# Vickery Extension Project Groundwater Monitoring Report

## Quarterly Review August 2024 – October 2024

### Whitehaven Coal Ltd

Blue Vale Rd, Boggabri NSW 2382 Australia

Prepared by:

**SLR Consulting Australia**

SLR Project No.: 640.031099.00001

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## Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|---|---|---|---|---|
| 0.1 | 23 December 2024 | Joy Xie | Sharon Hulbert | Sharon Hulbert |

# Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Whitehaven Coal Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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# Acronyms and Abbreviations

| | |
|---|---|
| CMAs | Corrective Management Actions |
| EC | Electronic Conductivities |
| EP&A Act | Environmental Planning and Assessment Act, 1979 |
| GWMP | Groundwater Management Plan |
| mbgl | meter below ground level |
| mbtoc | meters below top of casing |
| pH | potential of Hydrogen |
| TARP | Trigger Action Response Plan |
| VCPL | Vickery Coal Pty Ltd |
| VEP | Vickery Extension Project |
| WMP | Water Management Plan |

# 1.0 Introduction

## 1.1 Background

SLR Consulting Australia Pty Ltd (SLR) was engaged by Whitehaven Coal Pty Ltd (Whitehaven) to undertake a review of groundwater data for the Vickery Extension Project (VEP) between 1st August 2024 through 30th October 2024.

The VEP Development Consent (SSD-7480) was granted to Vickery Coal Pty Ltd. (VCPL) on 12 August 2020 by the NSW Independent Planning Commission as a delegate of the NSW Minister for Planning under Section 75J of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). Approval EPBC 2016/7649 under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) was granted on 15 September 2021.

Pertinent to the groundwater monitoring and subsequent reporting, is Condition 8 of EPBC 2016/7649, that states:

> *8. In Addition to the Groundwater Management Plan monitoring requirements specified in condition B53 of the State Development Consent, the approval holder must:*
>
> *a. Establish and maintain a network of groundwater monitoring bores designed to detect changes in groundwater levels and include bores that are co-located or paired with surface water monitoring sites to allow monitoring and analysis of groundwater – surface water interactions. These monitoring bores must be installed prior to the commencement of mining operations.*
>
> *b. Monitor groundwater levels in each bore (required under condition 8.a) at least once every 3 months, starting within one week of the commencement of mining operations for the life of this approval.*
>
> *c. Publish on the website all groundwater monitoring data from the bore network, updated at least once every three months to include the most recent readings available and to maintain the data on the website for the life of this approval. The monitoring data must include hydrographs for the bore network and explain what the data means in relation to the groundwater performance measures specified in the State Development Consent.*

This quarterly report has been compiled for Vickery Coal Mine (VCM) to comply with Condition 8(c) of EPBC 2016/7649. Groundwater monitoring commenced in October 2023 aligning with the commencement of mining in October 2023 and in accordance with Condition 8(b). Reporting to date includes:

1. Initial Quarterly Report (August 2023 through October 2023), published January 2024.
2. 2023 Annual Review (1st January 2023 through 31st December 2023), to be published on the website following approval from NSW Department of Planning, Housing and Infrastructure (DPHI).
3. Second Quarterly Report (November 2023 through January 2024), published April 2024.
4. Third Quarterly Report (February 2024 through April 2024), published July 2024.
5. Forth Quarterly Report (May 2024 through July 2024), published October 2024.

Mining operations continue on site, with coal extraction occurring. Within the reporting period, Whitehaven Coal is progressing both the Mine Water Dam 2 deeper and continuing in the main box cut pit. As production zones become deeper, there is increased in-pit water, which is a combination of groundwater seepage, direct rainfall collection, water runoff from on-site

activities (i.e. dust suppression) and surface runoff. In-pit water is being managed via extraction through sump pumps into water carts for dust suppression and pumping excess water into the Mine Water Dam (MWD2). A water fill point is also operational at MWD2 allowing for efficient circulation of water carts for dust suppression across the active haul roads.

## 1.2 Trigger Action Response Plan

A Trigger Action Response Plan (TARP) was established in the Groundwater Management Plan (GWMP), as a means of providing specific suitable action where exceedances of the groundwater performance criteria are observed. The aim of the TARPs is to evaluate potential adverse changes to existing groundwater sources, confirm if they are due to the development, and provide a means to repair, mitigate and/or offset any adverse groundwater impacts (Whitehaven 2023). The groundwater level and quality TARP for the open cut activities at VEP is shown in **Appendix A**.

The GWMP states the procedure for the review, as follows. The confirmed exceedances will prompt an investigation, carried out by suitably qualified personnel, to assess the reasons for trigger exceedance, which could include but not be limited to climatic conditions, agriculture abstraction, and or mining activities. In the case exceedances are attributed to mining activities, the changes in groundwater conditions, such as a decrease in water level or changes in groundwater quality, will be compared to performance measures (discussed in Section 8.1 of GWMP) to evaluate the significance of any impacts manifested on the groundwater systems.

The results of the trigger investigations will be reported in each annual review. WHC will use the annual review following each reporting period to analyse the data and revise the trigger thresholds in response to additional baseline data as it becomes available. When this occurs the GWMP will be updated.

## 1.3 Report Objective

This report assesses the VEP groundwater monitoring data against the trigger levels for all required parameters (as per the TARP in the site GWMP) for the reporting period from 1st August 2024 through 30th October 2024.

This report includes:

- A summary of TARP exceedances, if any, during the reporting period;
- A summary of trigger exceedances, if any, over time including the identification of breaches of triggers that remain within normal condition in this reporting period;
- A high-level outline of potential influence factors for exceedances (a detailed analysis of exceedances is not discussed in this report) during the reporting period; and
- Recommendation of relevant actions and responses to be undertaken, in alignment with the TARPs.

The information in this monitoring report will be included in the ongoing quarterly monitoring reports for VEP and summarised in the 2024 Annual Review.

# 2.0 Monitoring Results

This section summarises the climate information, groundwater monitoring network, and monitoring results available to the conclusion of the reporting period.

## 2.1 Climate Data

Local climate data was obtained from the Canyon MET station (MET1), approximately 7km from VEP. Collection of meteorological data at VEP (MET2) commenced in September 2023 and will be utilised as more data becomes available. In order to understand long-term rainfall trends, the SILO climate record for the location 0.05° x 0.05° tile centred on a location within proximity of VEP (latitude: -30.75, longitude: 150.15) has been utilised (Queensland Government 2024). Comparison of the data sets show analogous trends, indicating the SILO data is a suitable representation of long-term trends.

Rainfall over the past 12 months, in comparison to the long-term average (i.e., January 1900 – present) is shown in **Table 1**. MET1 showed above long-term average rainfall for August and October reporting period, with September notable as below long-term average.

Overall, as evident on **Figure 1**, excluding September the last 7 months to the close of the reporting period have shown notable above long-term average rainfalls.

**Table 1: Monthly Rainfall vs Long-Term Average Rainfall**

| Year | 2023 | | | 2024 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct |
| SILO 2023-2024 monthly rainfall (mm) | 20.3 | 93.3 | 71.7 | 52.7 | 20.7 | 17.5 | 68.7 | 33.0 | 70.3 | 51.1 | 56.8 | 42.0 | 33.6 |
| SILO Long-term average rainfall (mm) | 49.1 | 58.0 | 60.9 | 69.6 | 57.8 | 46.0 | 33.2 | 39.2 | 40.5 | 38.6 | 35.2 | 37.3 | 49.0 |
| On-site Rainfall (mm) | 27.6 | 123.8 | 87.4 | 29.4 | 40.8 | 25.8 | 101.8 | 52.8 | 74.0 | 43.0 | 68.2 | 16.0 | 54.6 |

