

WATER QUALITY DATA – QUARTERLY SUMMARY (JUNE 2025)

WRESSLE-1 WELLSITE, NORTH LINCOLNSHIRE



For

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WATER QUALITY DATA – QUARTERLY SUMMARY

WRESSLE-1 WELLSITE, NORTH LINCOLNSHIRE

1 INTRODUCTION

1.1 Background

Egdon Resources U.K. Limited (Egdon) has developed the Wressle-1 wellsite (the “Site”) on farmland at Lodge Farm, Appleby, North Lincolnshire.

Egdon holds an environmental permit EPR/AB3609XX/V004 [Ref.1] for the Site, which requires groundwater monitoring to be carried out for a range of specific chemical and physico-chemical parameters. A Groundwater Monitoring Plan (GMP) [Ref. 2] was developed by Egdon and agreed with the Environment Agency. The GMP, in conjunction with the environmental permit, sets out the frequency of monitoring, the method of sampling and the monitoring parameters. Any changes to the GMP must be agreed upon with the Environment Agency.

Baseline monitoring was carried out by Envireau Water in April – July 2020 prior to the development of the Site [Ref. 3]. The Site was constructed in Autumn – Winter 2020 and operational monitoring began in January 2021.

The environmental permit requires Egdon to report on the operational monitoring data quarterly and to submit a report to the Environment Agency within 28 days of the end of the reporting period.

1.2 Purpose of This Report

This report presents a factual summary of all the monitoring data collected at the Site, with a focus on the data collected in June 2025 (Round 45).

Detailed information regarding the scheme of monitoring and sampling methods can be found in Ref. 3.

This report is updated quarterly. There have been 18 quarterly reports issued, with the first report issued in March 2021.

2 SCHEME OF MONITORING

2.1 Overview

The current scheme of monitoring comprises groundwater monitoring in the Unconsolidated Sands aquifer (GWMBH1R, GWMBH2R, GWMBH3R, and GWMBH5) and the Lincolnshire Limestone aquifer (GWMBH4) at the Site.

In August 2021, monitoring of the discharge of treated site surface water to the Ella Beck was added to the environmental permit (EPR/AB3609XX/V006). Monitoring occurs at the point of discharge (DP) before being discharged to the Ella Beck.

In September 2024, the requirement for surface water monitoring in the Ella Beck (EB1, EB2 and EB3) was removed from the scheme of monitoring, as agreed between Egdon and the Environment Agency. An application has been made to the Environment Agency to vary the permit to account for the revised scheme of monitoring.

The locations of the monitoring points are shown in Figure 1.

2.2 Monitoring Frequency

A summary of the monitoring undertaken to date is presented in Appendix A. The monitoring reflects the requirements of the environmental permit.

2.3 Analytical Parameters

The required analytical parameters are specified in the environmental permit for the Site [Ref. 1] and are included in full in Appendix B. A reduced suite of groundwater analytical parameters has been agreed between Egdon and the Environment Agency for Round 10 (and future sampling rounds, excluding sampling at the time of the proppant squeeze in July 2021, when a full suite of analyses was required).

3 SUMMARY OF DATA COLLECTED IN JUNE 2025

Sampling at the designated monitoring points was completed on the 10th of June 2025. Selected chemical indicators are plotted graphically (Figures 2 & 3) to illustrate the trends in water chemistry across the monitoring period.

