Chemical composition of contaminated water sample sourced from tunnel borehole ML032-RC009.

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Background:

On the 4th October 2021, the pH in borehole ML032-RC009 began to increase significantly from the general background pH condition, previously identified at that location as being between 7.1 and 7.7 (Figure 1). Although this significant increase was preceded by a small rise in pH on 15th September, this remained below pH8 until 30th September when there was a small spike to pH8.6 followed by a drop to pH7.7 before a continual rise on 4th October. On the 12th October, the pH trigger limit of 9 was breached. Thereafter, the pH continued to increase, rising to a peak at 11.8 on the 18th October. The pH has remained above 11.5 since that time with the exception of a drop to just below pH10 on 24th January 2022.

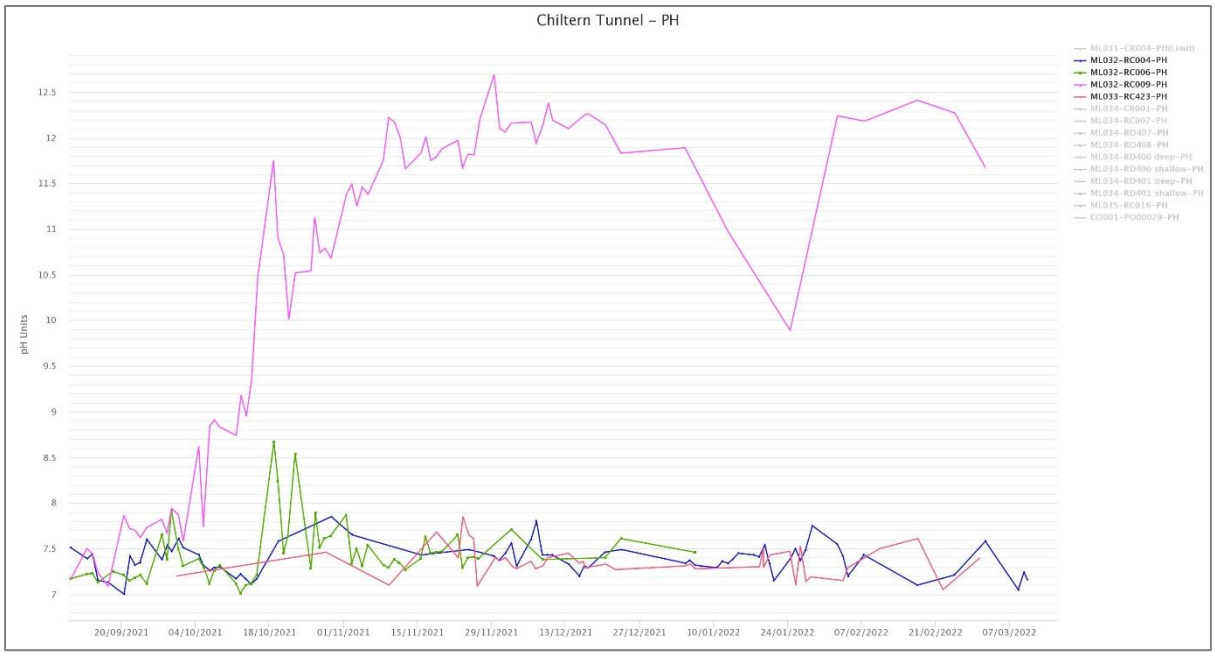


Figure 1 In-field pH readings taken across the tunnel route since the start of site-specific monitoring

The change in pH was accompanied by an increase in electrical conductivity starting on the 14th October 2021 and reaching a peak at 5295 µS/cm on the 29th November and remaining above 1500 µS/cm for the duration of the monitoring period with the exception of a drop to c.500 µS/cm on 24th January 2022. There was also an accompanying decrease in oxidation reduction potential over this time period and a general increase in turbidity from around 10 NTU on 10th September increasing to 423 NTU on 9th November. There were no clear trends in dissolved oxygen

concentration until 23rd December 2021, thereafter the dissolved oxygen concentrations decreased to a low of 2.7 mg/L on 17th February 2022. Groundwater levels remained stable with very minimal change due to seasonal changes in rainfall observed.

Plots of the groundwater levels and well head data for ML032-RC009 and other boreholes along the tunnel route are provided in Appendix 1.

Samples were collected for detailed laboratory analysis to gain an understanding of the chemical nature of the change in water chemistry observed. Samples were collected on 20th and 26th October and 2nd and 4th November 2021 with the results provided in Appendix 2. Samples were thereafter collected twice weekly between mid-October and December. Thereafter, sampling reduced to weekly up to the end of January 2022, and then to monthly thereafter.

The results obtained are discussed below, with the purpose of gaining an understanding of whether the TBMs are a possible source of the contamination observed. It should be noted that the TBM speed was not uniform during its passage past and upgradient of the monitoring borehole and it is not clear if this influenced the data in any way – this will partly depend upon exactly what has caused the water quality changes.

The first of the TBMs, Florence passed by borehole RC009 on approximately the 11th of September 2021, while Cecilia passed the location at the end of October as shown in Figure 3 along with the pH. At this location, the tunnel is approximately 50 % above the water table. During the period in which the TBMs passed the borehole, no readily discernible impact was noted on the water quality within this borehole, although the TBM was not fully submerged at this time. If the TBM was responsible for the change in water quality, there may have been a lag before it would have been detected in the borehole. Both TBMs are currently past the Chalfont St Peter shaft, 1500m upgradient of the borehole.

Figure 2 Location of TBMs in early Nov 2021 in relation to monitoring boreholes (ML032-RC009 outlined in red)

ML032-RC009 is in very close proximity to the tunnel, at 6.2m off the alignment of Florence. The response zone of the borehole is 49.50-55.90 mbgl, with the sample taken at 50 mbgl (Figure 4). The tunnel elevation at this location is between approximately 48 and 57 mbgl. It is therefore expected that should the TBM cause a change in water chemistry, it would have been detected as the TBM passed by the location and continued upgradient. Although the monitoring borehole may not be directly down gradient of the tunnel alignment, given the close proximity of the borehole to the tunnel and the operating pressure at the cutting face, if there was a significant impact from the TBM it should have been detected quite quickly in the monitoring borehole. A slow response, if due to the TBM, would indicate low permeability strata / a borehole poorly connected to the aquifer.

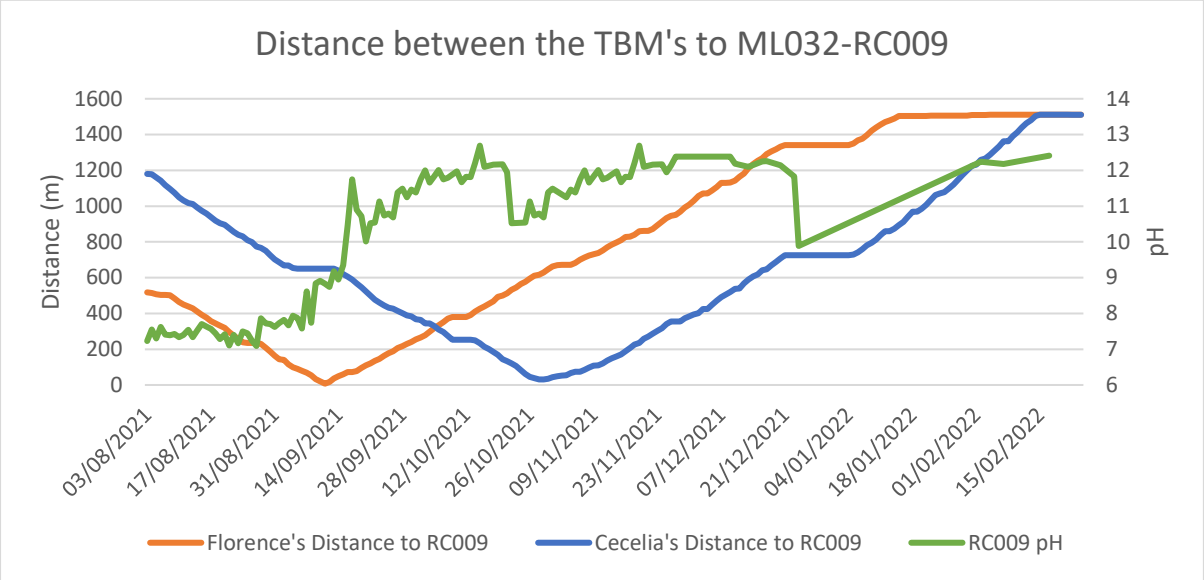


Figure 3 Distance of the TBM's to borehole ML032-RC009 with pH of ML032-RC009 (shown in orange)

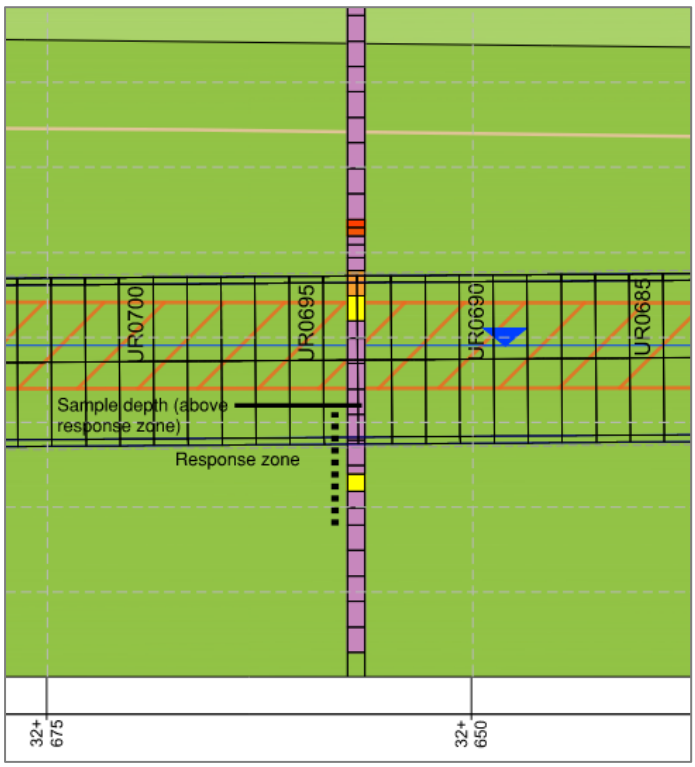


Figure 4 Response zone of borehole ML032-RC009 in comparison to depth of tunnel

By the 14th October 2021, Florence was fully beneath the water table, located near chainage 33.066. The water table intersection is shown as the blue dotted line on Figure 2 above. Cecilia moved below the water table by the 3rd December. ML032-RC009 is approximately 1500m downgradient of both Florence and Cecilia's current locations, with groundwater flowing in a broadly South-Easterly direction.

Both Florence and Cecilia have also moved beyond the next monitoring borehole along the alignment (Figure 2), borehole ML033-RC423, which is situated between Florence's and Cecilia's

traces and is within 11 m of the TBM moving through. There was no discernible impact on pH (see Figure 5) or other water quality parameters, or water level observed in this borehole as either TBM moved past.

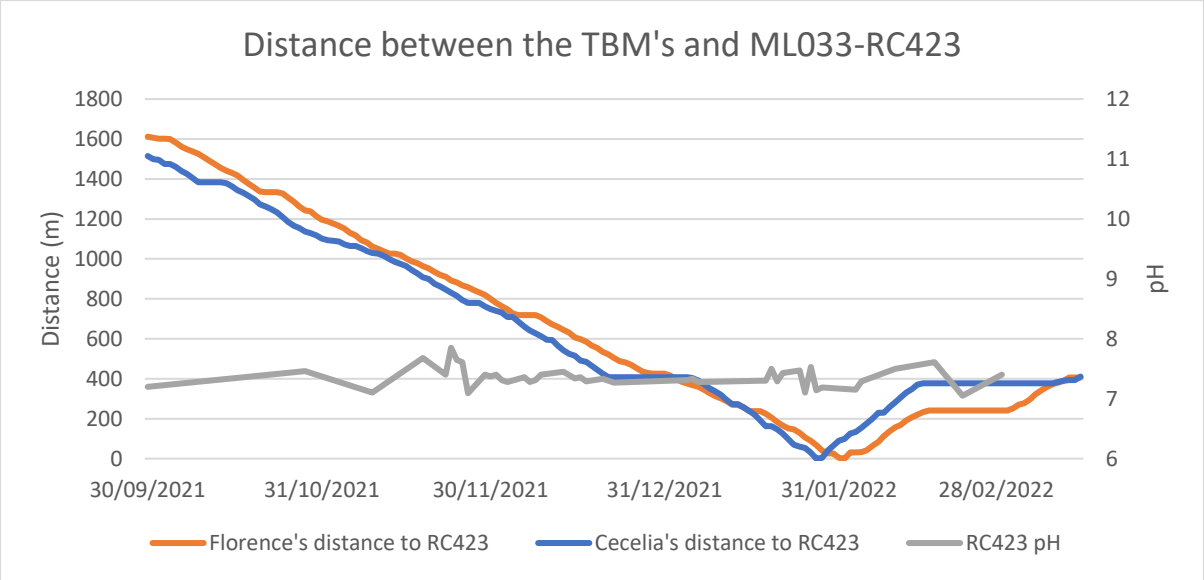


Figure 5 Distance between TBM's and borehole ML033-RC423 with water pH shown in grey

The rainfall since the beginning of October 2021 is shown below in Figure 6. This time period coincided with the start of increased seasonal rainfall, with heavier rainfall experienced in December and February 2022.