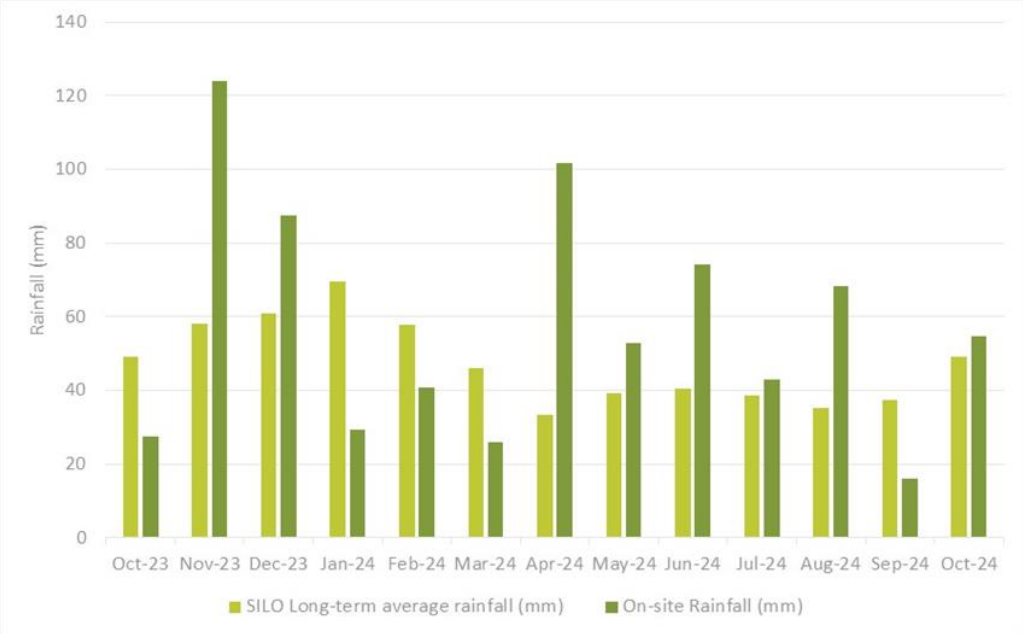



**Figure 1 On-site monthly rainfall vs long-term average monthly rainfall**

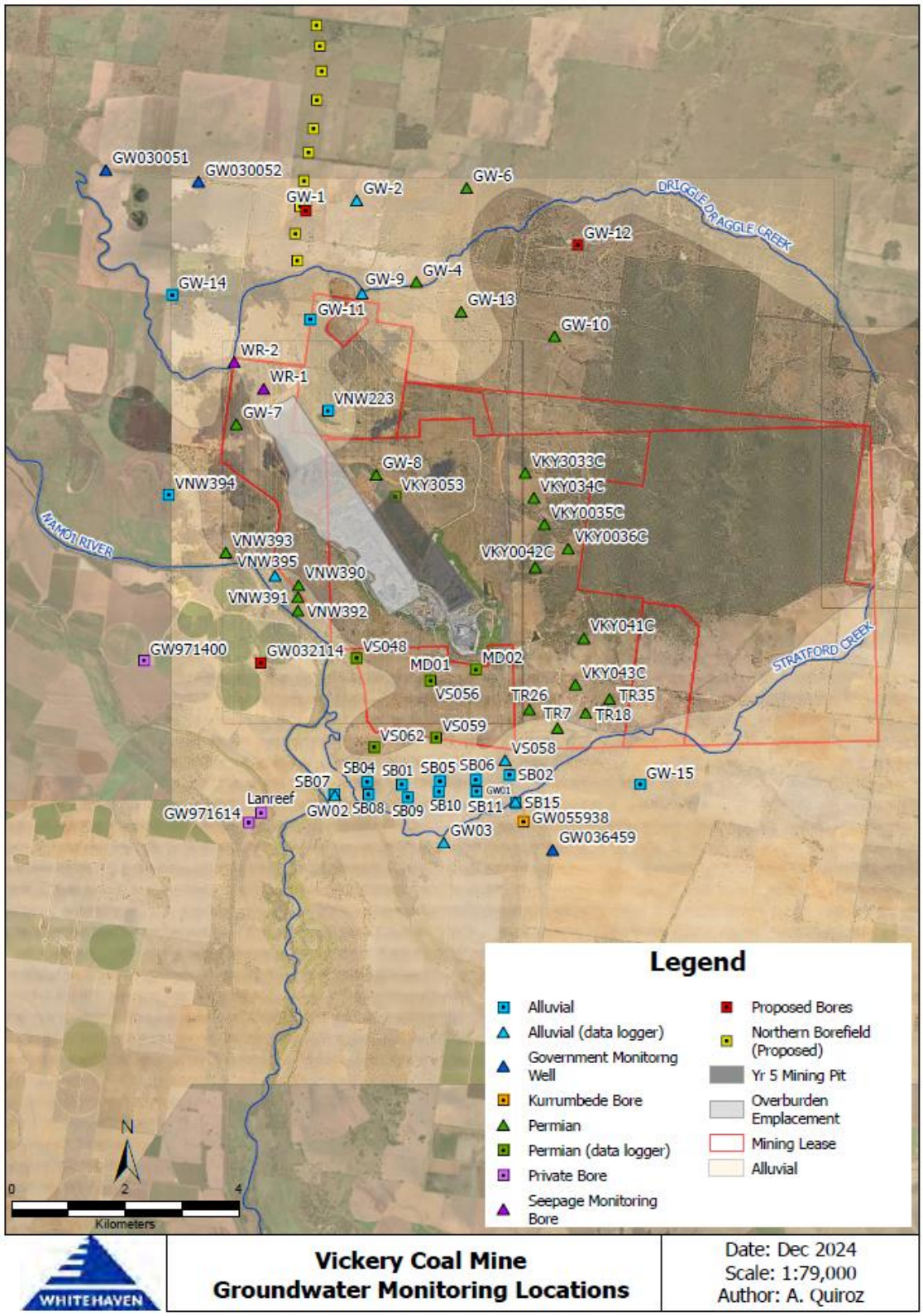
## 2.2 Groundwater Monitoring Network

Based on the GWMP, the existing groundwater monitoring network consists of 51 monitoring sites, including

- 24 monitoring locations in Alluvial aquifer; and
- 25 monitoring locations in Permian aquifer.
- Two sites (WR1 and WR2) positioned to monitor the potential for seepage from the spoil dump (installed January 2024).
- During the October 2024 monitoring events, the following bores were included for water quality and manual water level monitoring:
  - Alluvial bores: GW-14 and GW-15.
  - Permian bores: GW-4, GW-6, GW-10, and GW-13.
  - Water supply bores: GW971400 and GW971614.

The groundwater network is presented on **Figure 1**, and full details provided in the GWMP.

**Figure 2: VCM Groundwater Monitoring Network**



## 2.3 Data Availability

In line with the VCM GWMP, the full suite of bores available was monitored during the reporting period.

## 2.4 Groundwater Levels

Groundwater levels are measured via both manual dip and continuous loggers. The data available since April 2022 is presented in this section, and shown in **Appendix B**.

### 2.4.1 Groundwater Level Data Summary

A summary of the groundwater level data available to date is presented below.

#### 2.4.1.1 Alluvial Groundwater Bores

The groundwater levels in the alluvial monitoring bores are summarised in **Table 2** and presented in **Figure 2**.

**Table 2: Groundwater Levels in Alluvial Aquifer**

| Sample Location | Depth to Water (mbgl*) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Apr-22 | Dec-22 | May-23 | Oct-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
| GW01 | 9.12 | 8.2 | 8.40 | 8.53 | 9.19 | 9.45 | 8.79 | 9.3 |
| GW02 | - | 7.45 | 8.34 | 8.48 | 8.78 | 8.96 | 8.83 | 8.7 |
| GW-11 | - | - | - | 16.70 | 16.64 | 16.64 | 14.15 | 16.58 |
| GW-14 | - | - | - | - | - | - | - | 10.86 |
| GW-15 | - | - | - | - | - | - | - | 12.65 |
| GW-2 | - | - | - | - | - | 19.59 | - | 18.41 |
| GW-9 | - | - | - | 17.76 | 18.4 | 17.8 | 17.79 | 17.7 |
| SB01 | 7.34 | 6.37 | 7.23 | 7.19 | 7.38 | 7.86 | 7.67 | 7.57 |
| SB02 | 10.3 | 9.84 | 9.68 | 9.46 | 9.74 | 9.99 | 9.78 | 1.38 |
| SB04 | 7.5 | 6.34 | 7.59 | 7.33 | 7.64 | 8.18 | 8.08 | 7.9 |
| SB05 | 8.32 | 7.1 | 7.90 | 7.73 | 8.11 | 8.59 | 8.37 | 8.2 |
| SB06 | 9.82 | 8.43 | 8.77 | 8.87 | 8.98 | 9.36 | 9.18 | 9.06 |
| SB07 | - | 8.01 | 8.89 | 8.79 | 8.83 | 9.53 | 9.45 | 9.19 |
| SB08 | 7.77 | 6.73 | 7.60 | 7.70 | 7.63 | 8.12 | 7.99 | 7.83 |
| SB09 | 7.85 | 6.36 | 7.33 | 7.22 | 7.49 | 7.95 | 7.75 | 7.66 |
| SB10 | 8.14 | 7.45 | 8.00 | 8.15 | 8.21 | 8.6 | 8.46 | 8.33 |
| SB11 | 9.78 | 8.1 | 8.72 | 8.6 | 9.19 | 9.51 | 9.13 | 9.24 |
| SB15 | 9.3 | 8.18 | 8.77 | 9.12 | 9.57 | 9.82 | 9.14 | 9.54 |
| VNW223 | - | - | - | 22.01 | 21.9 | 22.05 | 22.2 | 21.53 |
| VNW394 | - | 6.73 | 6.83 | 6.49 | 6.53 | 6.52 | 6.68 | 6.9 |
| VNW395 | - | 7.43 | 7.25 | 7.26 | 7.3 | 7.48 | 6.48 | 7.57 |
| WR1 | - | - | - | - | - | 14.55 | 14.54 | 14.39 |
| WR2 | - | - | - | - | - | 12.13 | 12.36 | 12.42 |