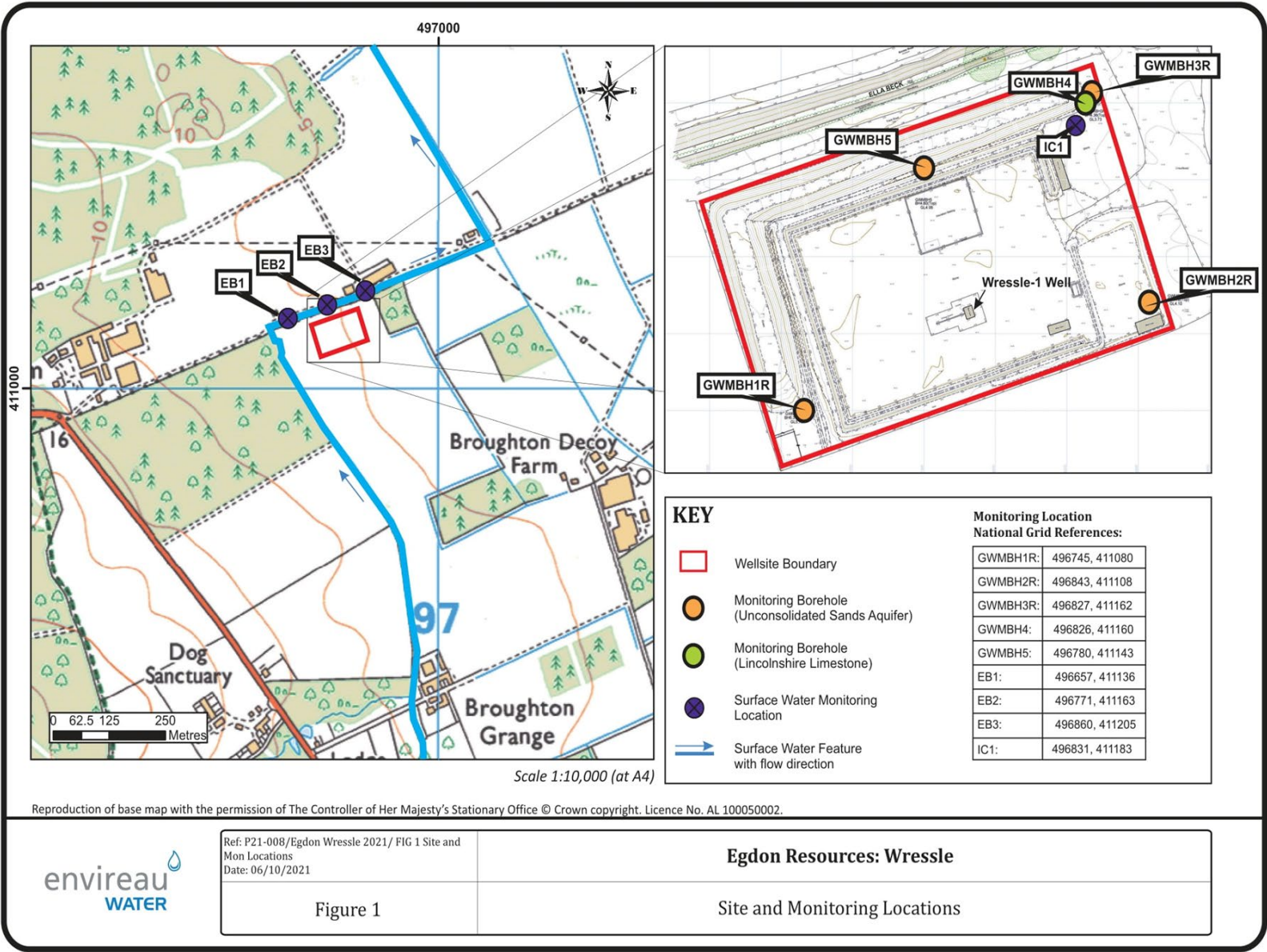
The field and laboratory data collected in June 2025 were broadly consistent with the baseline data and previous operational monitoring rounds, with key observations including:

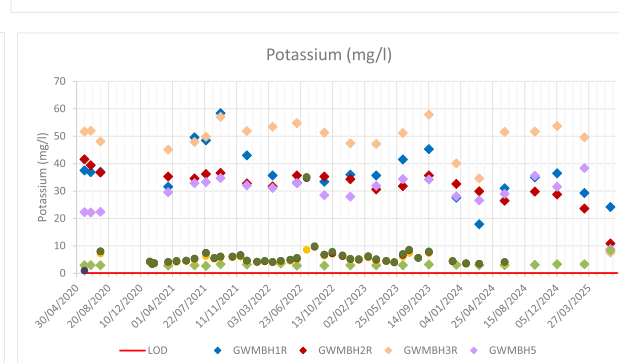
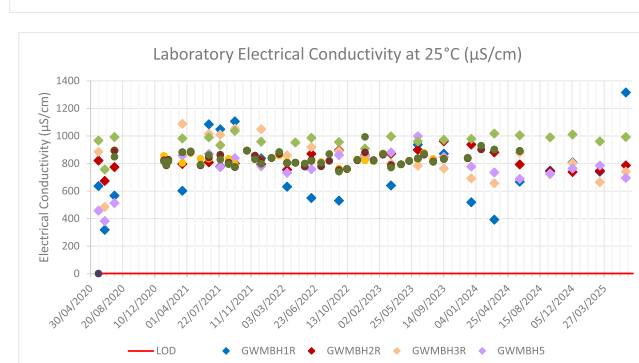
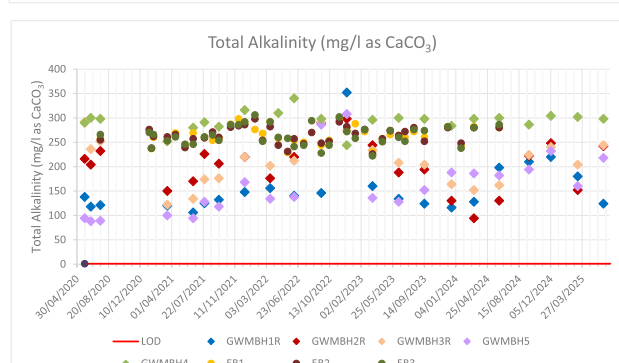
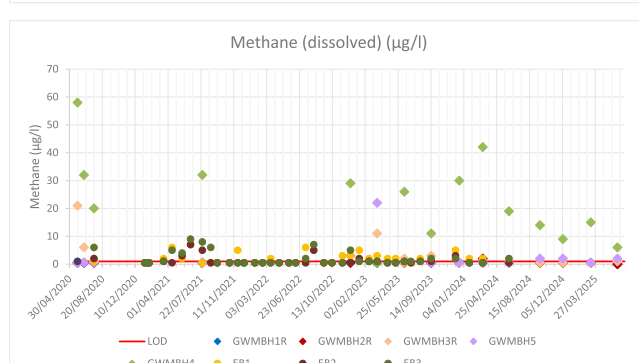
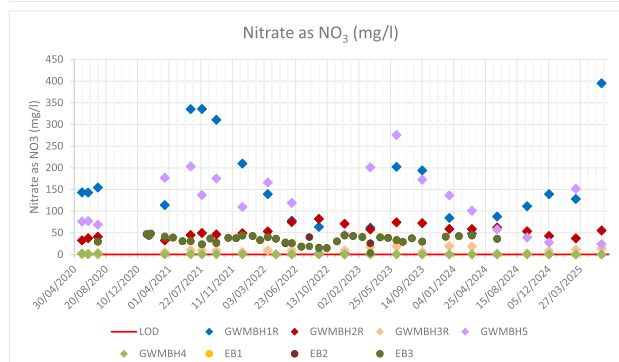
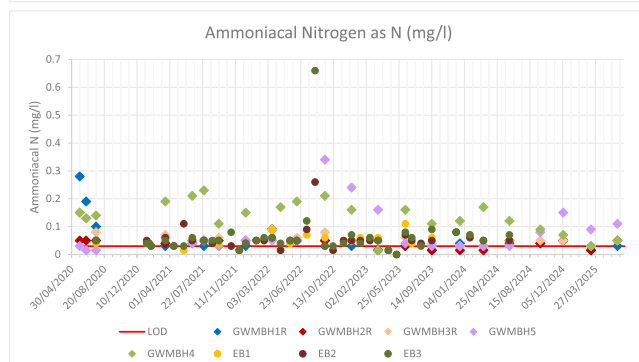
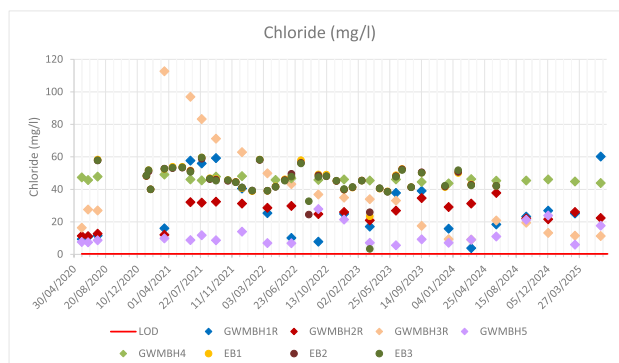
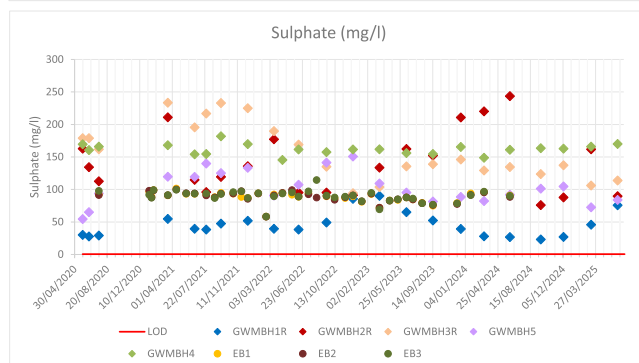
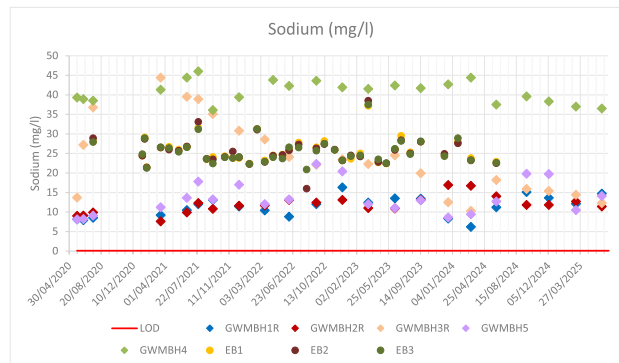
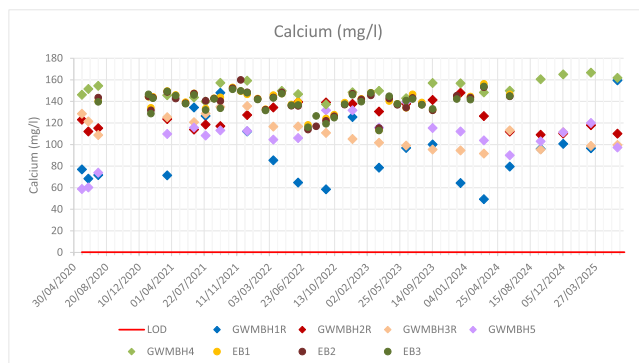
- No visible oil or grease was observed during sampling.
- No volatile or semi-volatile organic compounds (VOC or SVOC), extractable petroleum hydrocarbons, or alcohols/acetates were detected in any of the samples (all values were below the limit of detection).
- Concentrations of dissolved methane were either below the Limit Of Detection (LOD) or at very low concentrations and consistent with the baseline data.
- The laboratory data displays good reproducibility. Ionic balances are < ±5%, which is within acceptable criteria.