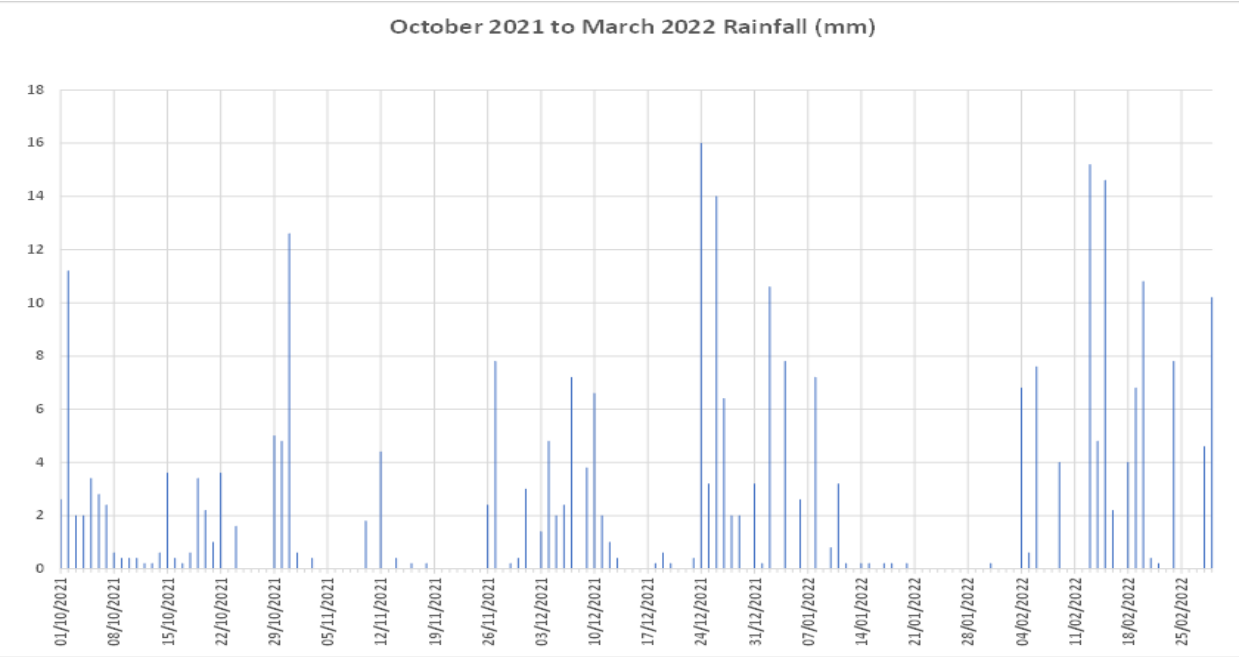


Figure 6 Rainfall data since October 2021 from Chenies TBR gauge (Station ID 278744TP, NGR TL0168600016)

Discussion on in-field observations:

- The pH and conductivity levels have been consistently well above the background levels since early October 2021 and have continued to rise into December. Thereafter, with the exception of an isolated drop on 24 January 2022, levels remained fairly stable and consistently above background levels. This indicates a continuous source of contamination. A point source of contamination, such as the passing of the TBM, would likely have created a peak in levels followed by a tail, which has not been observed at ML032-RC009. It is possible that the TBM could present more than a point source if a fissure of a particular size and orientation was encountered and that extended for several hundred metres along the tunnel alignment. The likelihood of this extending to the current TBM locations at Chalfont St Peter shaft is extremely low and is not considered realistic.
- There was a drop in pH and conductivity levels in the first 3 visits in January 2022, following a break due to the Christmas shutdown period. Thereafter, the levels returned to previously seen concentrations.
- Downstream borehole ML032-RC006 has not shown elevated levels of pH or conductivity over the same time period. There were minor peaks in pH in ML032-RC006 on the 18th and 22nd of September 2021, but levels returned to background levels beyond this and have remained there.
- Borehole ML033-RC423, which is upgradient of RC009 but currently downgradient of both TBMs, has not shown elevated pH or conductivity, including during the period when both TBMs moved past the borehole. The pH in the boreholes that are upgradient and down gradient of RC009 is shown below in Figure 7.

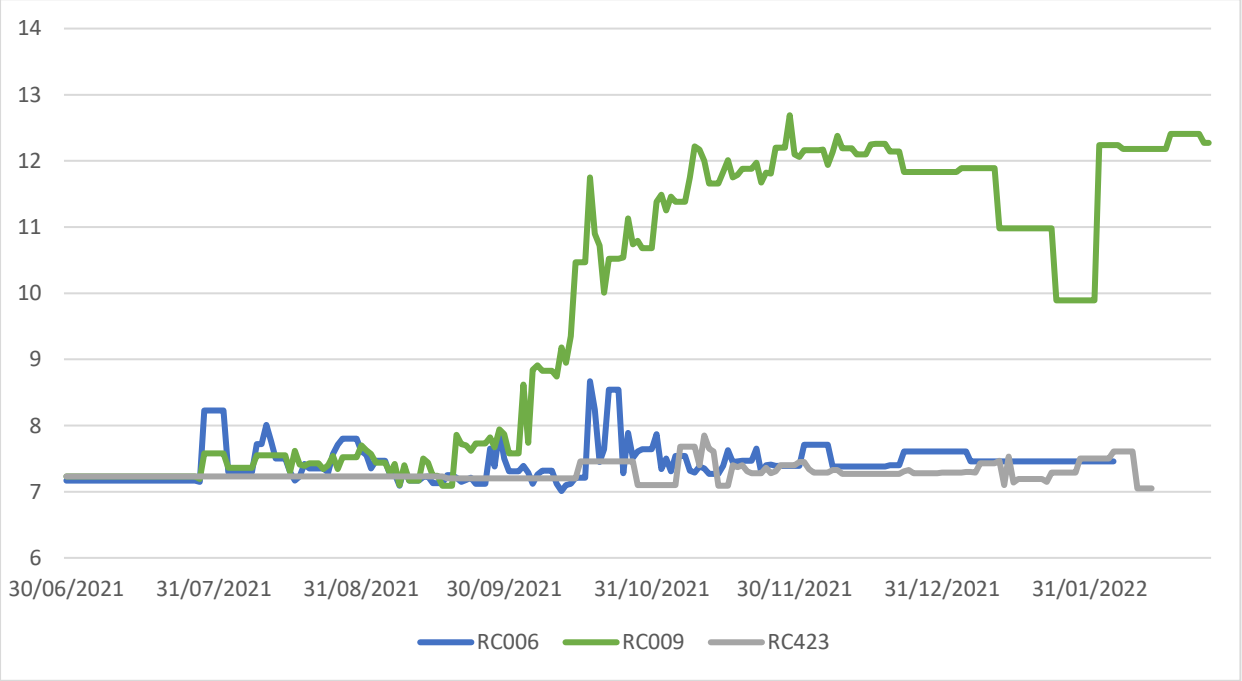


Figure 7 In-field readings of neighbouring boreholes

Observations based on Laboratory Analysis Results from ML032-RC009 (20 Oct 2021 to 28 Feb 2022):

- Elevated major ions have been detected including sodium (max of 870 mg/L on 2 Feb 2022), potassium (210 mg/L on 2 Feb 2022), sulphate (64 mg/L on 26 Oct 2021) and fluoride (470 µg/L on 26 Oct 2021).

- The calcium concentration (16mg/L on 26 Nov 2021) and hardness (44.9 mg/L on 26 Nov) of the water are very low compared to background levels within chalk of approximately 140mg/L and 350 mg/L respectively. The low calcium is a particular oddity given that the TBM is boring through chalk. If the TBM slurry were a source of the contamination, high calcium would be anticipated (the slurry could have calcium concentrations in the high hundreds to low thousands of mg/L).
- Elevated nitrogen species (ammoniacal nitrogen at 830 µg/L on 2 Feb 2022, Nitrite at 2200 µg/L (as NO2) on 2 Feb).
- Elevated metals: a mixed suite of metals are elevated well above background levels, particularly aluminium (7.4 mg/L on 2 Feb 2022), chromium VI (69 µg/L on 2 Feb) and iron (0.29 mg/L on 2 Feb)
- Identification of hydrocarbons: toluene, ethylbenzene and both p&m and o-xylene were identified in 3 of the samples (26 Oct, 2 Nov, 8 Nov 2021). Short chain hydrocarbons were identified but are likely to comprise the BTEX compounds identified above.
- Ion balance errors have been calculated for the data sets based on concentrations of the major ions (Na, Ca, Mg, K, Cl, SO_4, NO_3 and CO_3) and these are typically around 30 to 50% with the anions always being under-represented. It is possible (though not certain) that this is due to the hydroxyl ion which is in the form of sodium or potassium salts (dissolved) and which is not analysed.
- Ongoing sample results have shown that the concentrations within the samples have remained fairly consistent, with the same elevated determinants reflected in the majority of samples. The most recent sample (2 Feb 2022) showed substantially higher concentrations than previous samples, although with the same determinants identified in previous samples.

Discussion on results:

The chemical results show a very different signature to natural background chalk water samples, as well as the signature of the water in the neighbouring ML032-RC006 borehole and the types of contamination that might be detected if it was caused by the TBM. Of most significance is the low calcium concentration, along with the high concentrations of sodium, potassium, and other ions. Should contamination of chalk water occur as a result of the TBM passing through, the water would likely be made up of natural chalk water and slurry, both of which would have high concentrations of calcium.

The signature parameters within the water analysis provided, including sodium and mixed metals, do not align well with the possible impacts that would be associated with the TBM passing. The contamination possibilities identified as a result of the TBM movement through the chalk are increased chalk turbidity, contamination resulting from recirculation of slurry (high calcium and sulphate) and contamination from the use of grout below the groundwater table (high calcium and potentially chromium and potassium plus high pH). There have been some spikes in turbidity noted in the borehole since the TBM passed, although these have not been as consistent as the effects on pH and EC. The grout used in the tunnelling process largely comprises cement (20%) and water (71%). The sodium silicate accelerator is only 6% of the grout and could be a source of sodium contamination, however, no significant losses of grout have been recorded by the TBM operational team during this period. The additive TamCem RP is only 0.3% of the grout mixture.

To achieve the concentrations of the contaminants identified in the borehole, an ongoing source of contamination would be needed. This would be identified by a larger than expected grout use, which has not been the case over this time period whilst the absence of elevated calcium in the groundwater would also rule out grout or slurry.

The elevated pH and electrical conductivity are not chemical specific and could be caused by many substances. In this case, the high pH observed could be due to sodium and / or potassium salts such as carbonate or hydroxide which could also cause the elevated electrical conductivity.

The BTEX compounds reported in some sample results cannot have originated from the TBM or tunnel, as no compounds containing these are used with the tunnelling process or on the TBM. Sampling of the slurry and slurry water confirmed no trace of BTEX or hydrocarbons, as well as lower levels of sodium (69 mg/L) and potassium (22 mg/L), with very low levels of chromium (VI) (<5 µg/L) being detected. The calcium concentration was 2020 mg/L, in line with the expected levels for chalk-based slurry.

Purge water results:

An analysis of the purge water from the borehole was taken, with in-field readings taken every 5 minutes until parameters had stabilised, with all parameters stabilised at around 340 minutes. Four samples were collected for laboratory analysis. The in-field readings are displayed below, with the laboratory data presented in Appendix 2 to this report.