* mbgl = metres below ground level

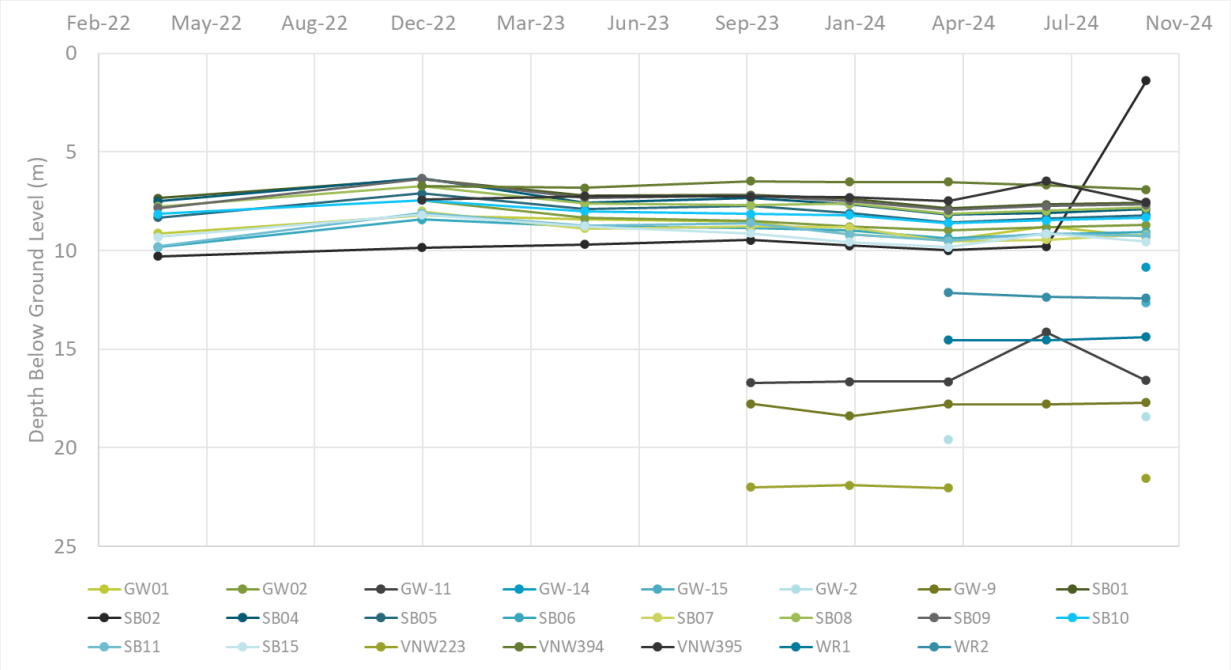



**Figure 3: Alluvial Bores Hydrograph (Manual Dips, below ground level)**

The groundwater contour map, based on the October 2024 monitoring round is presented in **Figure 4**. These maps will be prepared for all future quarterly reports for ongoing comparison.

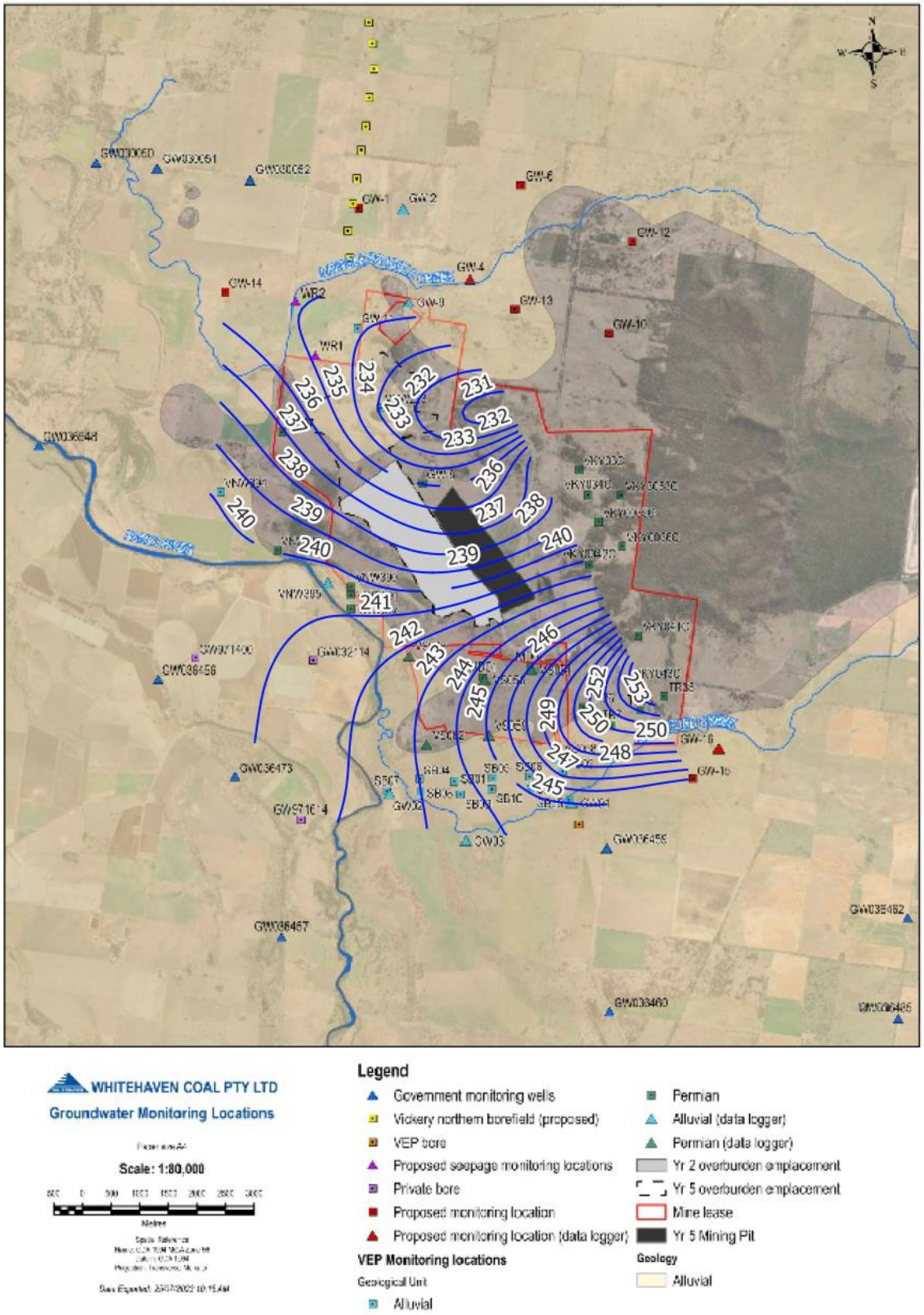



**Figure 4 Alluvial groundwater contour map (October-2024)**

#### 2.4.1.2 Permian Groundwater Bores

The groundwater levels in the Permian monitoring bores are summarised in **Table 3**, and presented in **Figure 3**.

**Table 3: Groundwater Levels in Permian Aquifer**

| Sample Location | Depth to Water (mbgl*) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Apr-22 | Dec-22 | May-23 | Oct-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
| GW03 | - | 6.12 | 6.85 | 7.23 | 7.27 | 7.13 | 7.45 | 7.15 |
| GW-4 | - | - | - | - | - | - | - | 19.34 |
| GW-6 | - | - | - | - | - | - | - | 23.28 |
| GW-7 | - | - | - | 27.86 | 27.80 | 27.92 | 27.96 | 27.79 |
| GW-8 | - | - | - | 21.74 | 21.69 | 21.63 | 21.62 | 21.8 |
| GW-10 | - | - | - | - | - | - | - | 17.92 |
| GW-13 | - | - | - | - | - | - | - | 23.2 |
| MD01 | - | 28.02 | 27.63 | 27.68 | 27.57 | 27.96 | 27.61 | 28.78 |
| MD02 | - | 40.98 | 40.57 | 40.30 | 40.03 | 39.88 | 39.82 | 40.55 |
| TR18 | - | 13.04 | 13.38 | 12.92 | 13.17 | 13.26 | 13.38 | 13.25 |
| TR26 | - | 12.44 | 12.39 | 12.24 | 12.21 | 12.31 | 12.35 | 12.31 |
| TR35 | - | 18.16 | 18.17 | 18.04 | 11.23 | 18.43 | 18.54 | 18.44 |
| TR7 | - | 9.85 | 9.93 | 9.75 | 9.69 | 9.84 | 10.97 | 9.79 |
| VKY034C | - | 39.79 | 39.97 | 39.61 | 40.27 | 39.37 | 40.1 | 40.26 |
| VKY035C | - | 42.37 | 42.03 | 42.01 | 42.04 | 41.89 | 42.6 | 42.12 |
| VKY036C | - | 49.23 | 47.24 | 49.17 | 49.88 | 49.53 | 49.83 | 49.85 |
| VKY042C | - | 42.68 | 42.40 | 42.56 | 42.80 | 42.53 | 42.67 | 42.79 |
| VKY043C | - | 16.41 | 15.56 | 15.70 | 15.82 | 15.15 | 15.69 | 15.43 |
| VNW390 | - | 9.38 | 9.33 | 9.36 | 9.37 | 9.46 | 9.46 | 9.58 |
| VNW391 | - | 7.80 | 7.75 | 7.76 | 7.79 | 7.94 | 7.98 | 7.86 |
| VNW392 | - | 6.25 | 6.14 | 6.21 | 6.24 | 6.4 | 6.46 | 6.43 |
| VNW393 | - | 10.64 | 10.50 | 10.48 | 10.57 | 10.6 | 10.67 | 10.74 |