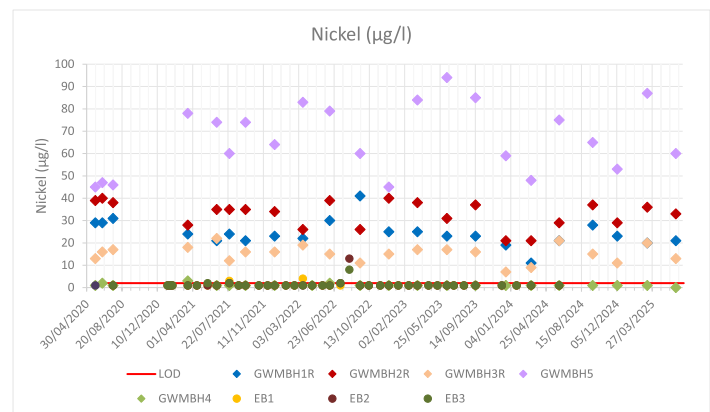
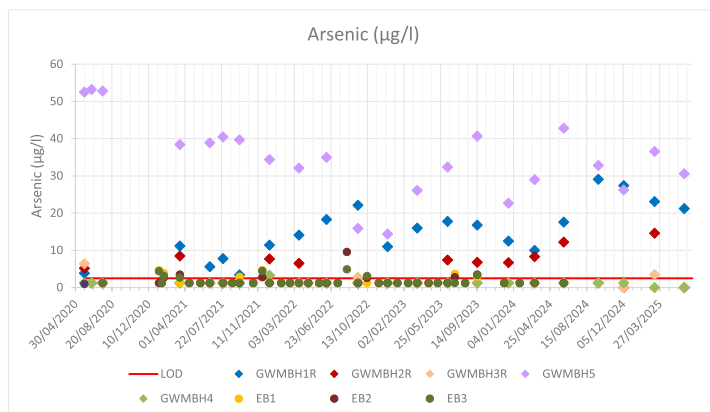
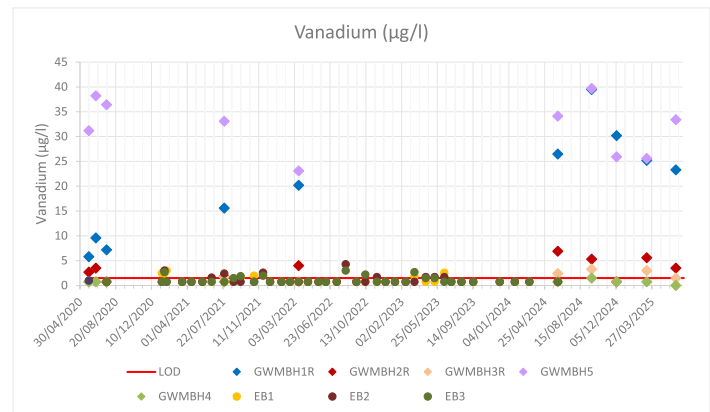
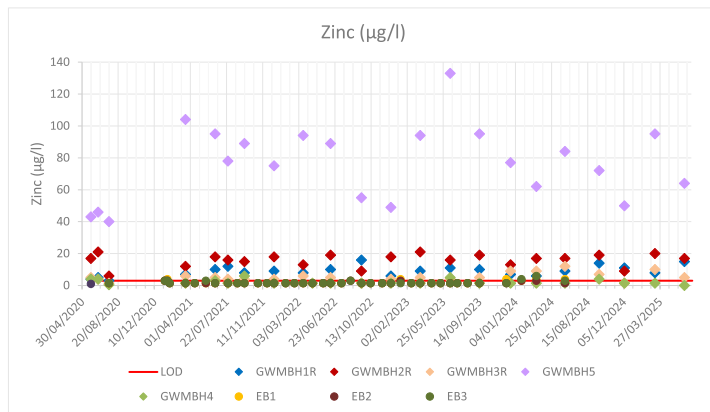
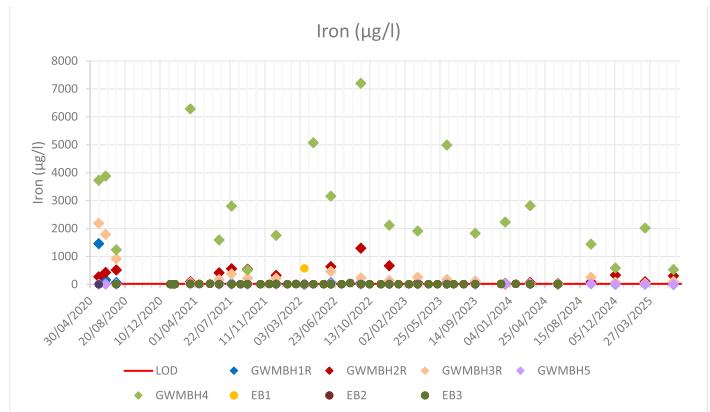
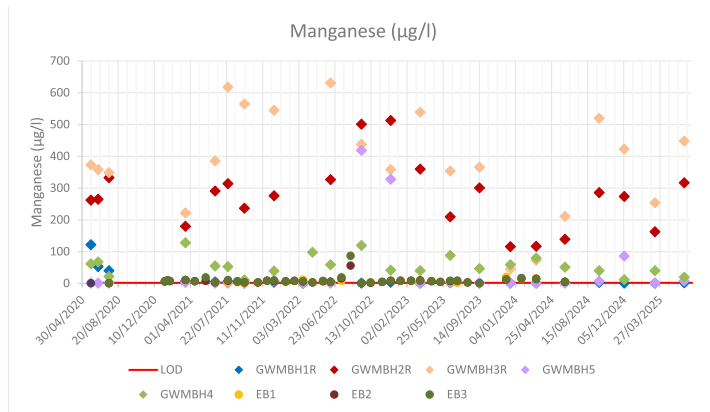
REFERENCES