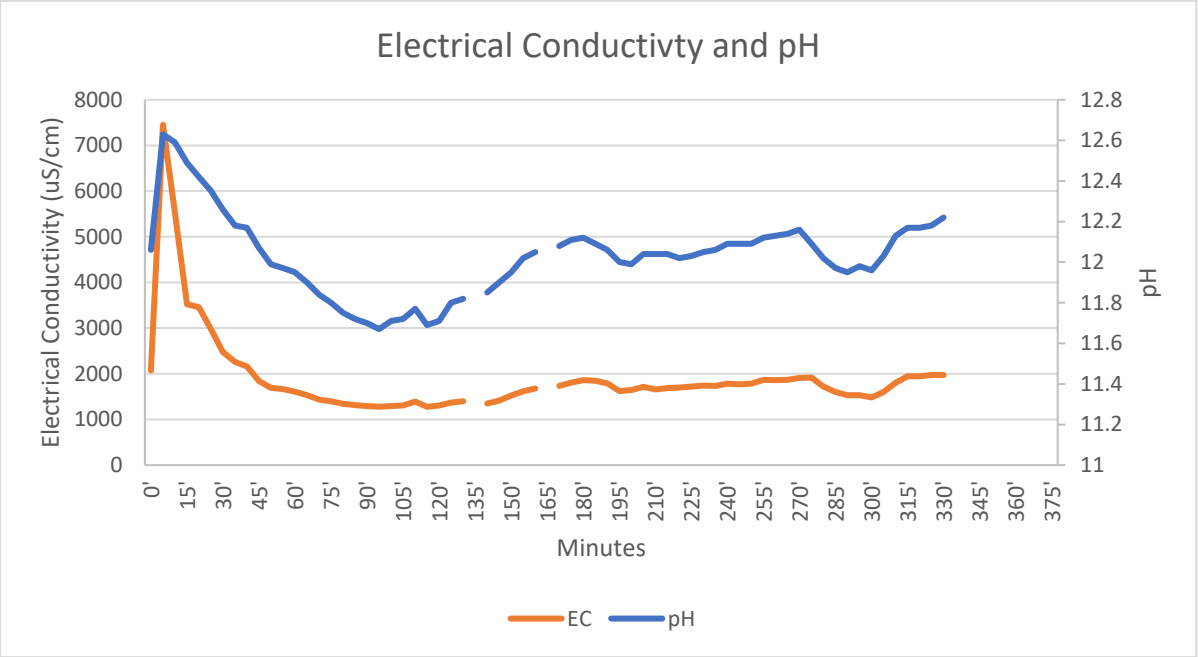


Figure 8 pH and Electrical Conductivity during extended purging of borehole ML032-RC009

The pH and conductivity (EC) results are shown in Figure 8 above. The values show an initial peak with extremely high EC and pH, after which both pH and EC drop to below the initial values. Thereafter, a slower increase over the duration of the purging time is observed.

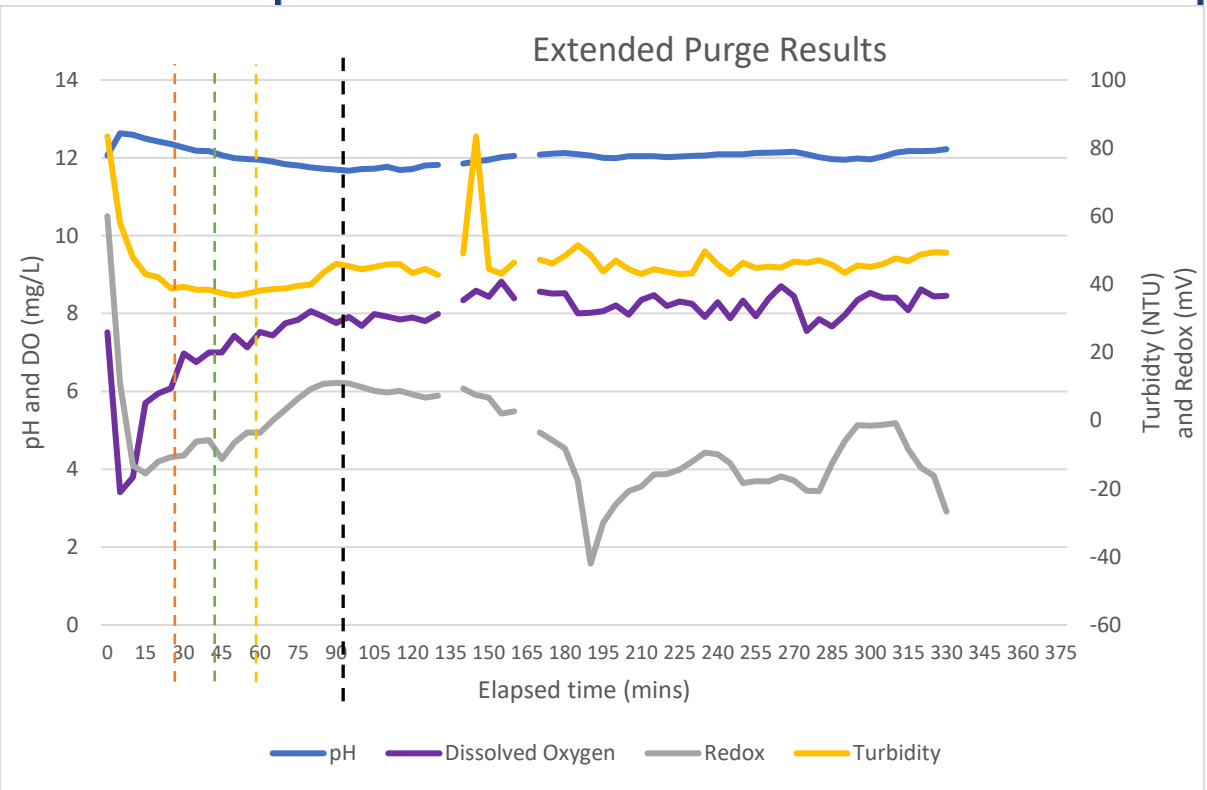


Figure 9 In-field pH, dissolved oxygen, redox and turbidity readings during extended purging of borehole ML032-RC009

The dissolved oxygen and turbidity show similar behaviour to each other, with the parameters initially reducing from the stagnant water values, before increasing slowly over time to stabilise around 100 minutes (black dotted line) into purging. The redox values show an initial steep decrease, followed by stabilisation, with a further dip and then peak during the time period where pH and EC showed a small peak and then dip i.e. redox values moved in the opposite direction to pH and EC.

Purge Water Laboratory Analysis Results

The laboratory results indicate that the majority of major ions (Figure 10) increase between the stagnant water sample and the 15-minute sample, with sodium and alkalinity concentrations particularly high in the 15-minute sample. Following this peak, levels reduce before a smaller, slower peak in concentrations over the course of the purge.

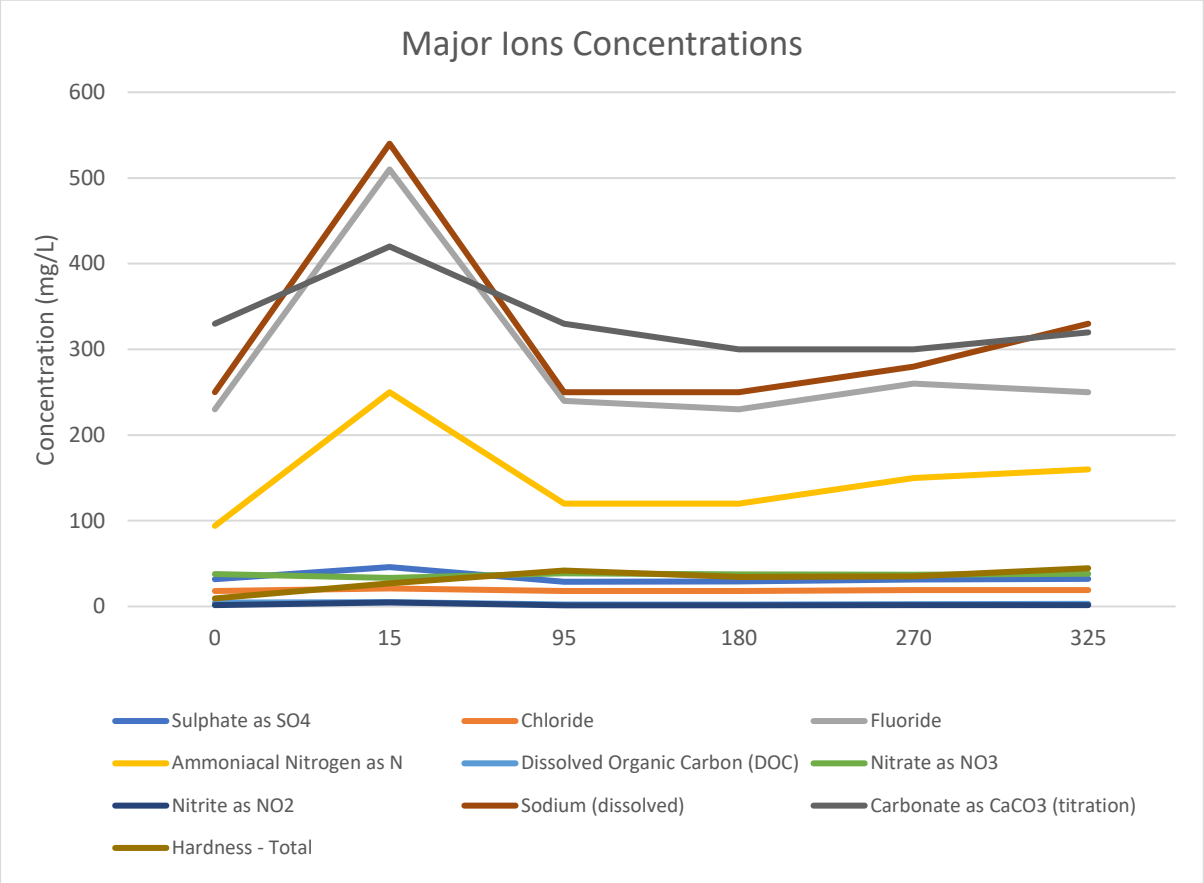


Figure 10 Laboratory analysis displaying major ions concentrations from extended purge and multi-stage sampling (conducted 26 November 2021) at ML032-RC009

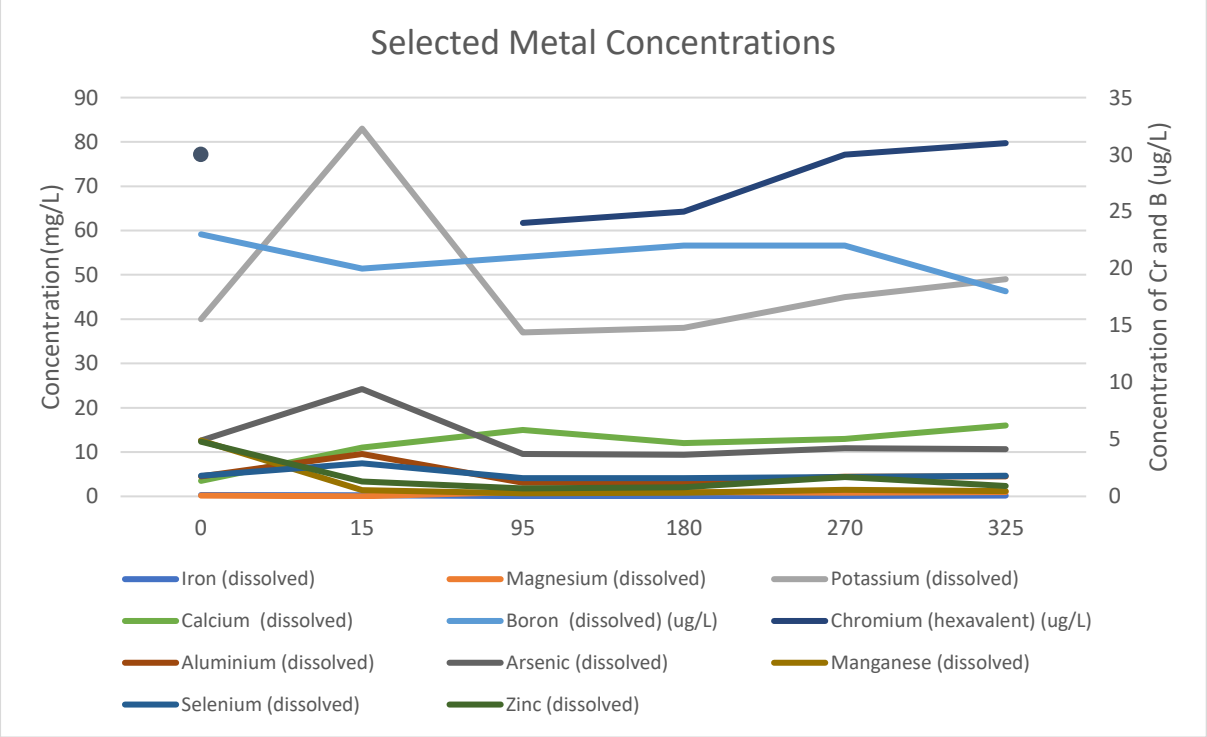


Figure 11 Laboratory analysis displaying selected metals from extended purge and multi-stage sampling (conducted 26 November 2021) at ML032-RC009

In general, metals (as displayed in Figure 11) concentrations increased slightly over the course of the purge, although a peak was observed for the majority of the metal species in the 15-minute sample.

Discussion On Purge Results

The results indicate that contamination increases over the first 15 minutes of purging. The volume of standing water in the borehole was calculated to be 17.5 L and was purged at an approximately constant rate of 1.5 L/min. The well volume would therefore have been purged in 12 minutes. The highest concentrations of contaminants are therefore observed within the standing water in the borehole. Once this water has been cleared, the contamination levels are lower, although increase slowly over time as purging continued.

This may indicate a unidirectional source of contamination, such as a fracture connected directly to the source of contamination, rather than contamination being pulled into the borehole from all sides. Once the standing water in the well has been cleared, contaminated water pulled into the borehole is diluted with aquifer water originating from 360 degrees around the borehole, resulting in lower concentrations being observed. Due to the difference in hydraulic conductivity between the fracture or preferential flow path and the chalk, once the immediate surrounding chalk is drained, inflowing water would contain a comparatively higher proportion of contaminated water compared to the volume of clean aquifer water, resulting in less dilution, and higher concentrations, over time.