* Metres below ground level

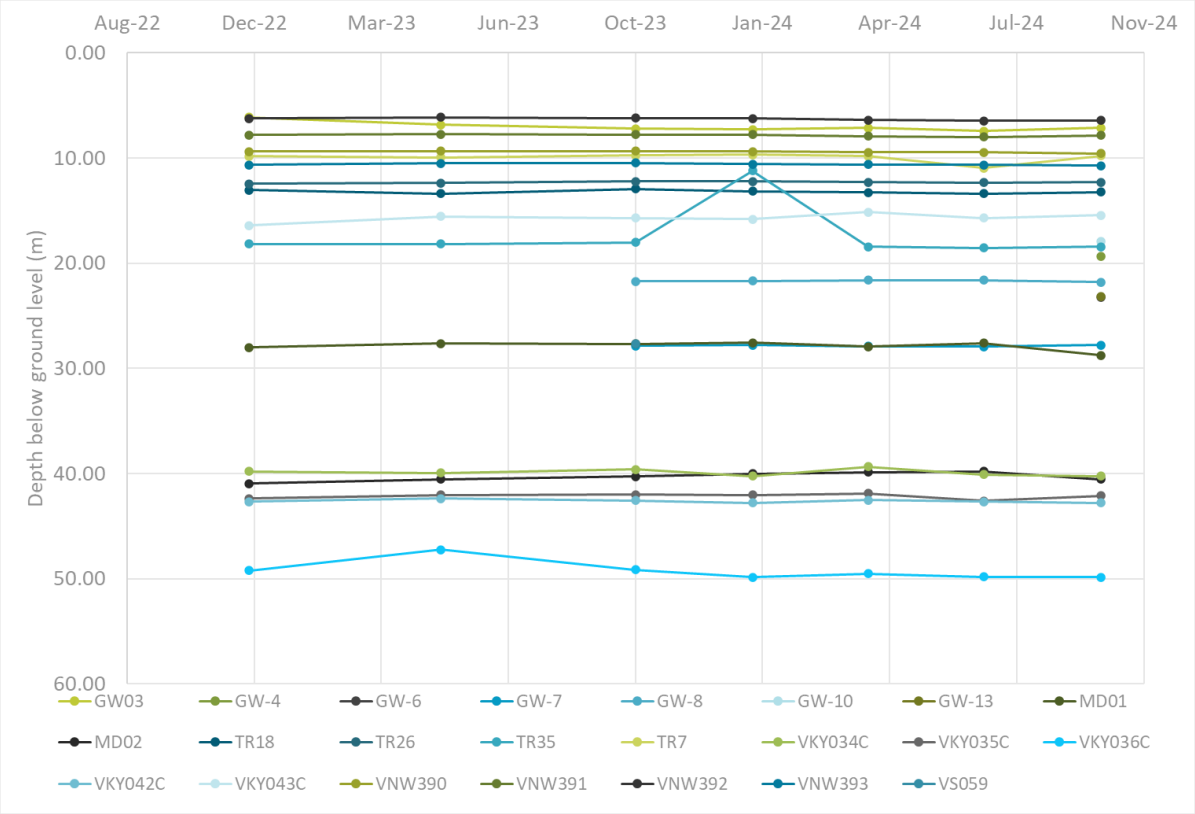



**Figure 5: Permian Bores Hydrograph (Manual Dips)**

The groundwater contour map, based on the October 2024 monitoring round is presented in **Figure 6**. These maps will be prepared for all future quarterly reports for ongoing comparison.

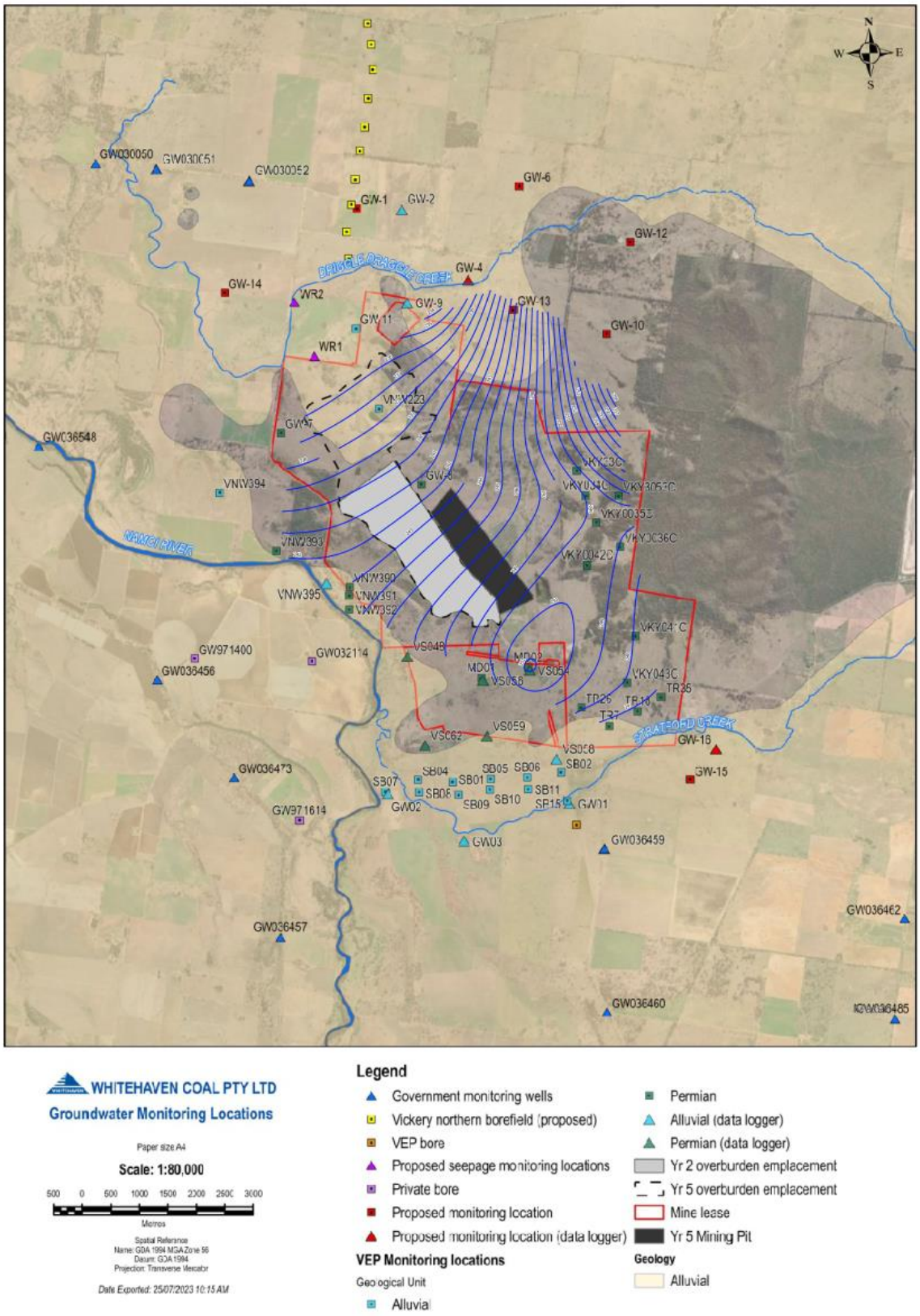



**Figure 6 Permian aquifer groundwater level contour map (October-24)**

#### 2.4.1.3 Data Loggers

A summary of the available logger data is presented in **Table 4**. An example of a logger plot is provided in **Figure 7**, with all plots provided in **Appendix B**.