- Ref. 1 Permit Number: EPR/AB3609XX. Variation Number EPR/AB3609XX/V004. Egdon Resources UK Limited Wressle 1, Lodge Farm, Clapp Gate, Broughton and Appleby, Scunthorpe, DN15 0DB
- Ref. 2 Groundwater Monitoring Plan. Egdon Resources, 7/02/2017. Document Reference: ER-EPRA-W1-GWMP-001.
- Ref.3 Baseline Water Quality Data. Prepared by Envireau Water for Egdon Resources June 2024.

FIGURES







APPENDIX A
MONITORING SUMMARY

Sample Round	Phase	Date	Monitoring Location								
			GWMB H1R	GWM BH2R	GWMB H3R	GWMB H4	GWMB H5	EB1	EB2	EB3	DP
1	Baseline/P re-Operational	27/05/2020	X	X	X	X	X	-	-	-	-
2		18/06/2020	X	X	X	X	X	-	-	-	-
3		22/07/2020	X	X	X	X	X	X	X	X	-
4	Workover & Re-Perforation	11/01/2021	-	-	-	-	-	X	X	X	-
5		19/01/2021	-	-	-	-	-	X	X	X	-
6		26/01/2021	-	-	-	-	-	X	X	X	-
7	Operational	16/03/2021	X	X	X	X	X	X	X	X	-
8		14/04/2021	-	-	-	-	-	X	X	X	-
9		18/05/2021	-	-	-	-	-	X	X	X	-
10		16/06/2021	X	X	X	X	X	X	X	X	-
11	Proppant Squeeze	26/07/2021	X	X	X	X	X	X	X	X	-
12	Operational	24/08/2021	-	-	-	-	-	X	X	X	-
13		15/09/2021	X	X	X	X	X	X	X	X	X
14		27/10/2021	-	-	-	-	-	X	X	X	X
15		24/11/2021	-	-	-	-	-	X	X	X	-
16		16/12/2021	X	X	X	X	X	X	X	X	X
17		21/01/2022	-	-	-	-	-	X	X	X	-
18		17/02/2022	-	-	-	-	-	X	X	X	-
19		16/03/2022	X	X	X	-	X	X	X	X	-
20		14/04/2022	X	X	X	X	X	X	X	X	X
21		17/05/2022	-	-	-	-	-	X	X	X	X
22		09/06/2022	X	X	X	X	X	X	X	X	X
23		13/07/2022	-	-	-	-	-	X	X	X	-
24		10/08/2022	-	-	-	-	-	-	X	X	X
25		13/09/2022	X	X	X	X	X	X	X	X	X
26		11/10/2022	-	-	-	-	-	X	X	X	X
27		16/11/2022	-	-	-	-	-	X	X	X	X
28		13/12/2022	X	X	X	X	X	X	X	X	X
29		12/01/2023	-	-	-	-	-	X	X	X	X
30		07/02/2023	-	-	-	-	-	X	X	X	-
31		14/03/2023	X	X	X	X	X	X	X	X	X
32		18/04/2023	-	-	-	-	-	X	X	X	X
33		16/05/2023	-	-	-	-	-	X	X	X	X
34		15/06/2023	X	X	X	X	X	X	X	X	-
35		07/07/2023	-	-	-	-	-	X	X	X	X
36		08/08/2023	-	-	-	-	-	X	X	X	X
37		14/09/2023	X	X	X	X	X	X	X	X	X
38		06/12/2023	-	-	-	-	-	X	X	X	X
		19/12/2023	X	X	X	X	X	-	-	-	-
39		22/01/2023	-	-	-	-	-	X	X	X	X
40		08/03/2024	X	X	X	X	X	X	X	X	X
41		05/06/2024	X	X	X	X	X	X	X	X	X
42		19/09/2024	X	X	X	X	X	-	-	-	X
43		06/12/2024	X	X	X	X	X	-	-	-	X
44		11/03/2025	X	X	X	X	X	-	-	-	X
45			10/06/2025	X	X	X	X	X	-	-	-