Coliforms Analysis:

A sample of water was collected from the borehole and sent for coliform analysis in order to try to identify a possible source of the contamination. The results showed 0 MPN/100 ml for both total coliforms and e-coli. This would indicate that a leaking sewer is unlikely to be the source of the contamination observed in the borehole.

Conclusion:

Based on the well head parameters and chemical fingerprint of samples from RC009, the contamination is not derived directly from the TBM or tunnelling process. It is possible that the contamination originates from a distinct source of historical contamination nearby. This notwithstanding, the possibility remains that the TBM is indirectly responsible for liberating the contamination through opening up a new pathway from an area of historical contamination. It was noted in November 2021 that a subsidence event revealed an unmapped historical landfill nearby (approx. 100 m away from the tunnel alignment). It is possible that additional unmapped landfills / illegal dumping areas are located along the path of the tunnel route.

The start of the change in water chemistry also coincided with the start of the autumn rainfall, which may have played a role in flushing historical contamination through the chalk. As monitoring of this location only began in July 2021, no historical data exists during the wetter autumn and winter months to determine if this borehole showed contamination previously.

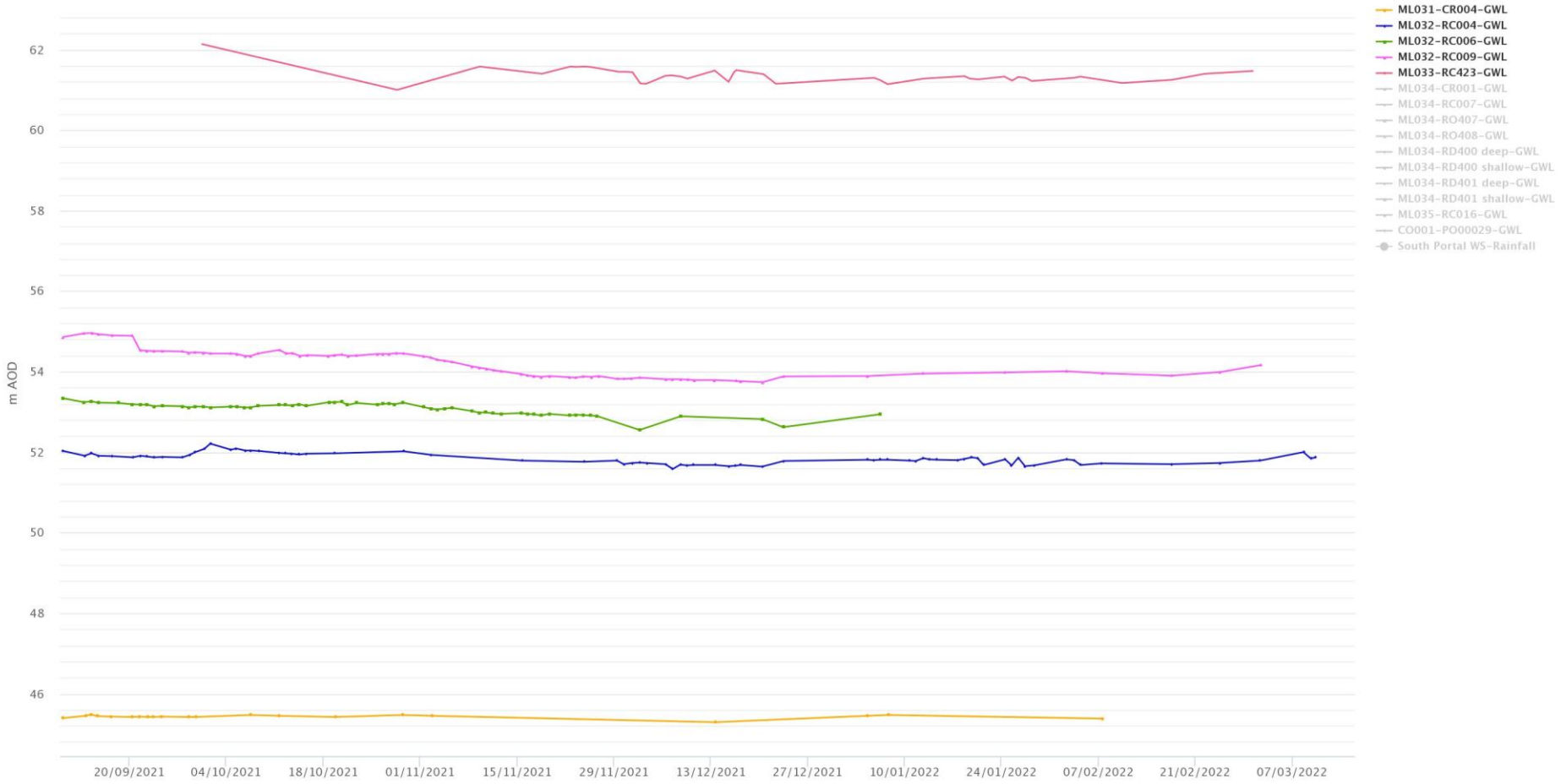
Daily monitoring of the borehole has shown no reduction or significant change in levels of contamination or concentrations of determinants over time with the exception of one anomalously low reading in January 2022. Both Florence and Cecilia are currently well beyond both borehole M032-RC009 and the next borehole up the alignment, ML033-RC423. ML033-RC423 has shown no

indication of contamination from either of the TBMs, despite both TBMs passing within 11m of the borehole.

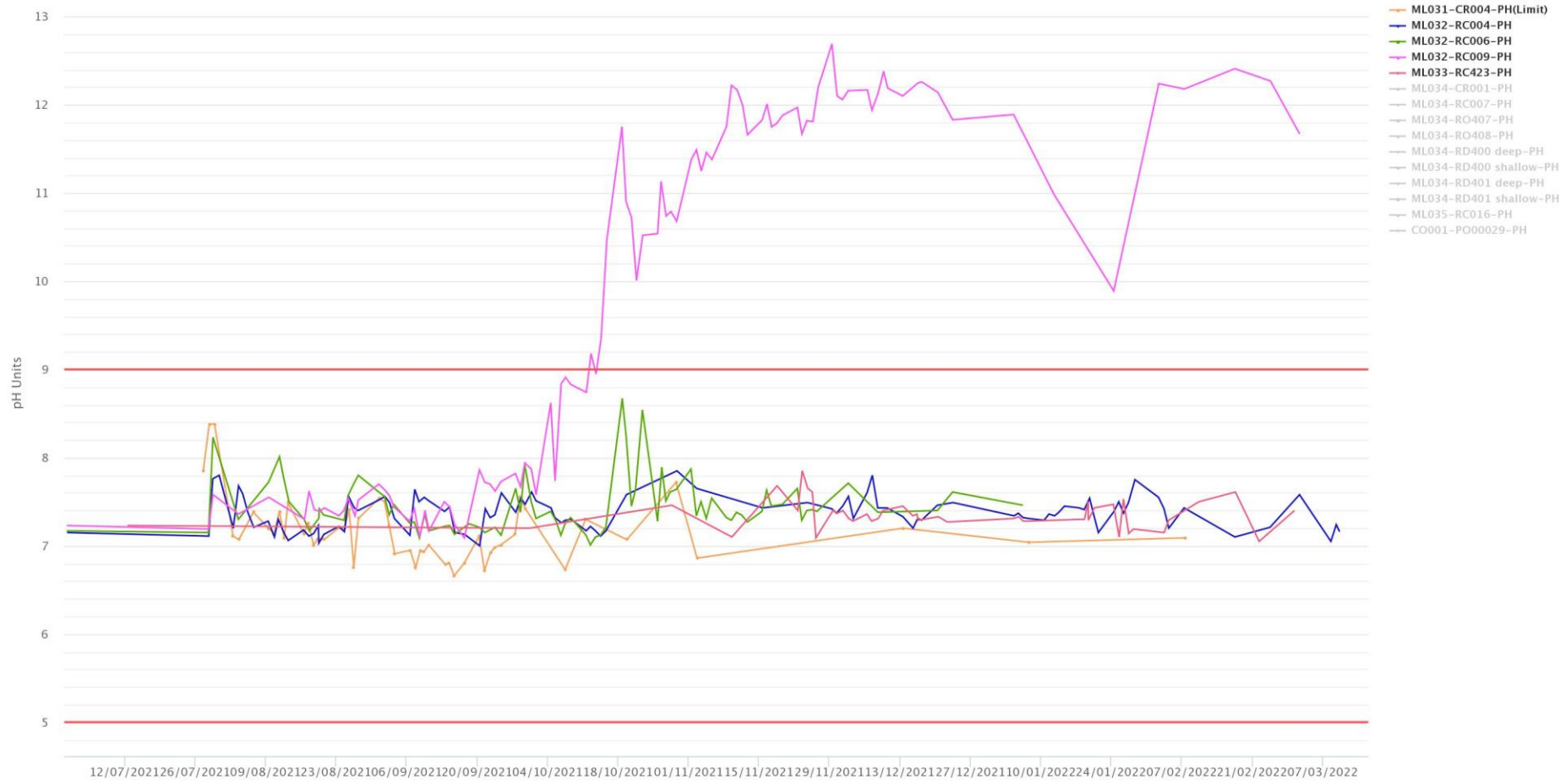
It has not been possible to identify a source of the contamination, but the presence of BTEX compounds, the combination of elevated sodium and potassium and reduced calcium is not indicative of contamination from the TBM or tunnelling processes. As the contamination has not been proven to be caused by the TBM, mitigation by HS2 is not warranted at this stage. Based on these results the monitoring of borehole ML032-RC009 has therefore been reduced to a quarterly frequency.

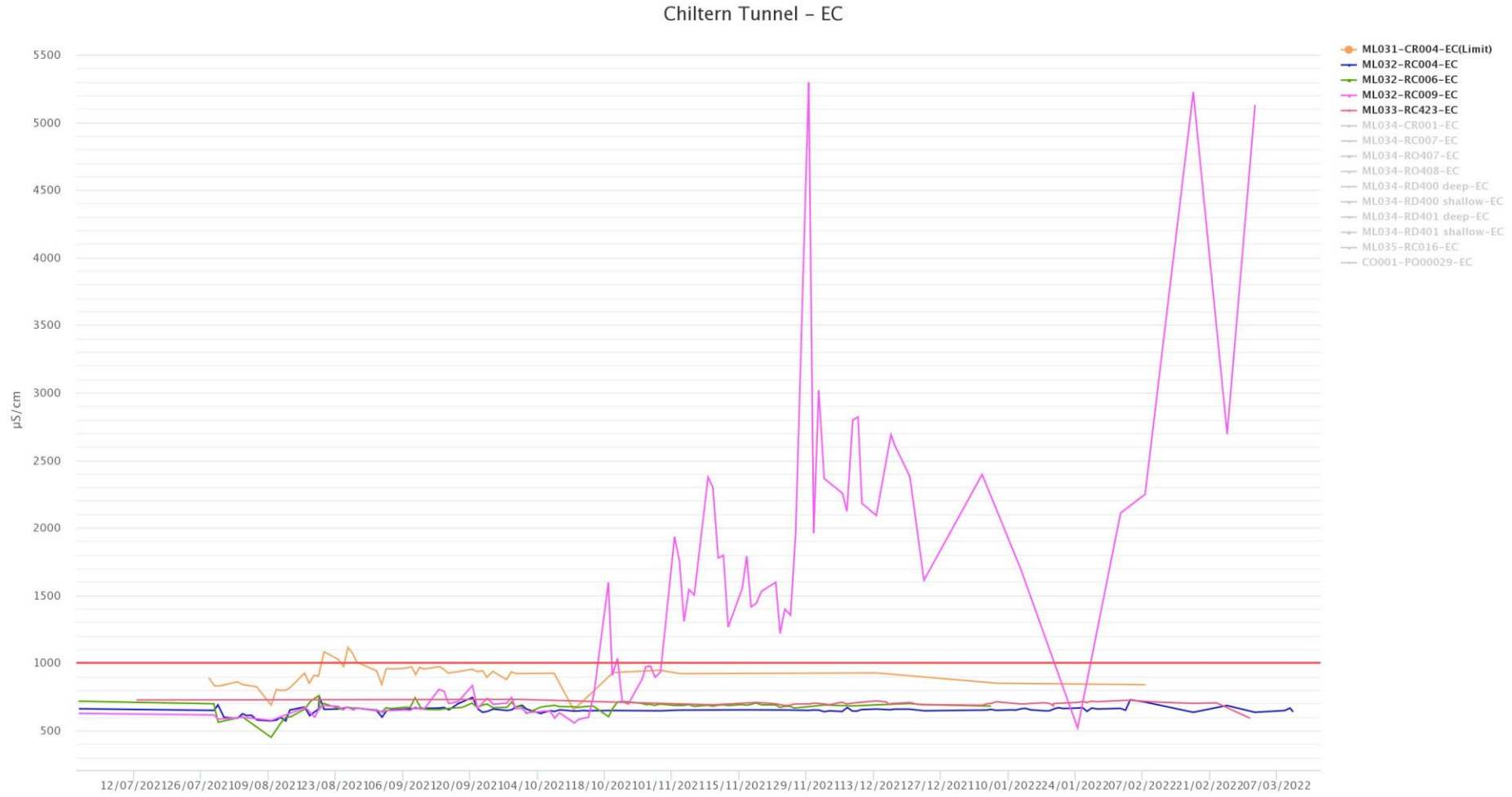
Appendix 1: Plots of well head parameters