**Table 4: Summary of Logger Data Availability**

| Bore ID | Logger Type | Recording Period | Number of Data Points | Comments |
|---|---|---|---|---|
| GW01 | VWP | 10/10/2023 – 13/10/2024 | - | Data were not adopted due to significant drifting in logger readings, with generally unrealistic water levels results (i.e., above ground level). Sensor is considered malfunctioned; further investigation required. |
| GW02 | VWP | 15/11/2023 – 14/10/2024 | - | Data were not adopted due to significant drifting in logger readings, with generally unrealistic water levels results (i.e., above ground level). Sensor is considered malfunctioned; further investigation required. |
| GW03 | VWP (01-10-6743) | 17/01/2024 – 18/08/2024 | 3,394 | - |
| GW-9 | Logger (Rugged TROLL 100) | 24/04/2020 – 21/10/2024 | 991 | - |
| VNW395 | Logger (Rugged TROLL 100) | 17/01/2024 – 17/04/2024 | 272 | Logger data was not downloaded during the July and October 2024 monitoring round. A temporary logger has been deployed while searching for a replacement. |
| TR7 | Logger (Rugged TROLL 100) | 17/03/2012 – 19/03/2014; 03/06/2020 – 17/04/2024; 25/07/2024 – 13/10/2024 | 1,894 | Logger data is not available in July 2024 monitoring round |
| TR18 | Logger (Rugged TROLL 100) | 16/04/2020 – 04/07/2024 | 1,939 | Logger data was not downloaded during the October 2024 monitoring round. |
| VKY034C | Logger (Rugged TROLL 100) | 07/01/2020 – 18/10/2024 | 6,931 | - |
| VKY035C | Logger (Rugged TROLL 100) | 04/11/2020 – 18/10/2024 | 5,611 | - |
| VKY036C | Logger (Rugged TROLL 100) | 07/01/2020 – 18/10/2024 | 7,270 | - |
| VKY041C (38, 51, 70, 95, 115 m) | VWP (DT2055-02023) | 11/03/2015 – 14/10/2024 | - | Calibration factors and sensor depths to be confirmed. |

| Bore ID | Logger Type | Recording Period | Number of Data Points | Comments |
|---|---|---|---|---|
| VKY041C (140, 170, 199 m) | VWP (DT2055-02027) | 11/03/2015 – 04/08/2024 | - | Calibration factors and sensor depths to be confirmed. |
| VKY042C | Logger (Rugged TROLL 100) | 04/11/2020 – 18/10/2024 | 5,662 | - |
| VKY043C | Logger (Rugged TROLL 100) | 07/01/2020 – 13/07/2023 | 5,135 | Logger stopped reading in July 23 |
| VKY3053C | VWP | 04/03/2020 – 17/01/2024 | | No data from April 2024 onwards. Calibration factors and sensor depths to be confirmed. |
| VKY33C (38, 51, 70, 95, 115m) | VWP (DT2055-02029) | 11/03/2015 – 17/10/2024 | - | Calibration factors and sensor depths to be confirmed. |
| VKY33C (140, 170, 190m) | VWP (DT2055-02087) | 11/03/2015 – 17/10/2024 | - | Calibration factors and sensor depths to be confirmed. |
| VS048 (30m) | VWP | 17/06/2011 – 15/06/2012; and 04/03/2020 – 14/10/2024 | 7,258 | - |
| VS054 (23, 96, 120, 167m) | VWP (SN11-1769) | 17/06/2012 – 15/06/2012; and 16/11/2023 – 15/10/2024 | | |
| VS056 (25, 100m) | VWP (SN11-1765) | 04/03/2020 – 14/10/2024 | VS056-25m: 7,756; VS056-100m: 1,437 | |
| VS058 (18, 88, 159m) | VWP (SN11-1768) | 16/04/2020 – 14/10/2024 | ~6,567/sensor | - |
| VS062 | VWP | 12/02/2021 – 14/10/2024 | 10,323 | |
| VS059 (30, 65, 113m) | VWP | 16/04/2020 – 14/10/2024 | ~6,566/sensor | |
| WR-1 | Logger (Rugged TROLL 100) | 30/04/2024 - 18/10/2024 | 5,133 | Water level calculated in meter below top of casing (mbtoc), as no reference level (mAHD) available. |
| WR-2 | Logger (Rugged TROLL 100) | 30/04/2024 - 18/10/2024 | 5,133 | Water level calculated in mbtoc, as no reference level (mAHD) available. |

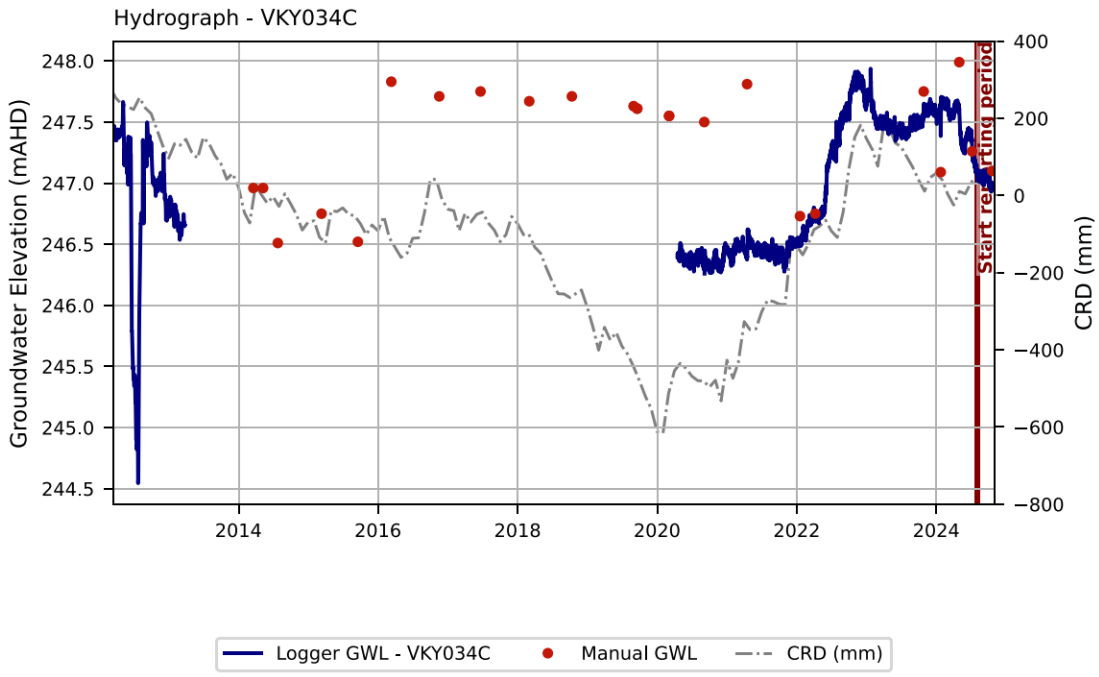



**Figure 7: Logger Hydrograph – VKY034C**

### 2.4.2 TARP Trigger Level Summary

Groundwater levels in the Alluvial bores have continued to primarily (63%) show an increase in water levels between July and October. For those bores with more than three water level readings, all excluding SB02 and VNW395 are within historical fluctuations. SB02 has a groundwater level of 1.38 m below ground level, which was an 8.4 m increase from the July 2024 monitoring round. The October 2024 result is likely an outlier, ongoing monitoring and review will be undertaken to determine the nature of this increase. VNW395 showed a 1.1 m increase in groundwater level in Jul-24 and returned to historically typical levels in Oct-2024.

Groundwater levels in the Permian have shown minor increase and decrease across the suite of bores. The largest decline in water level was observed at MD01, with a decline of 1.17 m between July and October. Further monitoring is required to establish if a declining trend is occurring.

It was noted that the potential of groundwater intersection occurred during this reporting period, as observed by increased in-pit water. Additionally, a dry period has begun to be recorded. The variation in groundwater levels in both Alluvial and Permian bores does not indicate significant flux of water from the aquifer, resulting in groundwater drawdown. Historically, groundwater levels have typically shown a strong correlation to rainfall trends and any review of trends will need to consider mining operations and climatic conditions.

Given the early status of mining and the stable to increasing groundwater levels, the current groundwater levels are considered to be reflective of natural conditions and not impacted by extraction activities. Additionally, review against the newly derived triggers does not indicate any breach in trigger levels. Therefore, the groundwater levels do not result in the enactment of the TARPs.

## 2.5 Groundwater Quality and Exceedance Summary

Routine groundwater monitoring commenced in October 2023 and continues quarterly. The full October 2024 field and laboratory suite results are summarised in **Appendix C**.

The TARP enacted, as set out in Table 8-3 of the GWMP, during the reporting period are summarised in **Table 5**. **Appendix D** provides a summary of all monitoring rounds to date compared to the interim trigger values or ANZECC default guideline values for slightly to moderately disturbed ecosystems.

**Table 5: Summary of TARP Triggers**

| Bore | Parameters | Unit | Trigger Level | Oct-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
|---|---|---|---|---|---|---|---|---|
| TR7 | pH | pH unit | 7.4-7.8 | 6.53 | 7.05 | 6.71 | 6.82 | 6.63 |
| GW03 | EC | µS/cm | 811 | 862 | 888 | 862 | 947 | 1,004 |
| TR18 | | | 12,315* | 13,400 | 13,640 | 12,730 | 15,350 | 13,820 |
| TR35 | | | 12,315* | 15,300 | 17,330 | 16,740 | 17,260 | 16,690 |
| GW-7 | $SO4^{2-}$ | mg/L | 86* | 364 | 385 | 399 | 380 | 396 |
| SB05 | | | 365* | 735 | 551 | 520 | 595 | 496 |
| TR18 | | | 86* | 702 | 620 | 592 | 622 | 626 |
| TR26 | | | 86* | 194 | 230 | 180 | 198 | 195 |
| TR35 | | | 86* | 660 | 651 | 622 | 624 | 624 |
| TR7 | | | 365* | 508 | 714 | 501 | 518 | 563 |
| VKY034C | | | 86* | 123 | 185 | 116 | 98 | 90 |
| VKY036C | | | 86* | 244 | 294 | 281 | 100 | 174 |
| VKY042C | | | 86* | 302 | 309 | 312 | 283 | 326 |
| VNW393 | | | 86* | 179 | 185 | 200 | 165 | 202 |

*Interim water level triggers adopted (as insufficient data has been recorded) based on all data for that geology. Red text shows exceedance of trigger level. Highlight cell shows trigger level 1 as defined by TARP in the GWMP (**Appendix A**).