APPENDIX B
LABORATORY ANALYSIS PARAMETERS

Category	Analysis Parameters	Analytical Method	Method Detection Limit (units)
Alkali and alkaline earth metals	Ca(0.2), Mg(0.1), K(0.1), Na(0.1)	ICP-OES	various (mg/l), as indicated in parentheses after element symbol
Metals	Cd(0.5), Cr(1.5), Cu(7), Pb(5), Hg(1), Ni(2), Zn(3), Al(20), Ba(3), Co(2), Fe(20), Mo(2), Mn(2), V(1.5), Be(0.5), Ti(5)	ICP-OES	various (µg/l), as indicated in parentheses after element symbol
Minor Trace Elements	As(2.5), B(12), Sb(2), Se(3),	ICP-OES	various (µg/l)
Cl ⁻	Chloride	Kone analyser	0.3 (mg/l)
Diss Meth	Dissolved methane	GCFID	1 (µg/l)
Alk	Bicarbonate and Total Alkalinity	Metrohm	1 (mg/l) as CaCO ₃
SO ₄ ⁼	Sulphate as SO ₄ ⁼	Kone analyser	0.5 (mg/l)
NO ₃ ⁻	Nitrate as NO ₃ ⁻	Kone analyser	0.2 (mg/l)
Amm N - N	Ammoniacal Nitrogen as N	Kone analyser	0.03 (mg/l)
Salinity	Salinity	Meter	0.1 (%)
pH	pH	Determination of pH (Metrohm)	0.01 pH units
EC	Electrical Conductivity	Metrohm	2 (µS/cm)
TPHCWG C44	TPH CWG (Aliphatics C5-6,>6-8,>8-10,>10-12,>12-16,>16-21,>21-35) (aromatics >C5-7,>7-8,>8-10,>10-12,>12-16,>16-21,>21-35) inc BTEX/MTBE to C44	C5-10 fractions by Headspace GCFID(036W). C10-44 fraction extracted with hexane, aliphatic/aromatic splits run by GCFID (005W).	10 (µg/l) (BTEX/MTBE 5 (µg/l))
SVOC	SVOC target list including PAHs, phenol and chlorinated phenols by GCMS	SVOC target list by GCMS - modified USEPA 8270 on DCM extract.	0.5-10 (µg/l), reducing to 0.1 – 0.005 (µg/l) from start 2022
VOC	VOC target list including BTEX/MTBE by GCMS	VOC target list by headspace GCMS - modified USEPA 8260	1-5 (µg/l)
TSS	Total Suspended Solids	Gravimetric - BSEN15216	10 (mg/l)
TOC	Total organic carbon	High Temperature Combustion followed by non-dispersive infra-red detection	2 (mg/l)
NO ₂ ⁻	Nitrite as NO ₂ ⁻	Kone analyser	0.02 (mg/l)
Alc/acet	Ethyl acetate, i-propyl acetate, methyl acetate, n-butyl acetate, n-propyl acetate, ethyl alcohol(ethanol), i-propyl alcohol(IPA), methyl alcohol(methanol), n-butyl alcohol, n-heptyl alcohol, n-hexyl alcohol, n-propyl alcohol, n-pentyl alcohol	GCMS headspace	100 (µg/l) except Methanol & Ethanol (500 (µg/l))

Abbreviations:

ICP-OES = inductively coupled plasma optical emission spectroscopy

GCFID = gas chromatography with flame ionisation detector

TPHCWG = total petroleum hydrocarbons (criteria working group)

SVOC / VOC = Semi-volatile / Volatile organic compounds

BTEX/MTBE = benzene, toluene, ethylbenzene and xylene / methyl tert-butyl ether

GCMS = Gas chromatography with mass spectrometry

DCM = dichloromethane

Field filtration:

Samples for metals and minor trace elements by ICP-OES were (or were not) field filtered at 0.45 µm prior to preservation by concentrated nitric acid. The analyses thus effectively represent the dissolved (<0.45 µm) fraction.