Chiltern Tunnel – GWL

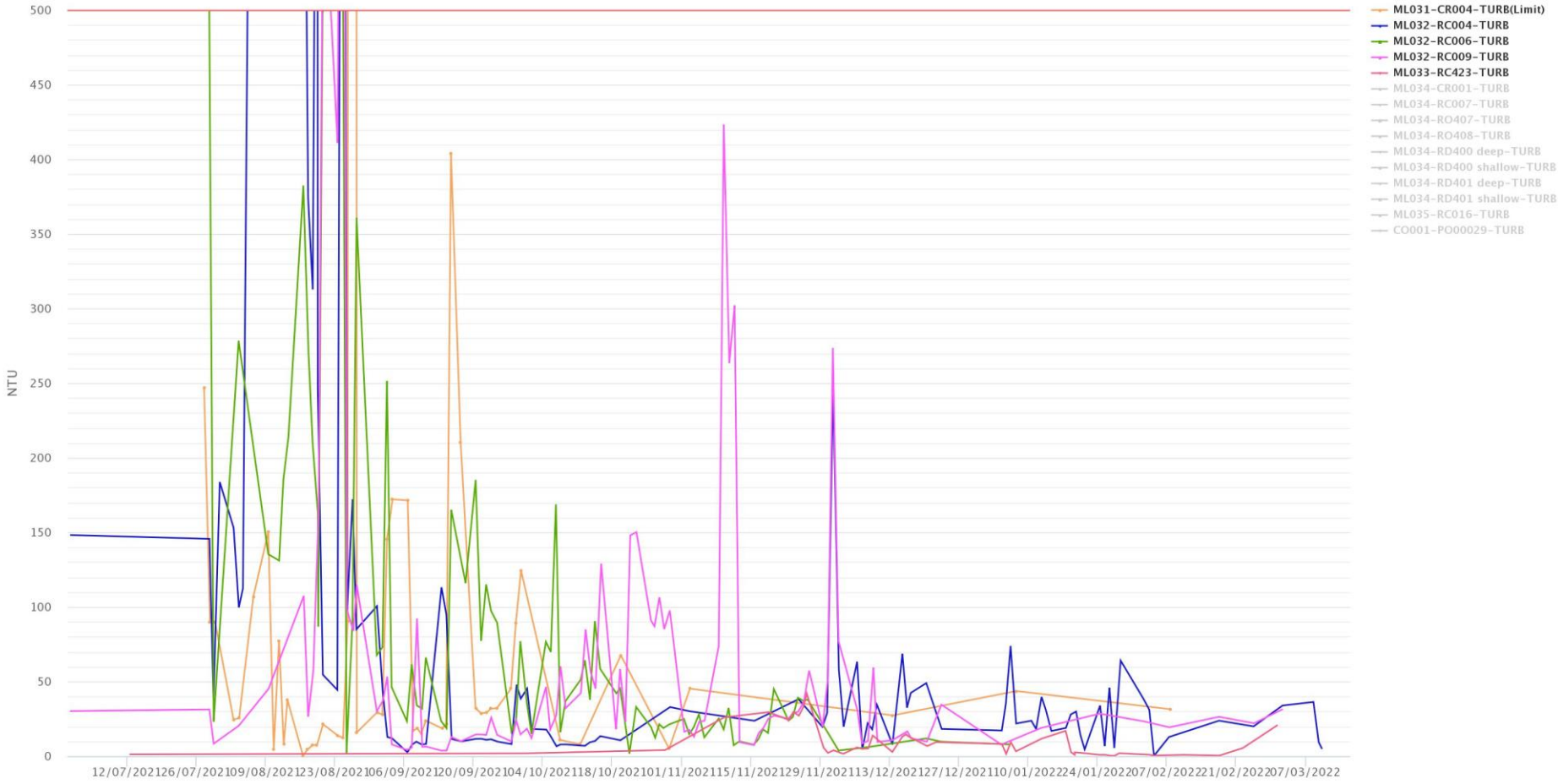


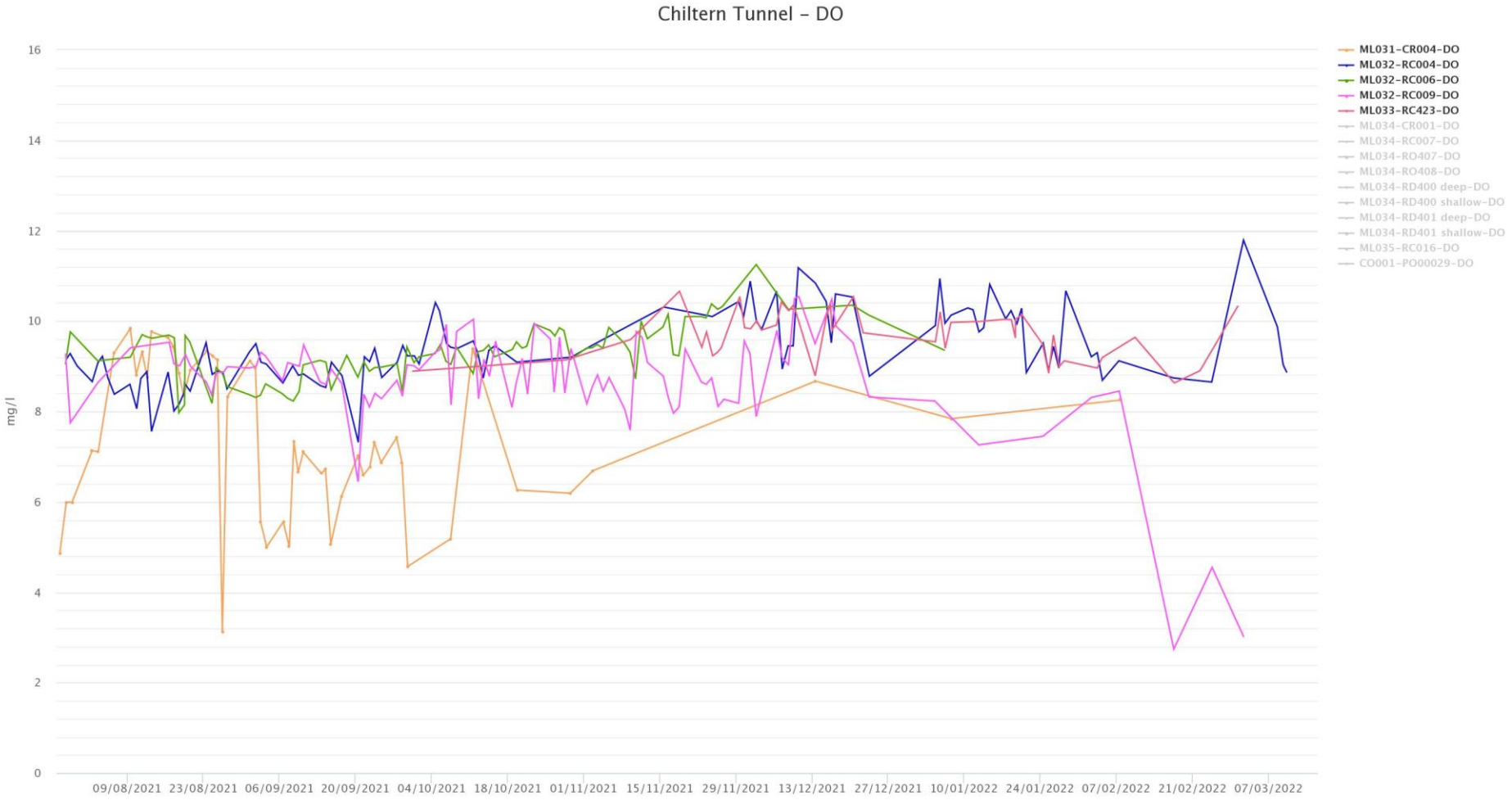
Chiltern Tunnel – PH




Chiltern Tunnel – EC
µS/cm
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
12/07/2021
26/07/2021
09/08/2021
23/08/2021
06/09/2021
20/09/2021
04/10/2021
18/10/2021
01/11/2021
15/11/2021
29/11/2021
13/12/2021
27/12/2021
10/01/2022
24/01/2022
07/02/2022
21/02/2022
07/03/2022
ML031-CR004-EC(Limit)
ML032-RC004-EC
ML032-RC006-EC
ML032-RC009-EC
ML033-RC423-EC
ML034-CR001-EC
ML034-RC007-EC
ML034-RO407-EC
ML034-RO408-EC
ML034-RD400 deep-EC
ML034-RD400 shallow-EC
ML034-RD401 deep-EC
ML034-RD401 shallow-EC
ML035-RC016-EC
CO001-PO00029-EC