Piper diagrams are used to present the geochemical signature of groundwater. Piper plots will continue to be prepared for both the alluvial and Permian aquifers to compare the geochemical signature over time.

**Figure 8** and **Figure 9** show the piper diagrams for the alluvial and Permian groundwater respectively. Where data was available, the July 2024 and October 2024 data has been presented for analysis of trending change in geochemistry across the suite of bores.

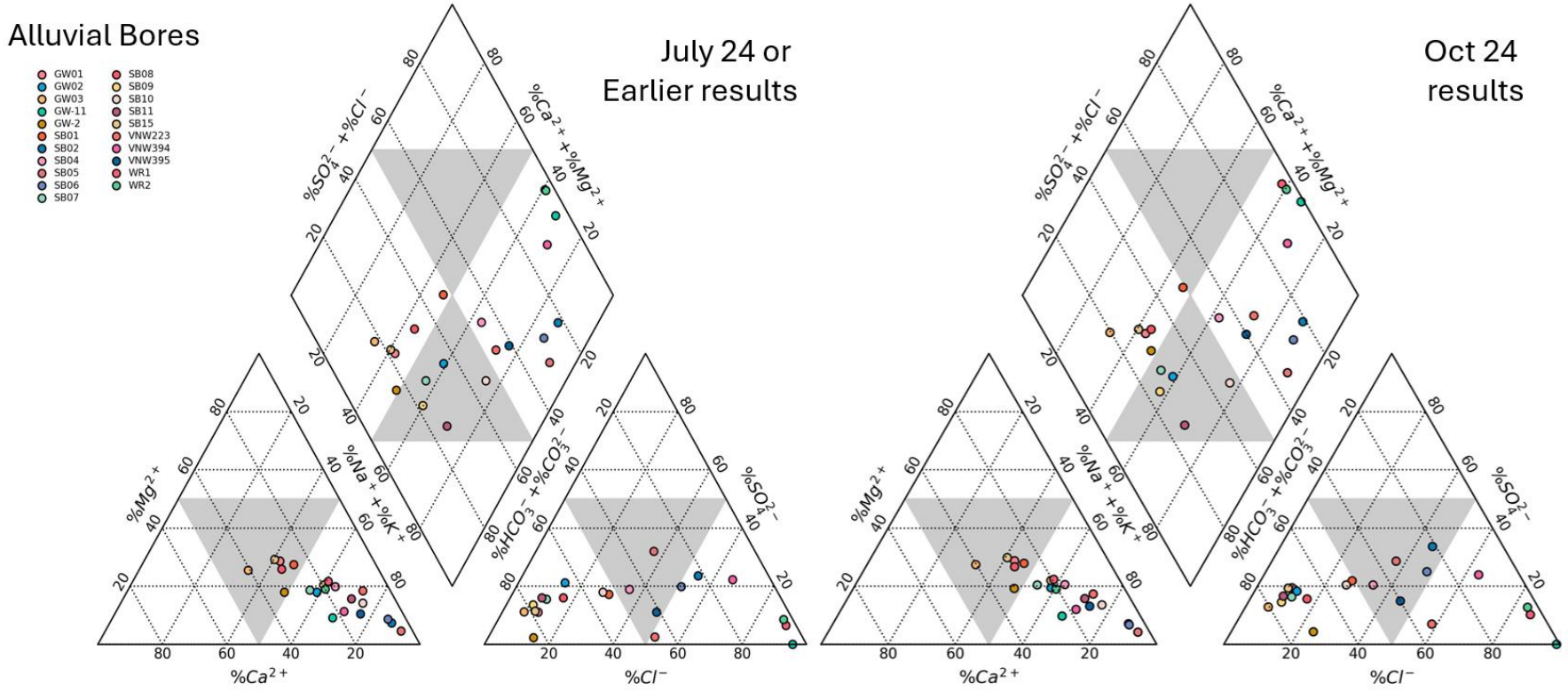



**Figure 8 Alluvial groundwater piper plots**

* Note: GW-2 water chemistry data are from April 24 and VNW223 from Oct 23

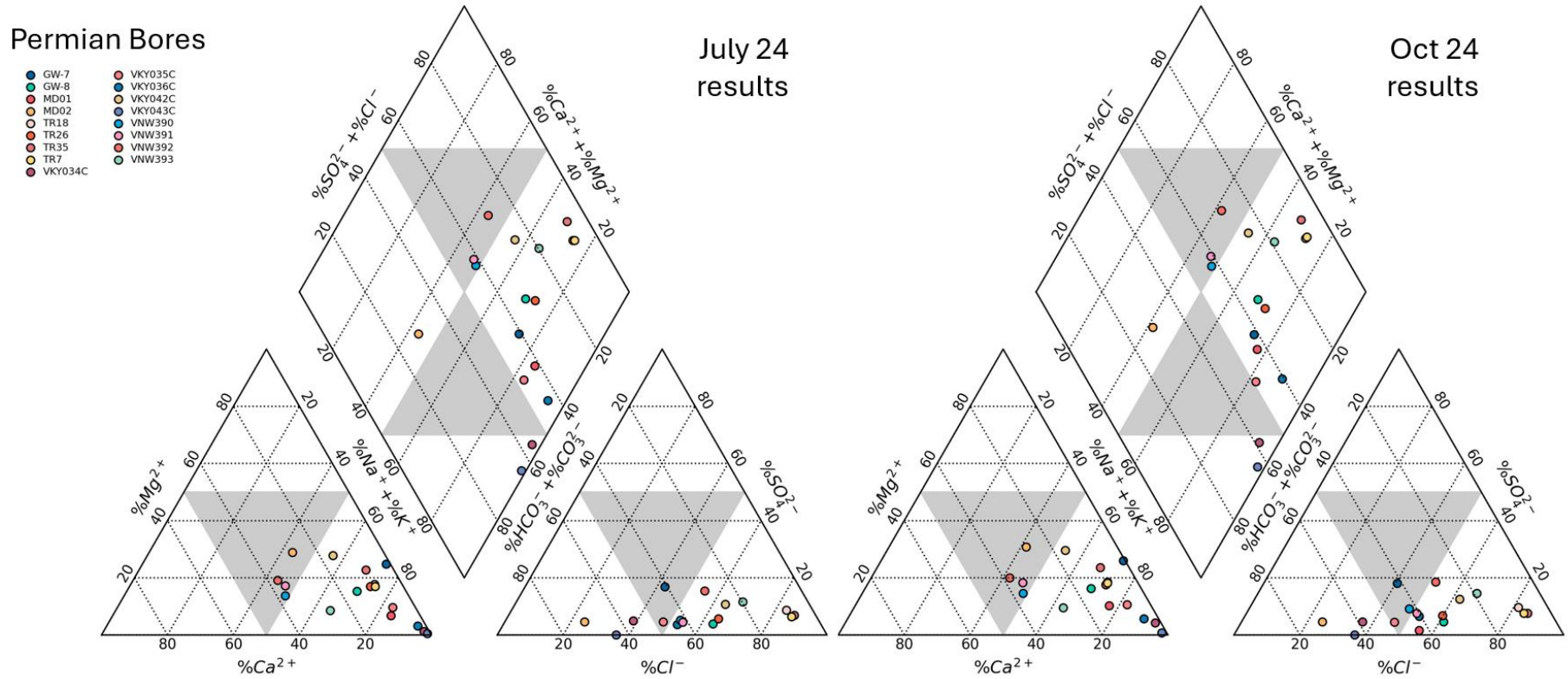



**Figure 9 Permian groundwater piper plots**

Except pH results in TR7 and EC in GW03, all other triggers are based on interim trigger levels. The interim trigger levels were defined utilising standard guideline value and consequently are not reflective of the local natural conditions. As per the GWMP, these trigger values will be updated when reasonable baseline data is collected. A review will be conducted as part of the 2024 annual review to assess if suitable data is available to develop more site-specific triggers.

The piper plots show no trending variation between historical and current geochemical signature.

Review of the individual temporal plots do not indicate consistent increasing or decreasing trends over time, or across multiple locations. Additionally, there is no correlation with groundwater level trends (as groundwater is typically stable). Consequently, the groundwater quality results indicate a ‘normal condition’ TARP response.

# 3.0 Action and Response

Based on the results summary presented in **Section 2.0**, the fact that both Groundwater Level and Groundwater Quality are considered “Normal Conditions”, there are no specific action and responses required.

# 4.0 Recommendations

**Table 6** provides a summary of the historical recommendations, from Annual and prior quarterly reporting, with a comment on their current status.

