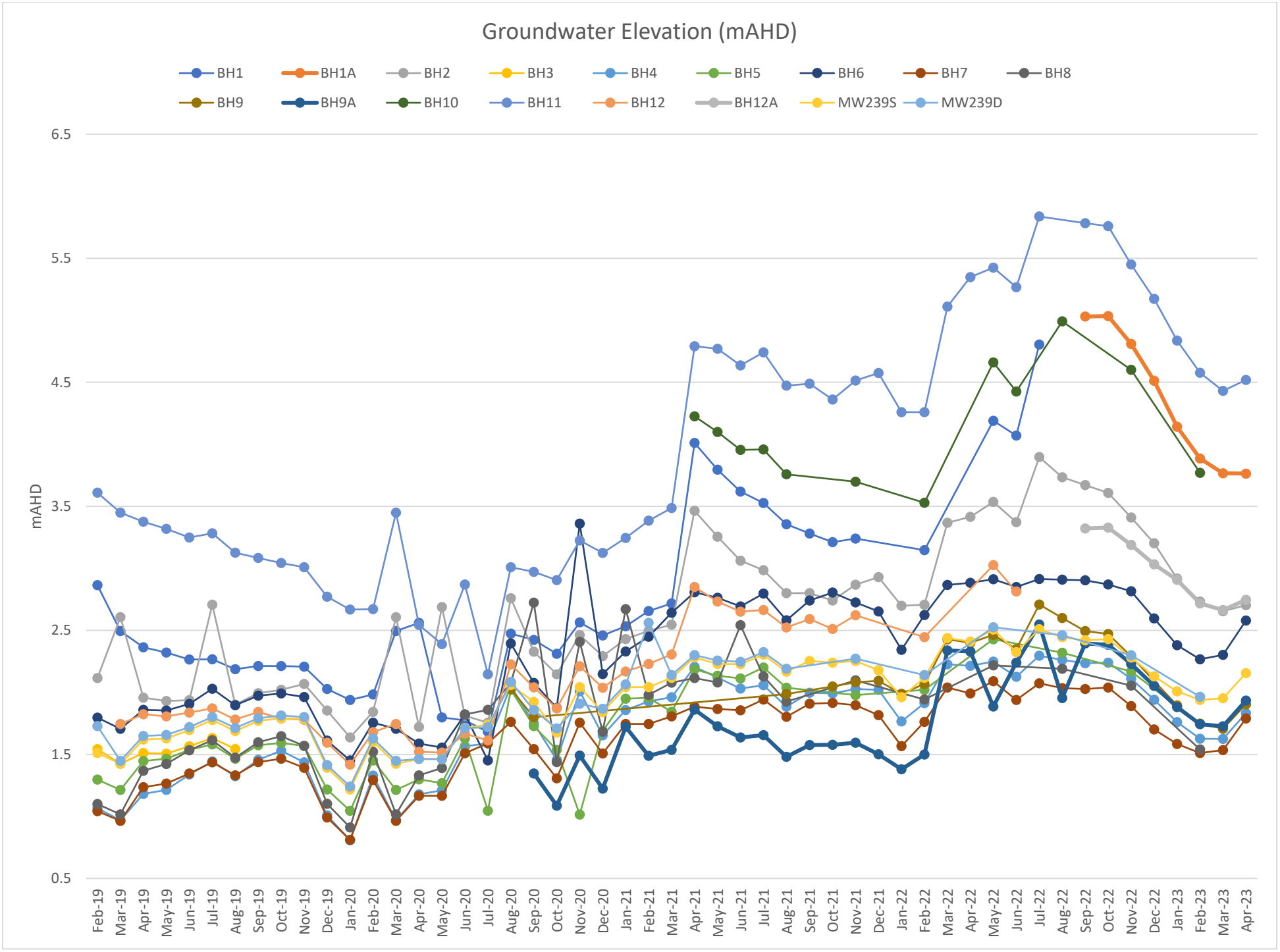
Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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
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Mar-20
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