Chiltern Tunnel – TURB




Chiltern Tunnel – DO
mg/l
16
14
12
10
8
6
4
2
0
09/08/2021
23/08/2021
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20/09/2021
04/10/2021
18/10/2021
01/11/2021
15/11/2021
29/11/2021
13/12/2021
27/12/2021
10/01/2022
24/01/2022
07/02/2022
21/02/2022
07/03/2022
ML031-CR004-DO
ML032-RC004-DO
ML032-RC006-DO
ML032-RC009-DO
ML033-RC423-DO
ML034-CR001-DO
ML034-RC007-DO
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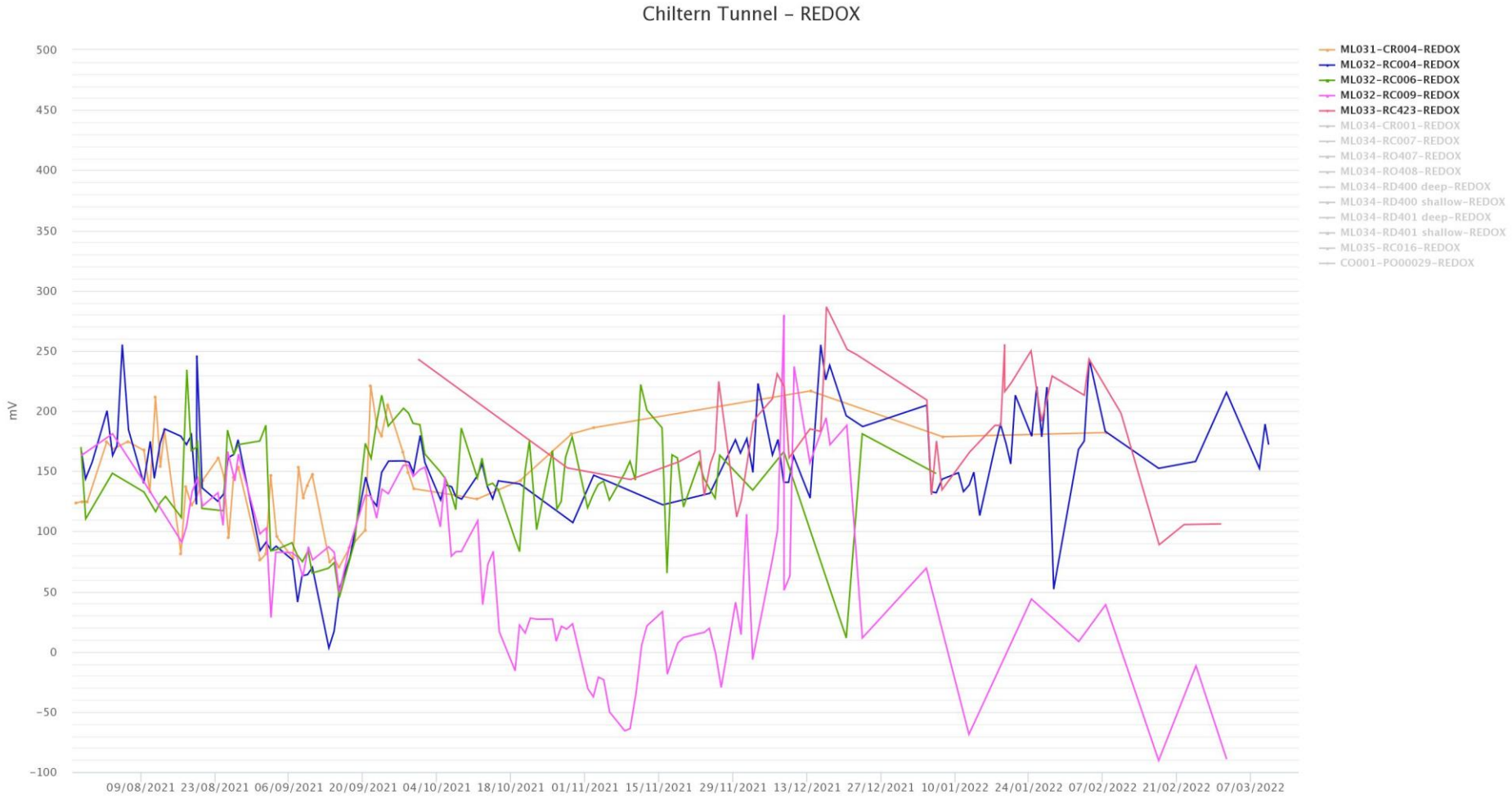
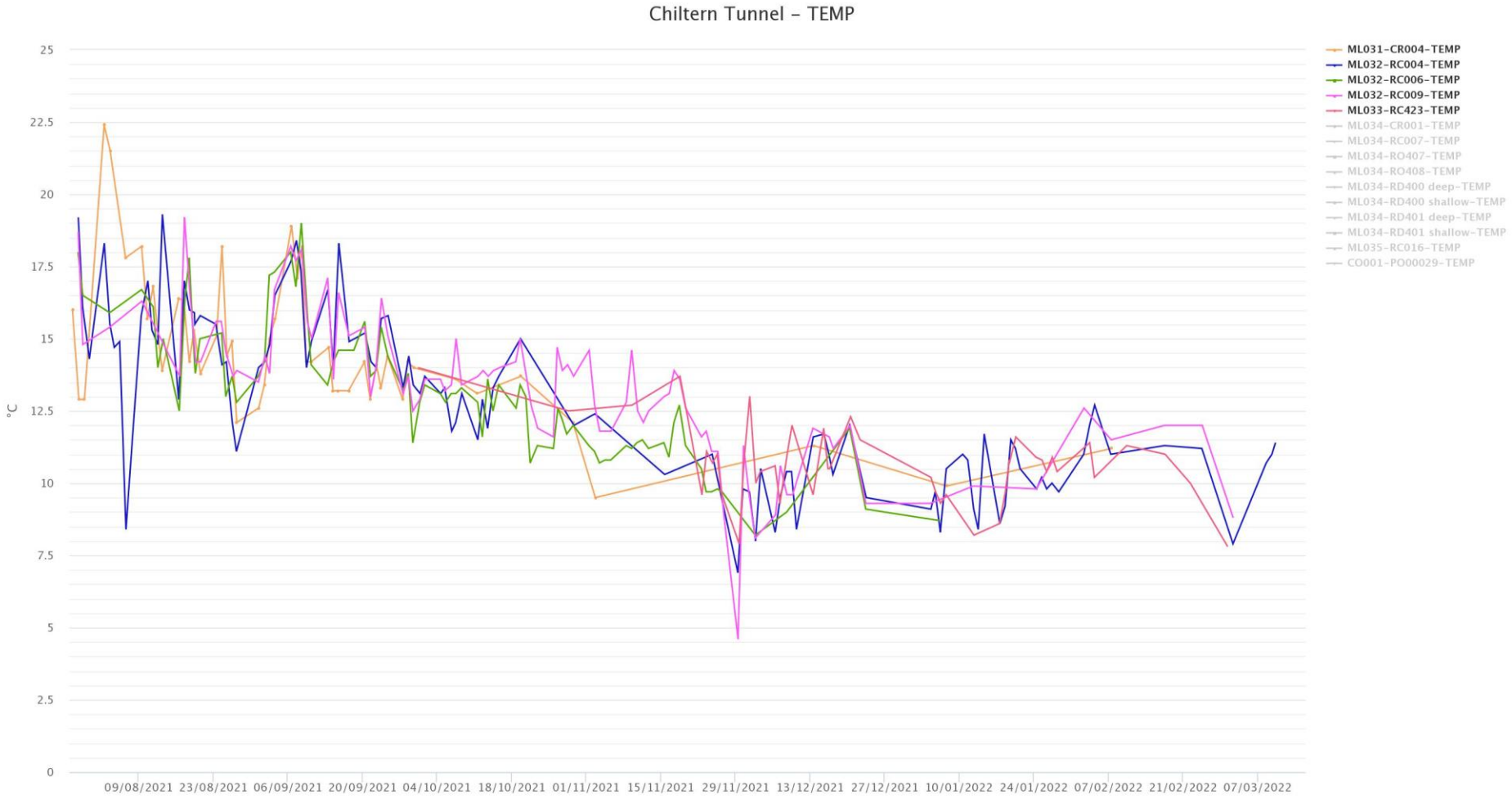
CO001-PO00029-DO


Chiltern Tunnel – REDOX
mV
500
450
400
350
300
250
200
150
100
50
0
-50
-100
09/08/2021 23/08/2021 06/09/2021 20/09/2021 04/10/2021 18/10/2021 01/11/2021 15/11/2021 29/11/2021 13/12/2021 27/12/2021 10/01/2022 24/01/2022 07/02/2022 21/02/2022 07/03/2022
ML031-CR004-REDOX
ML032-RC004-REDOX
ML032-RC006-REDOX
ML032-RC009-REDOX
ML033-RC423-REDOX
ML034-CR001-REDOX
ML034-RC007-REDOX
ML034-RO407-REDOX
ML034-RO408-REDOX
ML034-RD400 deep-REDOX
ML034-RD400 shallow-REDOX
ML034-RD401 deep-REDOX
ML034-RD401 shallow-REDOX
ML035-RC016-REDOX
CO001-PO00029-REDOX


Chiltern Tunnel – TEMP
°C
25
22.5
20
17.5
15
12.5
10
7.5
5
2.5
0
09/08/2021 23/08/2021 06/09/2021 20/09/2021 04/10/2021 18/10/2021 01/11/2021 15/11/2021 29/11/2021 13/12/2021 27/12/2021 10/01/2022 24/01/2022 07/02/2022 21/02/2022 07/03/2022
ML031-CR004-TEMP
ML032-RC004-TEMP
ML032-RC006-TEMP
ML032-RC009-TEMP
ML033-RC423-TEMP
ML034-CR001-TEMP
ML034-RC007-TEMP
ML034-RO407-TEMP
ML034-RO408-TEMP
ML034-RD400 deep-TEMP
ML034-RD400 shallow-TEMP
ML034-RD401 deep-TEMP
ML034-RD401 shallow-TEMP
ML035-RC016-TEMP
CO001-PO00029-TEMP

Appendix 2: Laboratory Results of Monitoring Samples

Lab Sample Number						2062267	2070027	2072988	2075683	2088772	2091799	2098643	2105216	2120420	2108068	2160056
Sample Reference						ML032-RC009	ML032-RC009	ML032-RC009	ML032-RC009 Post Purge	ML032-RC009	ML032-RC009	ML032-RC009 FINAL	ML032-RC009	ML032-RC009 FINAL	ML032-RC009	ML032-RC009_A
Date Sampled						26/10/2021	02/11/2021	04/11/2021	08/11/2021	18/11/2021	22/11/2021	26/11/2021	02/12/2021	16/12/2021	06/12/2021	02/02/2022
Analytical Parameter	**Units**	**Limit of detection**	**Accreditation Status**	**EQS Limit**	**EQS**											
General Inorganics																
pH	pH Units	N/A	ISO 17025	`6.5-10	DWG	11.3	11.6	11.3	**11.9**	**11.4**	**11.4**	**11.7**	**11.8**	**12**	**11.8**	**12.6**
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	2500	DWG	1100	1700	1300	**2300**	1300	1300	1900	2100	**2500**	2200	**10000**
Turbidity	NTU	1	NONE	-		16	29	64	300	12	11	47	160	8.1	24	17
Sulphate as SO4	mg/l	0.045	ISO 17025	250	DWG	63.7	41.5	35.1	44.9	31.9	33.4	32.1	34.1	32.8	37.1	46.1
Chloride	mg/l	0.15	ISO 17025	250	DWG	20	20	19	21	19	19	19	20	19	20	28
Total Phosphate as P	µg/l	20	ISO 17025	-		< 20	< 20	< 20	28	< 20	< 20	< 20	< 20	62	120	190
Fluoride	µg/l	50	ISO 17025	1500	DWG	470	350	280	440	130	160	250	350	220	440	430
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	390	DWG	98	130	83	140	94	120	160	180	170	190	**830**
Total Nitrogen (Kjeldahl)	mg/l	0.1	NONE	-		1.1	1	4.1	2.5	0.7	3.1	2.3	3.5	0.2	3.5	0.8
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	-		3.21	3.13	3	3.89	2.04	1.92	2.91	3.94	3.59	3.65	21.1
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	-		3.83	5.74	12.6	7.06	2.05	2	2.94	7.58	3.88	3.72	21.4
Nitrate as N	mg/l	0.01	ISO 17025	11.3	DWG	8.1	8.72	9.19	7.24	8.83	8.8	8.58	7.88	7.9	7.33	5.69
Nitrate as NO3	mg/l	0.05	ISO 17025	50	DWG	35.9	38.6	40.7	32.1	39.1	39	38	34.9	35	32.5	25.2
Nitrite as N	µg/l	1	ISO 17025	-		350	260	240	540	370	530	450	820	950	1200	2200
Nitrite as NO2	µg/l	5	ISO 17025	500	DWG	**1100**	**850**	**800**	**1800**	**1200**	**1700**	**1500**	**2700**	**3100**	**3800**	**7200**
Alkalinity as CaCO3 (titration)	mg/l	3	NONE	-		590	530	450	730	460	450	580	730	750	750	2500
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	-		16	9.5	18	21	< 2.0	7.4	8.6	19	19	28	63
Total Oxidised Nitrogen (TON)	mg/l	0.3	NONE	-		8.4	9	9.4	7.8	9.2	9.3	9	8.7	8.9	8.5	7.9
Total Suspended Solids	mg/l	2	ISO 17025	-		110	65	83	190	48	70	45	190	10	53	28
Total Dissolved Solids (Gravimetric)	mg/l	4	ISO 17025	-		660	1100	780	920	770	800	760	930	910	1100	5800
Hardness - Total	mgCaCO3/l	1	ISO 17025	-		4	3.8	1.8	4.2	20.1	4.8	44.6	4.8	28.4	9.1	1.3

Bicarbonate as HCO3 (titration)	mg/l	10	NONE	-		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Carbonate as CaCO3 (titration)	mg/l	10	NONE	-		380	340	340	410	340	290	320	430	320	410	620
Dissolved Oxygen	mg/l	1	NONE	-		8.1	6.6	9.1	11	9.2	10	7.1	10	5.5	10	8.3

Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	1000	DWG	24	23	56	37	19	25	18	20	20	43	23
Calcium (dissolved)	mg/l	0.012	ISO 17025	250	DWG	1.5	1.4	0.57	1.5	7.2	1.6	16	1.8	11	3.6	0.48
Chromium (hexavalent)	µg/l	5	ISO 17025	3.4	FW	U/S*	U/S*	**26**	**39**	**26**	**25**	**31**	**35**	U/S**	**36**	U/S*
Chromium (III)	µg/l	1	NONE	4.7	FW	U/S*	U/S*	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	U/S**	< 5.0	U/S*
Iron (dissolved)	mg/l	0.004	ISO 17025	200	DWG	0.21	0.092	0.067	0.45	0.12	0.066	0.16	0.19	0.16	0.14	0.29
Magnesium (dissolved)	mg/l	0.005	ISO 17025	50	DWG	0.056	0.083	0.097	0.11	0.54	0.18	0.95	0.05	0.066	0.039	0.025
Potassium (dissolved)	mg/l	0.025	ISO 17025	12	DWG	**38**	**43**	**35**	**55**	**39**	**40**	**49**	**60**	**63**	**50**	**210**
Sodium (dissolved)	mg/l	0.01	ISO 17025	200	DWG	**300**	**290**	**260**	**350**	**250**	**240**	**330**	**440**	**400**	**480**	**870**

Iron (total)	mg/l	0.004	ISO 17025	-		0.33	0.15	0.16	1.2	0.14	0.14	0.18	0.48	0.16	0.21	0.36
Phosphorus (total)	µg/l	20	ISO 17025	2200	DWG	80	78	55	130	33	55	45	210	64	110	170

Aluminium (dissolved)	mg/l	0.001	ISO 17025	0.2	DWG	**2.49**	**1.99**	**1.64**	**3.19**	**1.46**	**1.3**	**1.76**	**2.07**	**2.19**	**1.99**	**7.41**
Arsenic (dissolved)	µg/l	0.15	ISO 17025	10	DWG	4.9	5.11	3.7	7.61	3.93	4.52	4.14	6.28	7.37	7.18	**24.3**
Barium (dissolved)	µg/l	0.06	ISO 17025	700	DWG	2.3	1.5	0.9	3.3	2.2	0.83	1.1	2.3	13	7.5	7.7
Beryllium (dissolved)	µg/l	0.1	ISO 17025	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.08	DWG	< 0.02	< 0.02	< 0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Chromium (dissolved)	µg/l	0.2	ISO 17025	50	DWG	29	25	21	34	25	24	27	31	32	31	**68**
Copper (dissolved)	µg/l	0.5	ISO 17025	2000	DWG	6.4	7.9	6.5	14	5.7	5.9	6.6	8.8	18	9.7	56
Lead (dissolved)	µg/l	0.2	ISO 17025	10	DWG	0.2	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.3	< 0.2	0.6
Manganese (dissolved)	µg/l	0.05	ISO 17025	50	DWG	0.57	0.39	0.2	12	0.34	0.18	0.46	0.33	8.1	0.39	1.1
Mercury (dissolved)	µg/l	0.05	ISO 17025	1	DWG	0.09	0.07	0.05	0.08	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.06	0.13
Nickel (dissolved)	µg/l	0.5	ISO 17025	20	DWG	0.9	0.7	< 0.5	1.9	< 0.5	0.6	< 0.5	0.7	1.9	0.8	2.7