**Table 6: Summary and Status of Recommendations to Date**

| Recommendation | Cited | Status |
|---|---|---|
| Several monitoring wells were unlocated (GW-2) or inaccessible (GW030051, GW030052, and GW036459) during the reporting period. It is recommended to locate these wells for future monitoring or provide justifications for updating the GWMP. | 2023 Annual Review/Quarterly Report | COMPLETE: GW-2 has been monitored in the October 2024 monitoring round. Water level data for GW030051, GW030052, and GW036459 have been obtained from WaterNSW, and therefore continue monitoring in the ongoing events.<br>Monitoring network review underway. |
| Continue the monitoring program and the quarterly reporting on groundwater levels and quality as outlined in the GWMP. | 2023 Annual Review | COMPLETE/ONGOING: ongoing monitoring and reporting established. |
| Review logger data from TR7 and GW01, as appears erroneous, and replace as necessary. | April 2024 Quarterly | ONGOING: Loggers review underway. |
| Elevation survey of all bores to assist with groundwater level trigger development and plotting of bores as reduced water levels (i.e. as metres below Australian height datum – mAHD). | April 2024 Quarterly | ONGOING: Elevation survey has been done for majority of the bores, except for WR1 and WR2. Water level plots have been updated as reduced water levels (refer to **Appendix C**) |
| Verify sensor depths for all VWPs in the network to assist with groundwater level calculation (calibration certificates in hand for review and update of database). Revise trigger levels based on updated sensor depth and calibration data. | April 2024 Quarterly | ONGOING: Verify sensor depths for VKY033C (or VKY3033C) and VKY041C to assist with groundwater level calculation.<br>COMPLETE: Sensor depths have been verified for all standpipe loggers and VWPs, except for abovementioned VKY033C and VKY041C. |

Recommendations based on the review and analysis completed herein, are as follows:

- Verify sensor depths for VKY033C (or VKY3033C) and VKY041C to assist with groundwater level calculation. If this calibration data is unavailable, the overall usefulness of these bores to the network will be reviewed as part of the 2024 annual review.
- When adequate baseline data becomes available, review and update the quality trigger values. A review of the adequacy of data currently available will be undertaken as part of the 2024 annual review.

# 5.0 References

Hydrosimulations. 2018. “Vickery Extension Project: Groundwater Assessment. Report .”

Queensland Government. 2024. *SILO Long Paddock.* https://www.longpaddock.qld.gov.au/.

Whitehaven. 2023. “Vickery Coal Mine Water Management Plan Appendic C Groundwater Management Plan.”

# Appendix A Trigger Action Response Plan

## Vickery Extension Project Groundwater Monitoring Report

### Quarterly Review August 2024 – October 2024

**Whitehaven Coal Ltd**

SLR Project No.: 640.031099.00001

23 December 2024

## Table A-1: Tigger Action Response Plan

| PERFORMANCE MEASURE AND INDICATOR, TARP OBJECTIVE AND ASSESSMENT CRITERIA | MONITORING PROGRAM | MANAGEMENT | | |
|---|---|---|---|---|
| | | TRIGGER | ACTION | RESPONSE |
| **Performance Measure Feature**<br>Negligible groundwater level impact on the Namoi Alluvium aquifer and associated surface watercourses, groundwater dependent ecosystems, and private landowner bores.<br>Negligible groundwater level impact on the Permian bedrock and associated private landowner bores, outside that predicted by the approved groundwater impacts (Hydrosimulations 2018).<br>**TARP Objective**<br>This TARP defines levels of deviation in groundwater level from 'normal' conditions and the actions to be implemented in response to each level deviation as a result of open cut mining.<br>**Assessment Criteria**<br>Bore specific trigger values are based on the water levels across the entire history of monitoring in each individual bore and the predicted impacts from the Hydrosimulations (2018) numerical groundwater model. | **Locations**<br>**Open standpipes and VWPs**<br>All monitoring locations as set out in Table 4-1 of the Groundwater Management Plan (GWMP).<br>All monitoring locations are shown in Figure 4-1 of the GWMP.<br>**Monitoring Frequency**<br>During mining<br>Quarterly manual measurements of water level. Continuous monitoring in bores installed with Vibrating Wire Piezometers (VWPs).<br>**Post-mining**<br>TBC | **Normal Condition** | | |
| | | • Groundwater level remains above the respective trigger limits (defined as the 95th percentile over the baseline period and detailed in Table 8-2 of the GWMP) for each individual groundwater bore. | • Continue monitoring and review of data as per monitoring program. | • No response required. |
| | | **Level 1** | | |
| | | • One quarterly monitoring result shows an exceedance of the trigger limit as detailed in Table 8-2 of the GWMP. | • Actions as required for Normal Condition.<br>• Re-sample of groundwater level within seven days. | • Report declines and climate investigation outcomes in Annual Review. |
| | | **Level 2** | | |
| | | • Groundwater level in a groundwater bore exceeds the respective trigger limit during three consecutive quarterly monitoring rounds.<br>OR<br>• Complaint received by landowners of private bores regarding groundwater level declines. | • Actions as stated in Level 1.<br>For Open Standpipe Monitoring Bores, VWPs, and Private Bores:<br>• Undertake a preliminary hydrogeological investigation as efficiently as practicable to check and validate the data and assess cause of trigger exceedances to determine if mining related as per the requirements set out in Section 8.3 of the GWMP. Review of groundwater levels to be carried out by qualified personnel.<br>• Increase monitoring and review of data frequency for sites where Level 2 has been reached, subject to land access.<br>For Private Bores:<br>• Undertake investigation to demonstrate if the decline will impact the long-term viability of the affected water supply works.<br>• Commence level monitoring of said private bore in quarterly monitoring rounds, subject to negotiation and land access restrictions.<br>The investigation will be commenced/ completed as efficiently as practicable. | • Responses as stated in Level 1.<br>• Include outcomes from the preliminary investigation report in Annual Review. |
| | | **Level 3** | | |

| PERFORMANCE MEASURE AND INDICATOR, TARP OBJECTIVE AND ASSESSMENT CRITERIA | MONITORING PROGRAM | MANAGEMENT | | |
|---|---|---|---|---|
| | | **TRIGGER** | **ACTION** | **RESPONSE** |
| | | • The reduction in water level is determined in the Level 2 preliminary investigation not to be controlled by climatic or external anthropogenic factors.<br>OR<br>• Groundwater level in a groundwater bore continues to exceed the respective trigger limit during six consecutive monitoring rounds. | • Actions as stated in Level 2.<br>For Open Standpipe Monitoring Bores, VWPs, and Private Bores:<br>• Undertake a detailed investigation to assess if the change in behaviour is related to mining effects (e.g., catchment changes, another effect unrelated to mining).<br>• Review groundwater model.<br>For Private Bores:<br>• Review corrective management actions (CMAs) as specified in Section 8.3 of the GWMP considering findings from further investigations and consider additional reasonable and feasible options. | • Responses as stated in Level 2.<br>• Report trigger exceedance to DPE and key stakeholders. Provide the detailed investigation report to relevant agencies within a reasonable timeframe of identifying the non-compliance.<br>• Report trigger exceedance and investigation outcomes in Annual Review.<br>• Develop/design contingency and remedial measures based on the results of the above investigations. Contingency and remedial measures considered practical for implementation may include:<br>1 Undertake landholder and government consultation;<br>2 Offset groundwater leakage from the Namoi Alluvium aquifer;<br>3 Review and refine the GWMP including undertaking additional<br>4 specific monitoring of private landholder bores;<br>5 Review Site Water Balance and predictive groundwater model; and<br>6 Review mine plan impacts on alluvial groundwater source.<br>For Private Bores:<br>• Provide DPE and key stakeholders with proposed corrective management actions (CMAs) for consultation (e.g., extending the depth of the bore, establishment of additional bores, compensation to affected landowners as per Section 8.3 of the GWMP).<br>• Implement CMAs, subject to land access (finalise negotiations and implement the agreed “make-good” arrangements).<br>• Monitor and report on success of CMAs in Annual Review. |
| **Performance Measure Feature**<br>Negligible quality impact on the Namoi Alluvium aquifer and associated surface watercourses and private landholder bores.<br>Negligible quality impact on the Permian bedrock and associated private landowner bores, outside that predicted by the approved groundwater (Hydrosimulations 2018).<br>**TARP Objective**<br>This TARP defines levels of deviation in groundwater quality from baseline conditions and the actions to be implemented in response to each level deviation.<br>**Assessment Criteria**<br>Quality in each monitoring bore remains within the 5th and 95th percentile of the baseline conditions set out in Table 8-4 of the GWMP for the following parameters:<br>• Electrical Conductivity;<br>• pH; and<br>• Sulfate.<br>Other major and metal ions will be assessed against the relevant ANZECC guidelines. | **Locations**<br>**Open standpipes**<br>All open standpipe monitoring locations as set out in Table 4-2 of the GWMP.<br>**Monitoring Frequency**<br>**During mining**<br>Six-monthly measurements of pH and electrical conductivity parameters.<br>Other parameters (detailed in Table 4-2 of the GWMP) to be measured on an annual basis.<br>**Post-mining**<br>TBC | **Normal Condition** | | |
| | | • Groundwater pH remains within the baseline 5th and 95th percentile range, as specified in the GWMP.<br>• Other groundwater quality parameters remain below the baseline 95th percentile, as specified in the GWMP. | • Continue monitoring and review of data as per monitoring program. | • No response required. |
| | | **Level 1** | | |
| | | • Two six-monthly exceedances or one annual quality exceedances outside of the specified baseline range (pH) or above 95th percentile baseline (other quality parameters). | • Actions as required for Normal Condition.<br>• Re-sample of groundwater quality within seven days | • Report declines and climate investigation outcomes in Annual Review. |
| | | **Level 2** | | |
| | | • Three consecutive six-monthly exceedances or two annual quality exceedances (including re-samples from Level 1) outside of the specified baseline range (pH) or above 95th percentile baseline (other quality parameters).<br>OR<br>• Complaint received by landowners of private bores regarding groundwater quality declines. | • Actions as stated in Level 1.<br>For Open Standpipe Monitoring Bores:<br>• Undertake a preliminary hydrogeological investigation as efficiently as practicable to assess cause of quality exceedances and determine if mining related as per the requirements set out in Section 8.3 of the GWMP. Review of groundwater quality to be carried out by qualified personnel. Increase monitoring and review of data frequency for sites where Level 2 has been reached, subject to land access.<br>For Private Bores:<br>• Collect quality sample from said private bore for comparison with wider aquifer data, subject to negotiation and land access restrictions.<br>• Undertake investigation to demonstrate if quality will impact the long-term viability of the affected water supply works.<br>The investigation will be commenced/ completed as efficiently as practicable. | • Responses as stated in Level 1.<br>• Include outcomes from the preliminary investigation report in Annual Review. |