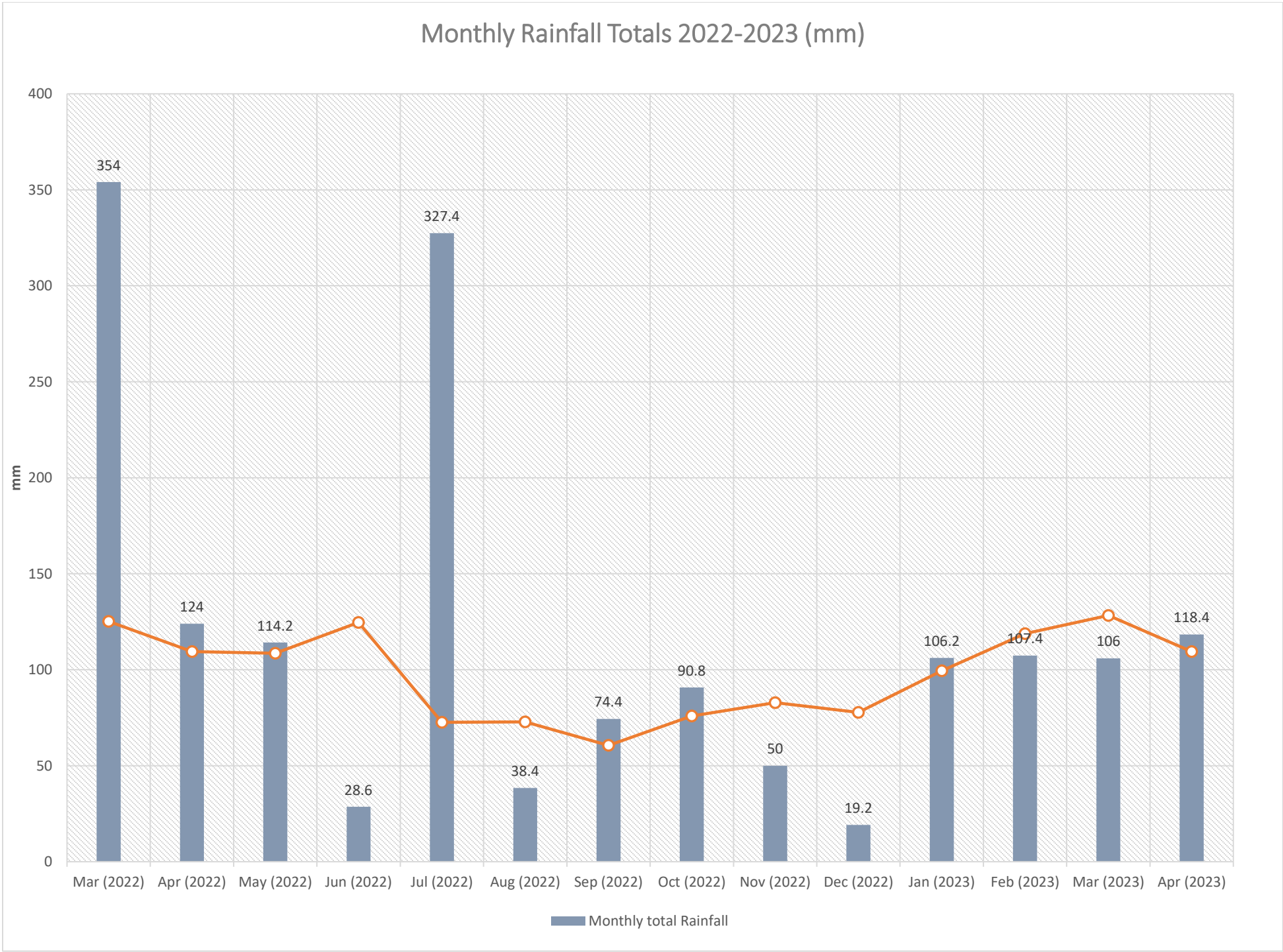
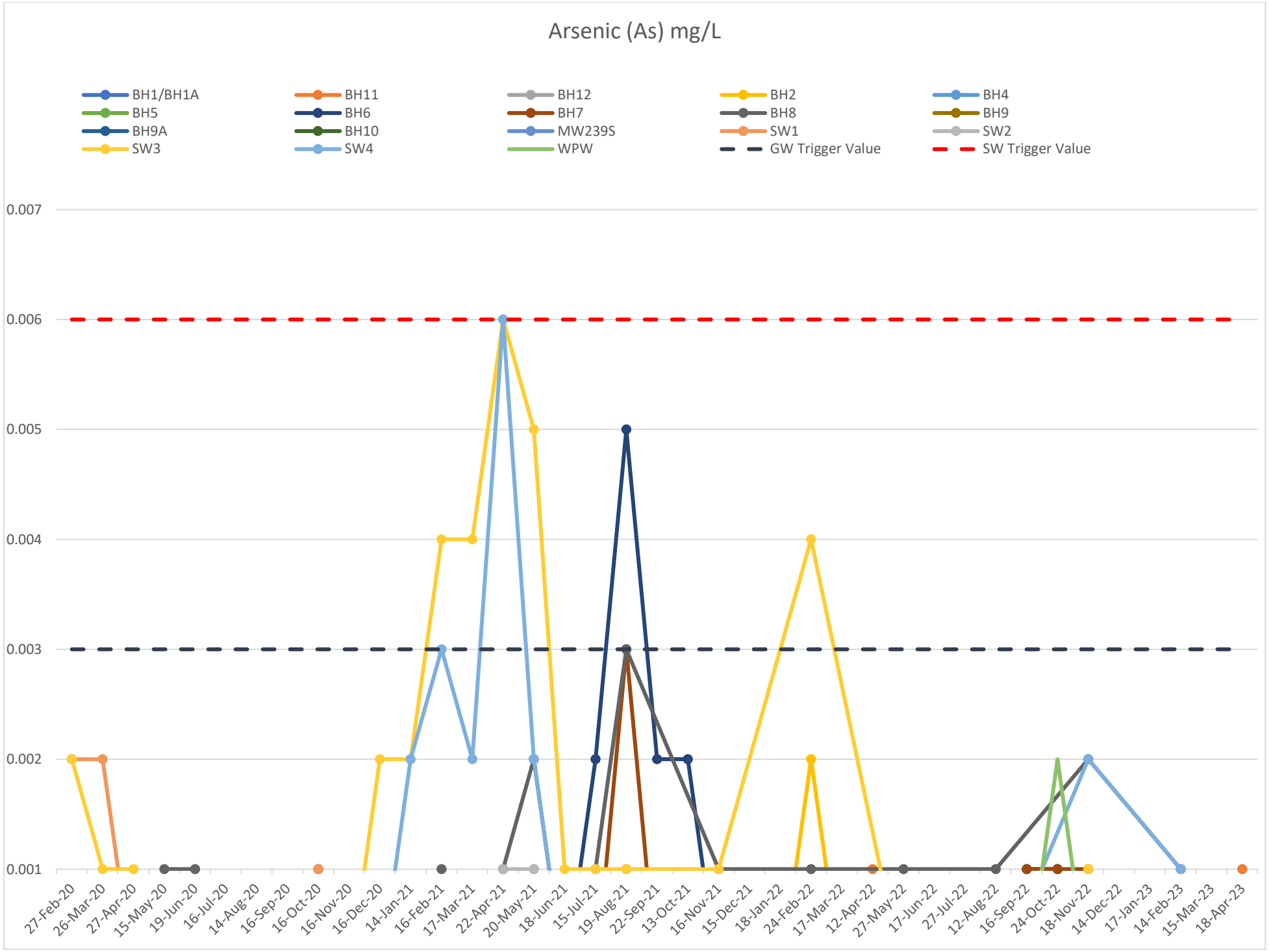
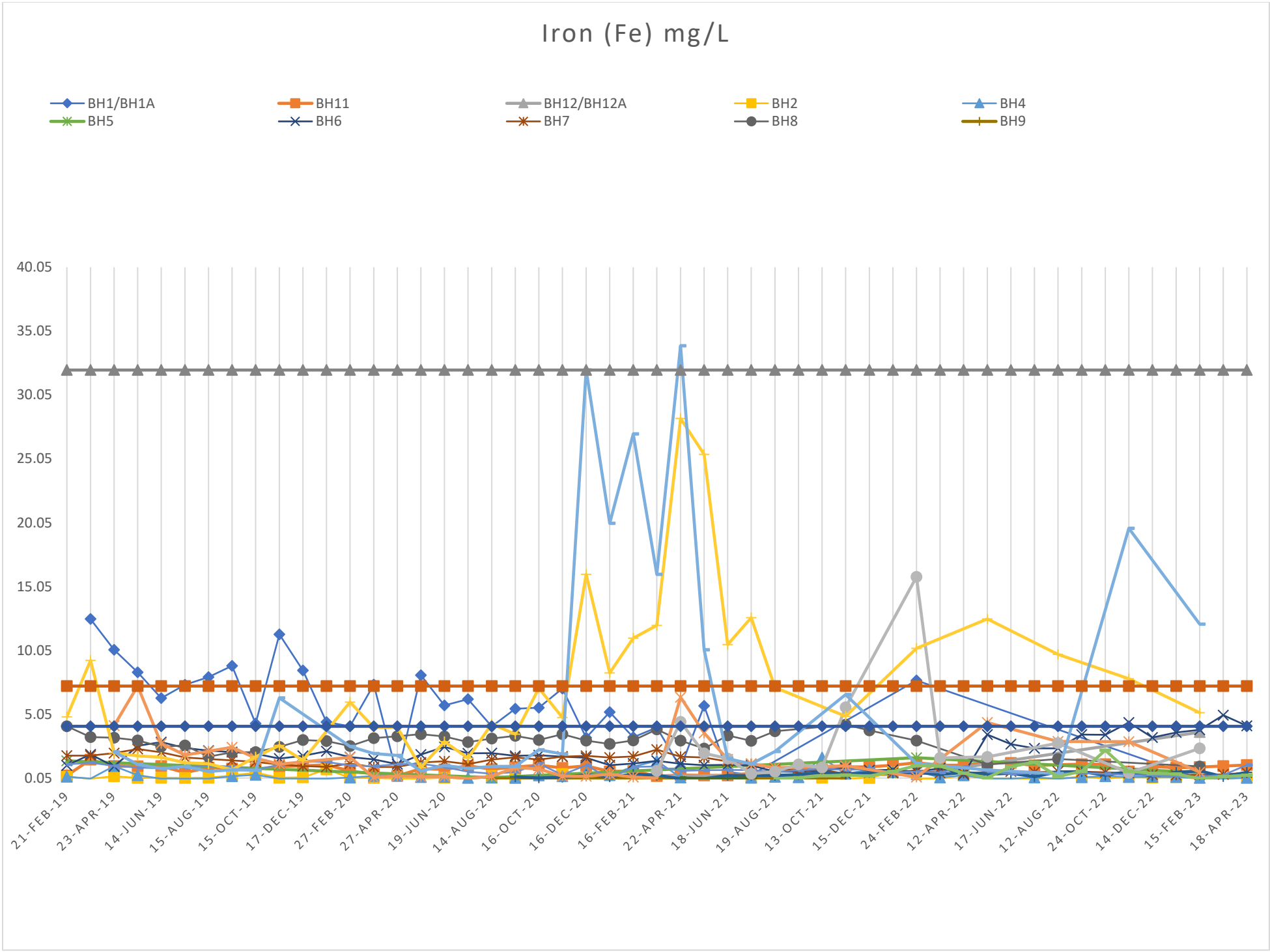
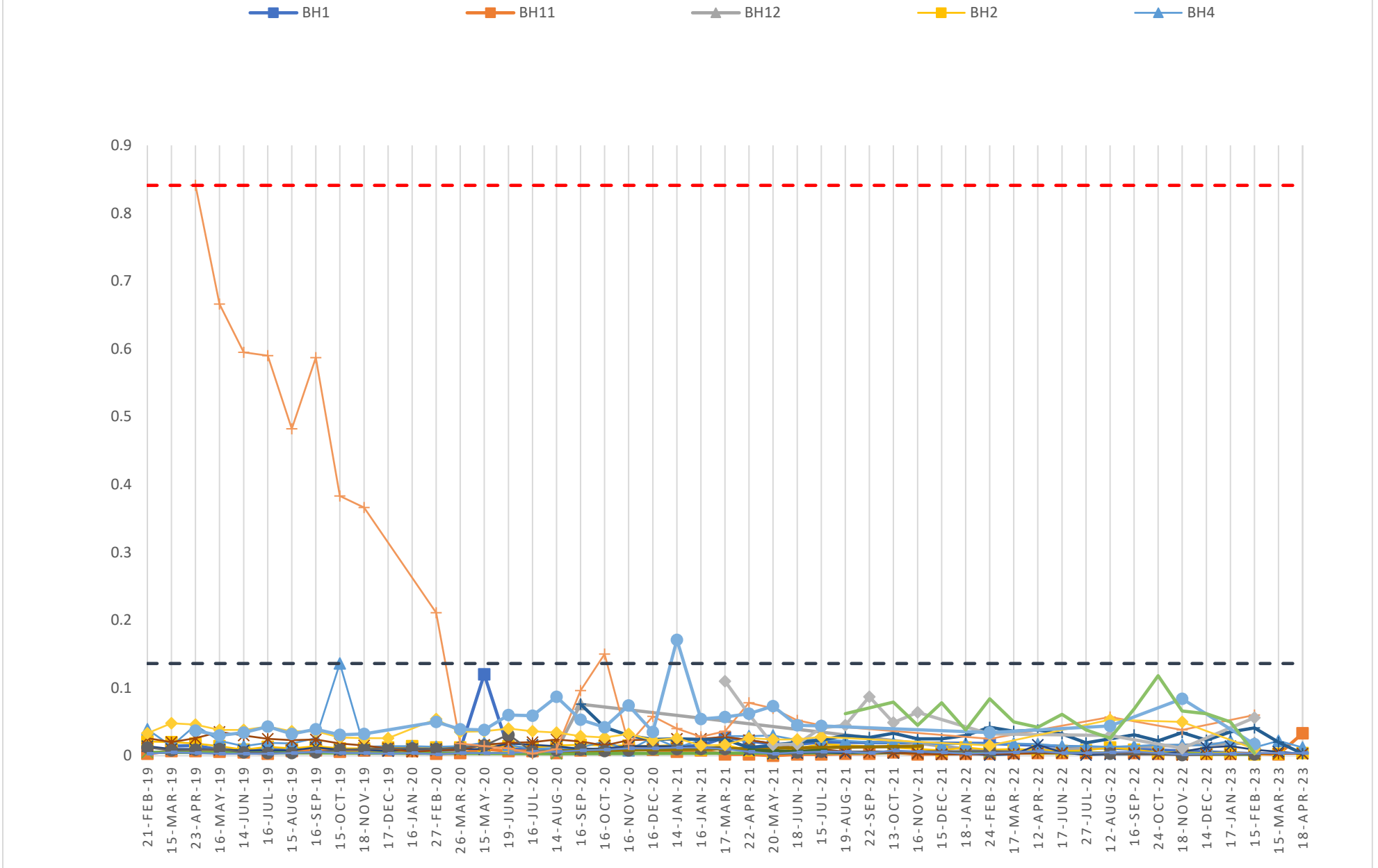
Mar-23
Apr-23

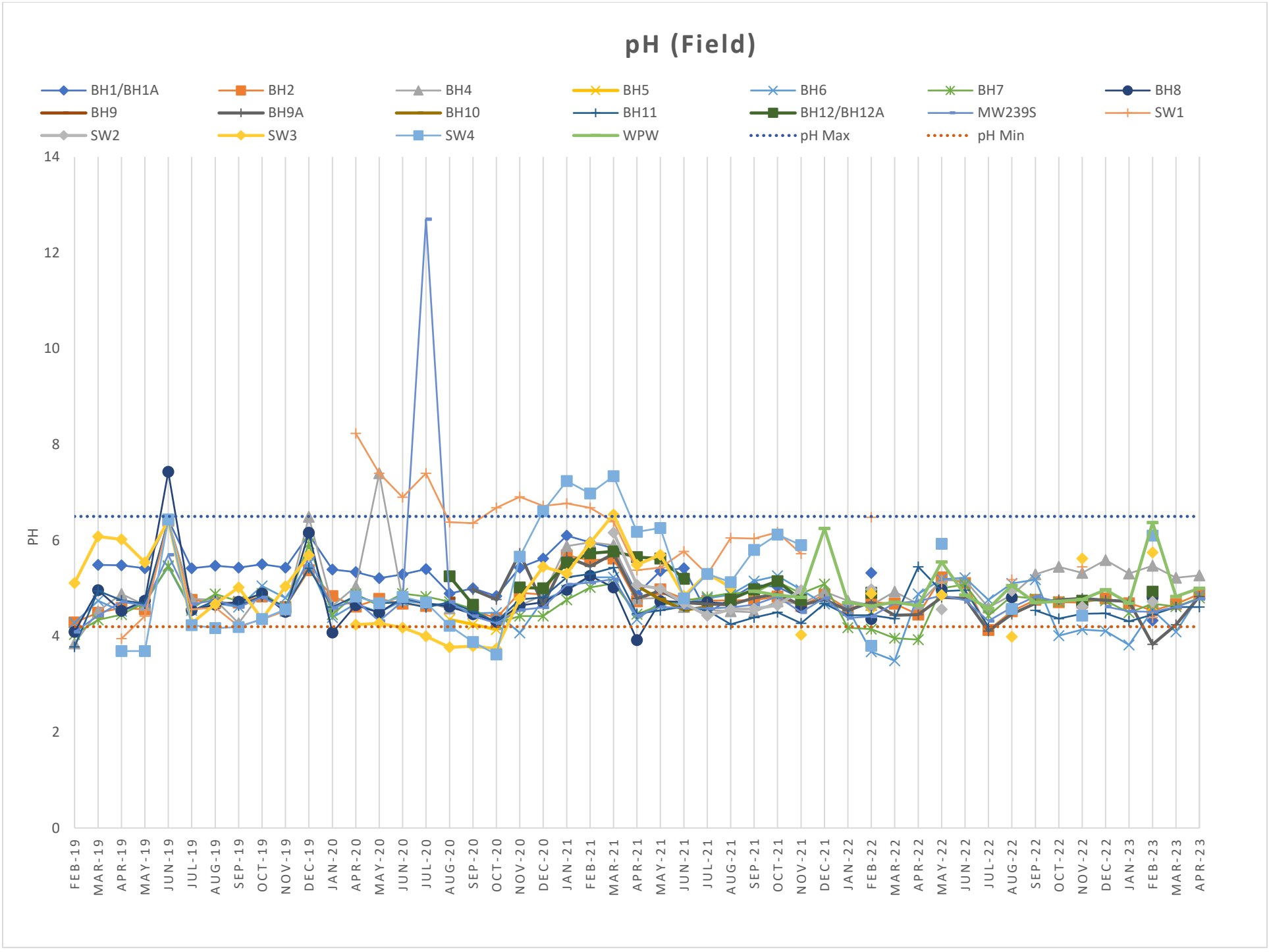

Monthly Rainfall Totals 2022-2023 (mm)