Selenium (dissolved)	µg/l	0.6	ISO 17025	10	DWG	2.2	2	1.8	2.3	1.9	1.8	1.8	2.1	2.3	2	5.4
Vanadium (dissolved)	µg/l	0.2	ISO 17025	20	FW	9.3	8.3	6.5	11	6.7	7.5	7.5	9.9	11	12	**39**
Zinc (dissolved)	µg/l	0.5	ISO 17025	5000	DWG	2	3.2	< 0.5	4	1.3	2.5	0.9	1.1	3.9	0.6	2

Manganese (total)	mg/l	0.00005	ISO 17025	-		0.0049	0.0018	0.0055	0.032	0.0047	0.0017	0.002	0.048	0.1	0.0087	0.0041

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	1	DWG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	700	DWG	6.6	1.7	< 1.0	6.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	300	DWG	6.4	1.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	500	DWG	30.1	7.5	< 1.0	7.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	500	DWG	17	5.3	< 1.0	5.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	-		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	10	DWG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	10	DWG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	10	DWG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	10	DWG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	10	DWG	6.6	1.7	< 1.0	6.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	10	DWG	61	18	< 1.0	13	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	10	DWG	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	10	DWG	68	20	< 10	20	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	10	DWG	68	20	< 10	20	< 10	< 10	< 10	< 10	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Chloroethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Bromomethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Vinyl Chloride	µg/l	1	NONE	0.5			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Trichlorofluoromethane	µg/l	1	NONE	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	7			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	3			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	50			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	40			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Trichloromethane	µg/l	1	ISO 17025	2.5			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	100			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	3			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Benzene	µg/l	1	ISO 17025	1			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0

Trichloroethene	µg/l	1	ISO 17025	10			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Dibromoethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Toluene	µg/l	1	ISO 17025	-			1.7	< 1.0	6.4	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	10			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Chlorobenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Ethylbenzene	µg/l	1	ISO 17025	-			1.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
p & m-Xylene	µg/l	1	ISO 17025	-			7.5	< 1.0	7.7	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Styrene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Tribromomethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
o-Xylene	µg/l	1	ISO 17025	-			5.3	< 1.0	5.6	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Isopropyl benzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Bromobenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	-			1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	-			2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0

p-Isopropyltoluene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Butylbenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		0.94
Phenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2-Chlorophenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2-Methylphenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Hexachloroethane	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Nitrobenzene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
4-Methylphenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Isophorone	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2-Nitrophenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Naphthalene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05

4-Chloroaniline	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Dimethylphthalate	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Dibenzofuran	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Diethyl phthalate	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
4-Nitroaniline	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Fluorene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Azobenzene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Anthracene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Carbazole	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Anthraquinone	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Pyrene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	-			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01

Chrysene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01
3&4-Methylphenol	µg/l	0.1	NONE				< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10		< 0.10
Miscellaneous Organics																
Petroleum Ether Extractable Matter	mg/l	4	NONE	-		< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	
Subcontracted analysis																
Chromium (VI)	µg/l	2	NONE	3.4	FW				To follow	To follow	To follow	**28.5**	See attached			See Attached

Lab Sample Number				2081410	2088773	2105217	2105191	2149858	2149846	2152282	2153578	2154337	2163032	2163039
Sample Reference				ML033-RC423	ML033-RC423	ML033-RC423	ML033-RC423	ML033-RO423	ML033-RC423	ML033-RC423	ML033-RC423	ML033-RC423	ML033-RC423_A	ML033-RC423_A
Date Sampled				09/11/2021	18/11/2021	02/12/2021	03/12/2021	24/01/2022	25/01/2022	26/01/2022	27/01/2022	28/01/2022	03/02/2022	04/02/2022
Analytical Parameter	**Units**	**Limit of detection**	**Accreditation Status**											
General Inorganics														
pH	pH Units	N/A	ISO 17025	7.4	7.9	7.2	7.3	7.4	7.9	7.3	7.4	7.4	7.1	7.2
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	500	560	610	500	530	560	510	480	520	550	560
Turbidity	NTU	1	NONE	7.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5.6
Sulphate as SO4	mg/l	0.045	ISO 17025	13.9	21.5	13.1	12.6	15.3	11.7	10.5	13.3	14.3	10.6	10.3
Chloride	mg/l	0.15	ISO 17025	22	22	21	22	22	21	22	22	25	22	22
Total Phosphate as P	µg/l	20	ISO 17025	41	< 20	48	38	40	35	38	45	46	29	< 20
Fluoride	µg/l	50	ISO 17025	56	< 50	< 50	< 50	76	71	71	81	78	73	70
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Total Nitrogen (Kjeldahl)	mg/l	0.1	NONE	1.2	0.6	3.6	3.2	0.3	0.4	0.6	0.6	1.1	< 0.1	< 0.1
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	0.63	1.73	1.35	0.62	1.42	1.35	0.37	1.82	2.07	< 0.10	0.18
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	0.69	5.09	5.16	0.65	1.42	1.46	0.38	1.89	2.17	0.13	0.23
Nitrate as N	mg/l	0.01	ISO 17025	8.68	8.83	9.73	9.04	9.89	10.2	9.89	10.7	9.31	9.86	10.7

Nitrate as NO3	mg/l	0.05	ISO 17025	38.4	39.1	43.1	40.1	43.8	45	43.8	47.4	41.2	43.7	47.5
Nitrite as N	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	3.1	4.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrite as NO2	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	10	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Alkalinity as CaCO3 (titration)	mg/l	3	NONE	300	300	340	330	260	230	290	290	300	310	300
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	< 2.0	17	3.2	4.2	2.7	8.8	2.3	< 2.0	3	< 2.0	2.7
Total Oxidised Nitrogen (TON)	mg/l	0.3	NONE	8.7	8.8	9.7	9	9.9	10	9.9	11	9.3	9.9	11
Total Suspended Solids	mg/l	2	ISO 17025	69	150	9	2	5	2	< 2.0	3	< 2.0	4	3
Total Dissolved Solids (Gravimetric)	mg/l	4	ISO 17025	410	340	470	410	390	450	440	280	400	310	350

Hardness - Total	mgCaCO3/l	1	ISO 17025	395	418	379	377	460	321	298	451	405	307	309
Bicarbonate as HCO3 (titration)	mg/l	10	NONE	370	360	410	400	310	280	360	350	360	380	360
Carbonate as CaCO3 (titration)	mg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Dissolved Oxygen	mg/l	1	NONE	9.3	9.4	10	10	9.4	9.8	9.7	8.9	9	10	9.4

Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	28	34	21	22	31	22	21	27	26	20	21
Calcium (dissolved)	mg/l	0.012	ISO 17025	150	160	150	150	180	120	120	180	160	120	120
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	3.9	2.6	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Iron (dissolved)	mg/l	0.004	ISO 17025	0.013	0.036	0.012	0.015	0.024	0.004	0.014	< 0.004	< 0.004	0.006	< 0.004

Magnesium (dissolved)	mg/l	0.005	ISO 17025	2.7	3.7	2.7	2.7	3.2	2.4	2.2	2.8	2.8	2.4	2.3
Potassium (dissolved)	mg/l	0.025	ISO 17025	1.5	2.1	1.6	1.7	2.1	1.3	1.4	2.1	1.6	1.4	1.3
Sodium (dissolved)	mg/l	0.01	ISO 17025	11	19	16	13	16	11	11	14	14	11	10
Iron (total)	mg/l	0.004	ISO 17025	0.11	0.35	0.014	0.051	0.026	0.024	0.041	0.009	< 0.004	0.034	0.005
Phosphorus (total)	µg/l	20	ISO 17025	73	130	53	33	60	50	54	59	59	44	35
Aluminium (dissolved)	mg/l	0.001	ISO 17025	0.0251	0.0035	0.0164	0.0128	0.0043	0.0047	0.0032	< 0.0010	< 0.0010	0.0044	0.0028
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.36	< 0.15	0.44	0.65	0.37	0.38	0.23	< 0.15	0.18	0.29	0.28
Barium (dissolved)	µg/l	0.06	ISO 17025	41	39	35	37	36	38	37	40	43	38	36
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.9	2.6	3.5	3.7	2.7	2.3	2.5	3.5	3.1	3.2	2.7
Copper (dissolved)	µg/l	0.5	ISO 17025	3.1	3.5	3.7	4.5	13	12	17	2.6	27	53	47
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	2.3	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	2.4	0.5	4	3.3	3.2	2.2	0.97	0.54	0.78	0.88	0.73
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Nickel (dissolved)	µg/l	0.5	ISO 17025	2	1.8	1.8	2	2.2	2.4	2.2	2.3	2.2	1.9	1.7
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.8	0.6	0.8	0.7	0.9	0.8	0.7	0.6	0.6	0.7	0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.6	< 0.2	0.6	0.6	0.4	0.4	0.3	0.2	0.3	0.3	0.4
Zinc (dissolved)	µg/l	0.5	ISO 17025	8.1	4.1	5.6	7.1	5.7	9.1	11	8.1	70	4.1	2.7

Manganese (total)	mg/l	0.00005	ISO 17025	0.031	0.0096	0.0046	0.0065	0.011	0.0034	0.0014	0.0042	0.0019	0.001	0.0008

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10

Project / Site name: HS2							
Lab Sample Number				2057444	2057413	2062268	2070026
Sample Reference				ML032-RC006	ML032-RC006	ML032-RC006	ML032-RC006
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				20/10/2021	21/10/2021	26/10/2021	02/11/2021
Time Taken				None Supplied	0900	1700	None Supplied
Analytical Parameter	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	7.7	7.5	7.4	7.7
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	520	580	510	570
Turbidity	NTU	1	NONE	I/S	< 1.0	3.3	42
Sulphate as SO4	mg/l	0.045	ISO 17025	I/S	39.2	30.1	29.9
Chloride	mg/l	0.15	ISO 17025	23	23	24	23
Total Phosphate as P	µg/l	20	ISO 17025	I/S	26	37	41
Fluoride	µg/l	50	ISO 17025	78	70	81	62
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	< 15	15	16	< 15
Total Nitrogen (Kjeldahl)	mg/l	0.1	NONE	< 0.1	0.1	0.9	0.9
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	0.76	0.63	0.78	0.51
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	4.21	0.73	0.9	4.41
Nitrate as N	mg/l	0.01	ISO 17025	9.83	9.44	9.49	8.54
Nitrate as NO3	mg/l	0.05	ISO 17025	43.5	41.8	42	37.8
Nitrite as N	µg/l	1	ISO 17025	6.9	6.9	3.3	< 1.0
Nitrite as NO2	µg/l	5	ISO 17025	23	23	11	< 5.0
Alkalinity as CaCO3 (titration)	mg/l	3	NONE	280	270	280	300
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	I/S	< 2.0	11	3.6
Total Oxidised Nitrogen (TON)	mg/l	0.3	NONE	9.8	9.4	9.5	8.5
Total Suspended Solids	mg/l	2	ISO 17025	44	< 2.0	10	15
Total Dissolved Solids (Gravimetric)	mg/l	4	ISO 17025	350	380	320	350
Hardness - Total	mgCaCO3/l	1	ISO 17025	I/S	362	327	363
Bicarbonate as HCO3 (titration)	mg/l	10	NONE	350	330	350	360
Carbonate as CaCO3 (titration)	mg/l	10	NONE	< 10	< 10	< 10	< 10
Dissolved Oxygen	mg/l	1	NONE	9.6	8.6	9.7	9.2
Heavy Metals / Metalloids							
Boron (dissolved)	µg/l	10	ISO 17025	I/S	27	30	31
Calcium (dissolved)	mg/l	0.012	ISO 17025	I/S	140	130	140
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	6.3	6.5	4.3	3.7
Iron (dissolved)	mg/l	0.004	ISO 17025	I/S	0.006	< 0.004	0.008
Magnesium (dissolved)	mg/l	0.005	ISO 17025	I/S	2.9	2.7	2.8
Potassium (dissolved)	mg/l	0.025	ISO 17025	I/S	1.8	1.6	2.1
Sodium (dissolved)	mg/l	0.01	ISO 17025	I/S	17	14	14
Iron (total)	mg/l	0.004	ISO 17025	0.064	0.024	0.035	0.06
Phosphorus (total)	µg/l	20	ISO 17025	51	51	40	80
Aluminium (dissolved)	mg/l	0.001	ISO 17025	0.0143	0.0062	0.0021	0.0668
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.36	0.3	0.3	0.28
Barium (dissolved)	µg/l	0.06	ISO 17025	35	37	36	33
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	6.3	6.5	4.3	3.7
Copper (dissolved)	µg/l	0.5	ISO 17025	3.5	3.5	4.6	2.9
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	6.6	1.4	1.3	2.4
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.13	0.17	0.06	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.4	3.1	2.4	2.1
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.9	0.9	1.1	1
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.5	0.4	0.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	24	7.6	7.8	4.1
Manganese (total)	mg/l	0.00005	ISO 17025	0.0067	0.0024	0.0028	0.011

Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	I/S	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	I/S	< 10	< 10	< 10
VOCs							
Chloromethane	µg/l	1	ISO 17025				< 1.0
Chloroethane	µg/l	1	ISO 17025				< 1.0
Bromomethane	µg/l	1	ISO 17025				< 1.0
Vinyl Chloride	µg/l	1	NONE				< 1.0
Trichlorofluoromethane	µg/l	1	NONE				< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025				< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025				< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025				< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025				< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025				< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025				< 1.0
Trichloromethane	µg/l	1	ISO 17025				< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025				< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025				< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025				< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025				< 1.0
Benzene	µg/l	1	ISO 17025				< 1.0
Tetrachloromethane	µg/l	1	ISO 17025				< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025				< 1.0
Trichloroethene	µg/l	1	ISO 17025				< 1.0
Dibromomethane	µg/l	1	ISO 17025				< 1.0
Bromodichloromethane	µg/l	1	ISO 17025				< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025				< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025				< 1.0
Toluene	µg/l	1	ISO 17025				< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025				< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025				< 1.0
Dibromochloromethane	µg/l	1	ISO 17025				< 1.0
Tetrachloroethene	µg/l	1	ISO 17025				< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025				< 1.0
Chlorobenzene	µg/l	1	ISO 17025				< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025				< 1.0
Ethylbenzene	µg/l	1	ISO 17025				< 1.0
p & m-Xylene	µg/l	1	ISO 17025				< 1.0
Styrene	µg/l	1	ISO 17025				< 1.0
Tribromomethane	µg/l	1	ISO 17025				< 1.0
o-Xylene	µg/l	1	ISO 17025				< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025				< 1.0
Isopropylbenzene	µg/l	1	ISO 17025				< 1.0
Bromobenzene	µg/l	1	ISO 17025				< 1.0
n-Propylbenzene	µg/l	1	ISO 17025				< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025				< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025				< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025				< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025				< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025				< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025				< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025				< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025				< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025				< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025				< 1.0
Butylbenzene	µg/l	1	ISO 17025				< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025				< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025				< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025				< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025				< 1.0

SVOCs							
Aniline	µg/l	0.05	NONE				< 0.05
Phenol	µg/l	0.05	NONE				< 0.05
2-Chlorophenol	µg/l	0.05	NONE				< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE				< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE				< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE				< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE				< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE				< 0.05
2-Methylphenol	µg/l	0.05	NONE				< 0.05
Hexachloroethane	µg/l	0.05	NONE				< 0.05
Nitrobenzene	µg/l	0.05	NONE				< 0.05
4-Methylphenol	µg/l	0.05	NONE				< 0.05
Isophorone	µg/l	0.05	NONE				< 0.05
2-Nitrophenol	µg/l	0.05	NONE				< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE				< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE				< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE				< 0.05
Naphthalene	µg/l	0.01	ISO 17025				< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE				< 0.05
4-Chloroaniline	µg/l	0.05	NONE				< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE				< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE				< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE				< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE				< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE				< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE				< 0.05
Dimethylphthalate	µg/l	0.05	NONE				< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE				< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025				< 0.01
Acenaphthene	µg/l	0.01	ISO 17025				< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE				< 0.05
Dibenzofuran	µg/l	0.05	NONE				< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE				< 0.05
Diethyl phthalate	µg/l	0.05	NONE				< 0.05
4-Nitroaniline	µg/l	0.05	NONE				< 0.05
Fluorene	µg/l	0.01	ISO 17025				< 0.01
Azobenzene	µg/l	0.05	NONE				< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE				< 0.05
Hexachlorobenzene	µg/l	0.05	NONE				< 0.05
Phenanthrene	µg/l	0.01	ISO 17025				< 0.01
Anthracene	µg/l	0.01	ISO 17025				< 0.01
Carbazole	µg/l	0.05	NONE				< 0.05
Dibutyl phthalate	µg/l	0.05	NONE				< 0.05
Anthraquinone	µg/l	0.05	NONE				< 0.05
Fluoranthene	µg/l	0.01	ISO 17025				< 0.01
Pyrene	µg/l	0.01	ISO 17025				< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE				< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025				< 0.01
Chrysene	µg/l	0.01	ISO 17025				< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025				< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025				< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025				< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025				< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025				< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025				< 0.01
3&4-Methylphenol	µg/l	0.1	NONE				< 0.10
Miscellaneous Organics							
Petroleum Ether Extractable Matter	mg/l	4	NONE	I/S	< 4.0	< 4.0	< 4.0
U/S = Unsuitable Sample I/S = Insufficient Sample							
*U/S due to high variances between chromium (hexavalent) and chromium (dissolved) caused by method differences.							

Appendix 3: Additional Samples

Slurry Sample Results:

Solids	Chemtest Job No.:					21-39907
	Chemtest Sample ID.:					1319301
	Client Sample Ref.:					TBM-Slurry
	Client Sample ID.:					TBM-Slurry
	Sample Location:					Silo B1-1
	Sample Type:					SOIL
	Date Sampled:					11-Nov-2021
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
pH	U	1010	2:1		N/A	10.0
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	1300
Alkalinity (Bicarbonate)	U	1220	2:1	mg CaCO3/l	10	12
Chloride	U	1220	2:1	mg/l	1.0	17
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.25
Nitrite as N	U	1220	2:1	mg/l	0.010	0.22
Nitrate as N	U	1220	2:1	mg/l	0.20	0.75
Phosphate	U	1220	2:1	mg/l	0.200	< 0.20
Sulphate	U	1220	2:1	mg/l	1.0	720
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050
Calcium	U	1455	2:1	mg/l	2.00	270
Potassium	U	1455	2:1	mg/l	0.50	3.7
Magnesium	U	1455	2:1	mg/l	0.20	0.55
Sodium	U	1455	2:1	mg/l	1.50	20
Aluminium (Dissolved)	N	1455	2:1	µg/l	5.0	12
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	< 0.20
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	54
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	< 0.11
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	3.5
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	1.6
Manganese (Dissolved)	U	1455	2:1	µg/l	0.50	1.2
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5
Mercury Low Level	U	1460	2:1	µg/l	0.010	< 0.010
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	< 5.0
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	1.2
Chromium (Trivalent) LL	N	1450	2:1	µg/l	1	2
C2 Total TPH >C6-C40	U	1670	2:1	µg/l	10	< 10
C2 Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	5.0	< 5.0

C2 Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
C2 Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
C2 Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	10	< 10
Dissolved Organic Carbon	U	1610	2:1	mg/l	2.0	3.9

Determinand	Liquid	
Calcium	2020	mg/l
Magnesium	18	mg/l
Sodium	69	mg/l
Potassium	22	mg/l
Iron	<0.2	mg/l
Aluminium	<0.1	mg/l
Total Chromium	<10	ug/l
Hexavalent Chromium	<5	ug/l
Trivalent Chromium	<10	ug/l
Chloride	40	mg/l
Sulphate	2100	mg/l
Alkalinity as $CaCO_3$	120	mg/l
Total Nitrogen	<3	mg/l
Nitrate	19.7	mg/l
Nitrite	483	ug/l
Ammoniacal Nitrogen as N	3	mg/l
Total Phosphorus	<0.5	mg/l
Phosphate	0.15	mg/l
GRO (TPH >C6-C10)		mg/l
EDRO (TPH (>C10-C40)		mg/l
pH	10.55	pH units
Electrical Conductivity	3611	uS/cm
Turbidity	8.4	NTU

Extended Purging Sample Results:

Lab Sample Number				2098638	2098639	2098640	2098641	2098642	2098643
Sample Reference				ML032-RC009 0 min	ML032-RC009 15 min	ML032-RC009 100 min	ML032-RC009 130 min	ML032-RC009 180 min	ML032-RC009 340 min
Date Sampled				26/11/2021	26/11/2021	26/11/2021	26/11/2021	26/11/2021	26/11/2021
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
General Inorganics									
pH	pH Units	N/A	ISO 17025	11.4	12.1	11.2	11.3	11.6	11.7
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	1500	3700	1300	1300	1800	1900
Turbidity	NTU	1	NONE	91	36	33	29	38	47
Sulphate as SO4	mg/l	0.045	ISO 17025	31.9	45.9	28.8	29.3	31.5	32.1
Chloride	mg/l	0.15	ISO 17025	18	21	18	18	19	19
Total Phosphate as P	µg/l	20	ISO 17025	< 20	< 20	< 20	< 20	< 20	< 20
Fluoride	µg/l	50	ISO 17025	230	510	240	230	260	250
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	94	250	120	120	150	160
Total Nitrogen (Kjeldahl)	mg/l	0.1	NONE	2.9	2.8	2.5	2.4	2.3	2.3
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	4.58	5.03	2.25	2.23	2.62	2.91
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	6.38	5.38	16.9	2.74	2.66	2.94
Nitrate as N	mg/l	0.01	ISO 17025	8.48	7.52	8.73	8.45	8.32	8.58
Nitrate as NO3	mg/l	0.05	ISO 17025	37.6	33.3	38.7	37.4	36.9	38.0

Nitrite as N	µg/l	1	ISO 17025	520	1400	400	400	460	450
Nitrite as NO2	µg/l	5	ISO 17025	1700	4700	1300	1300	1500	1500
Alkalinity as CaCO3 (titration)	mg/l	3	NONE	480	990	440	450	550	580
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	30	22	9.2	13	12	8.6
Total Oxidised Nitrogen (TON)	mg/l	0.02	NONE	9.0	9.0	9.1	8.8	8.8	9.0
Total Suspended Solids	mg/l	2	ISO 17025	51	16	12	44	37	45
Total Dissolved Solids (Gravimetric)	mg/l	4	ISO 17025	690	1100	580	600	710	760

Hardness - Total	mgCaCO3/l	1	ISO 17025	9.4	27.0	42.0	34.3	35.1	44.6
Bicarbonate as HCO3 (titration)	mg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Carbonate as CaCO3 (titration)	mg/l	10	NONE	330	420	330	300	300	320
Dissolved Oxygen	mg/l	1	NONE	5.7	4.0	6.8	6.8	6.3	7.1

Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	23	20	21	22	22	18
Calcium (dissolved)	mg/l	0.012	ISO 17025	3.5	11	15	12	13	16
Chromium (hexavalent)	µg/l	5	ISO 17025	30	U/S*	24	25	30	31
Chromium (III)	µg/l	5	NONE	< 5.0	U/S*	< 5.0	< 5.0	< 5.0	< 5.0
Iron (dissolved)	mg/l	0.004	ISO 17025	0.31	0.23	0.059	0.061	0.099	0.16
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.18	0.018	1.0	0.97	0.86	0.95
Potassium (dissolved)	mg/l	0.025	ISO 17025	40	83	37	38	45	49
Sodium (dissolved)	mg/l	0.01	ISO 17025	250	540	250	250	280	330

Iron (total)	mg/l	0.004	ISO 17025	0.37	0.32	0.086	0.10	0.16	0.18
Phosphorus (total)	µg/l	20	ISO 17025	130	94	28	31	42	45

Aluminium (dissolved)	mg/l	0.001	ISO 17025	1.75	3.72	1.20	1.24	1.73	1.76
Arsenic (dissolved)	µg/l	0.15	ISO 17025	4.91	9.42	3.72	3.65	4.22	4.14
Barium (dissolved)	µg/l	0.06	ISO 17025	3.7	6.2	0.97	1.3	1.4	1.1
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	26	46	21	21	27	27
Copper (dissolved)	µg/l	0.5	ISO 17025	15	15	5.3	4.7	12	6.6
Lead (dissolved)	µg/l	0.2	ISO 17025	0.6	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	4.9	0.54	0.27	0.33	0.58	0.46
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.06	0.09	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.7	1.1	< 0.5	< 0.5	0.8	< 0.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.8	2.9	1.6	1.6	1.7	1.8
Vanadium (dissolved)	µg/l	0.2	ISO 17025	10	17	6.5	6.5	7.7	7.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.8	1.3	0.7	0.8	1.7	0.9

Manganese (total)	mg/l	0.00005	ISO 17025	0.054	0.0048	0.0024	0.0028	0.0030	0.0020

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Miscellaneous Organics

Petroleum Ether Extractable Matter	mg/l	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0

U/S = Unsuitable Sample I/S = Insufficient Sample

*U/S due to high variances between chromium (hexavalent) and chromium (dissolved) caused by method differences.