mm
400
350
300
250
200
150
100
50
0
354
124
114.2
28.6
327.4
38.4
74.4
90.8
50
19.2
106.2
107.4
106
118.4
Mar (2022)
Apr (2022)
May (2022)
Jun (2022)
Jul (2022)
Aug (2022)
Sep (2022)
Oct (2022)
Nov (2022)
Dec (2022)
Jan (2023)
Feb (2023)
Mar (2023)
Apr (2023)
Monthly total Rainfall

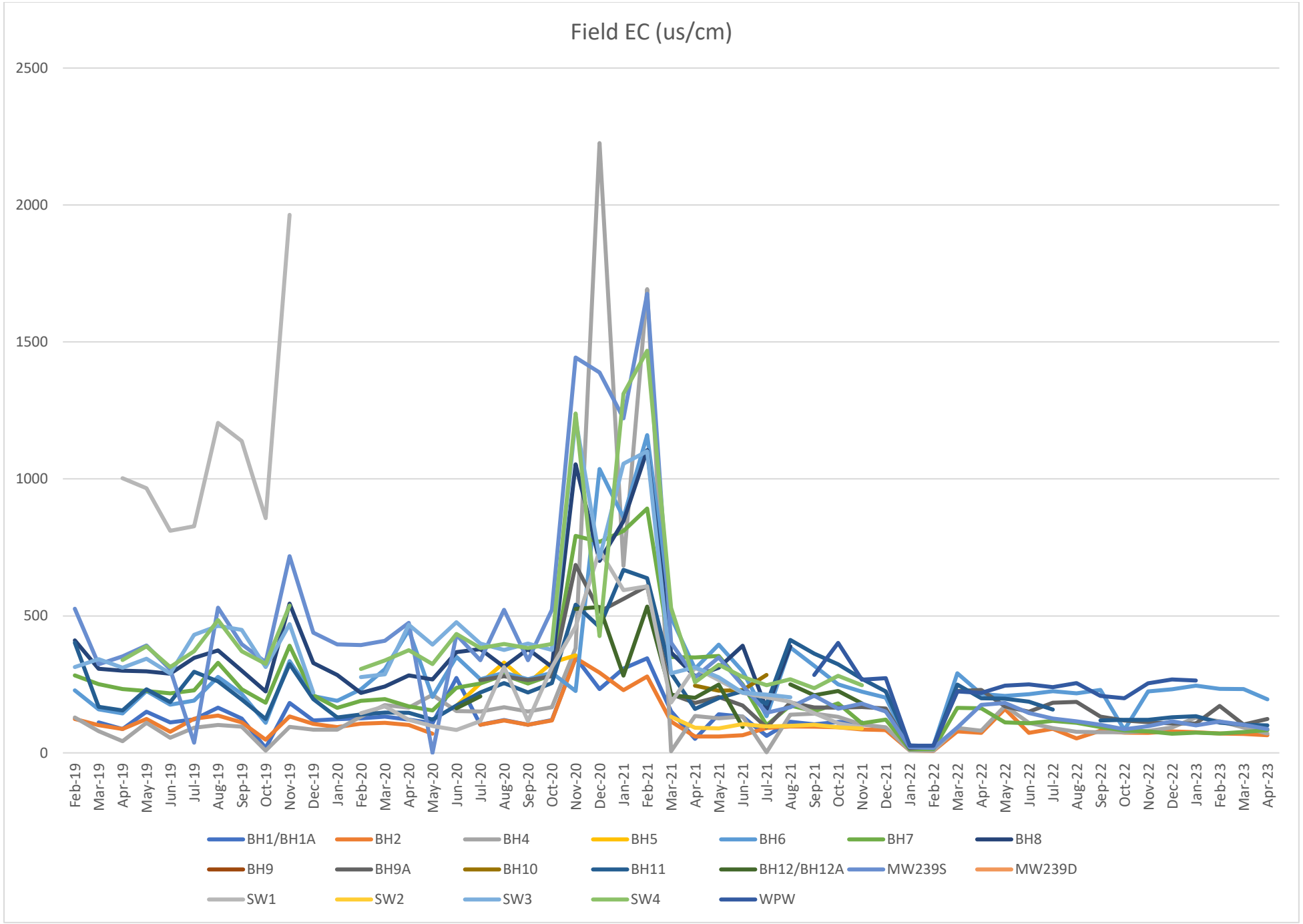

Arsenic (As) mg/L
BH1/BH1A
BH11
BH12
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
WPW
GW Trigger Value
SW Trigger Value
0.007
0.006
0.005
0.004
0.003
0.002
0.001
27-Feb-20
26-Mar-20
27-Apr-20
15-May-20
19-Jun-20
16-Jul-20
14-Aug-20
16-Sep-20
16-Oct-20
16-Nov-20
16-Dec-20
14-Jan-21
16-Feb-21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


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

Manganese (Mn) mg/L




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


Field EC (us/cm)
2500
2000
1500
1000
500
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
Feb-20
Mar-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
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May-22
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Jul-22
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Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
BH1/BH1A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12/BH12A
MW239S
MW239D
SW1
SW2
SW3
SW4
WPW