| PERFORMANCE MEASURE AND INDICATOR, TARP OBJECTIVE AND ASSESSMENT CRITERIA | MONITORING PROGRAM | MANAGEMENT | | |
|---|---|---|---|---|
| | | TRIGGER | ACTION | RESPONSE |
| | | **Level 3** | | |
| | | • The water quality changes are determined from Level 2 preliminary investigation to not be controlled by climatic, local land uses, or other external anthropogenic factors.<br>OR<br>• Groundwater quality continues to decline with six consecutive six-monthly exceedances or three annual quality exceedances outside of the specified baseline range (pH) or above 95$^{th}$ percentile baseline (other quality parameters).<br>AND<br>• Quality exceedances are widespread (three or more bores in an aquifer show water quality exceedances) across the aquifers being monitored. | • Actions as stated in Level 2.<br>For Private Bores and Open Standpipe Monitoring Bores<br>• Increase monitoring to at least quarterly measurements for sites where Level 3 has been reached, subject to land access.<br>• Undertake a detailed investigation to assess if the change in behaviour is related to mining effects (e.g., catchment changes, another effect unrelated to mining).<br>• Review corrective management actions (CMAs) as specified in Section 8.3 of the WMP considering findings from further investigations and consider additional reasonable and feasible options. | • Responses as stated in Level 2.<br>For Private Bores and Open Standpipe Monitoring Bores:<br>• Report trigger exceedance to DPE and key stakeholders.<br>• Report trigger exceedance and investigation outcomes in Annual Review.<br>For Private Bores, if the changes have been confirmed to be related to mining effects:<br>• Initiate negotiations with impacts landowners as soon as practicable. Consider all reasonable and feasible options for remediation as relevant (e.g., isolation, remediation, etc.).<br>• Provide DPE and key stakeholders with proposed corrective management actions (CMAs) for consultation (e.g., extending the depth of the bore, establishment of additional bores, compensation to affected landowners as per Section 10.2.2 of the WMP).<br>• Implement CMAs, subject to land access (finalise negotiations and implement the agreed “make-good” arrangements).<br>• Monitor and report on success of CMAs in Annual Review. |

# Appendix B Groundwater Level Results

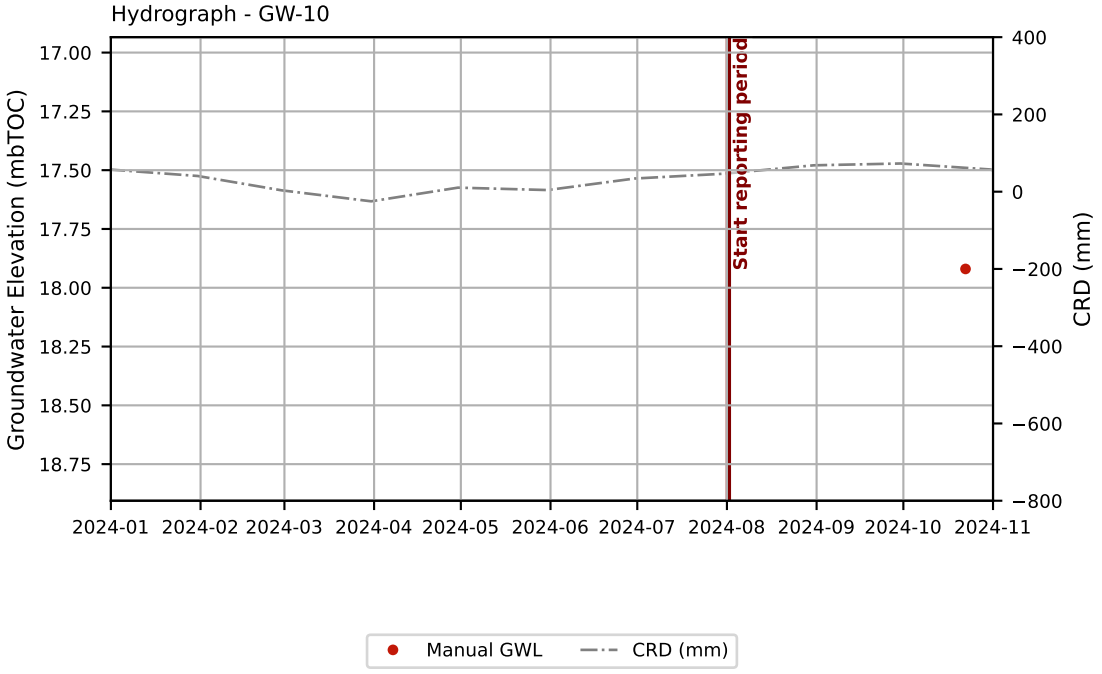
## Vickery Extension Project Groundwater Monitoring Report

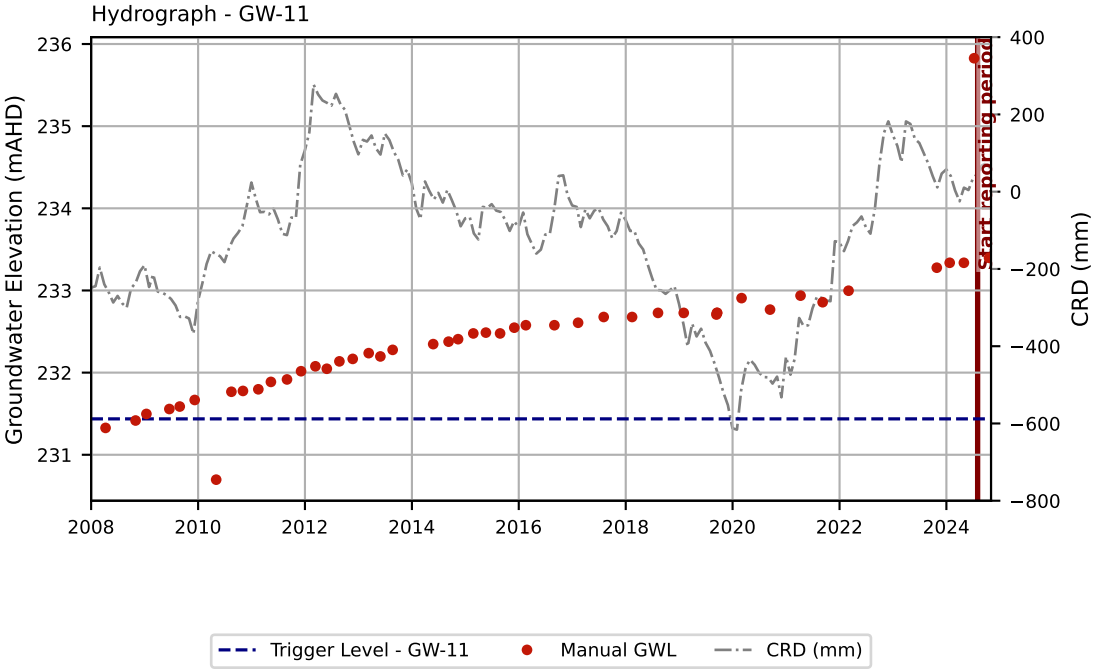
**Quarterly Review August 2024 – October 2024**

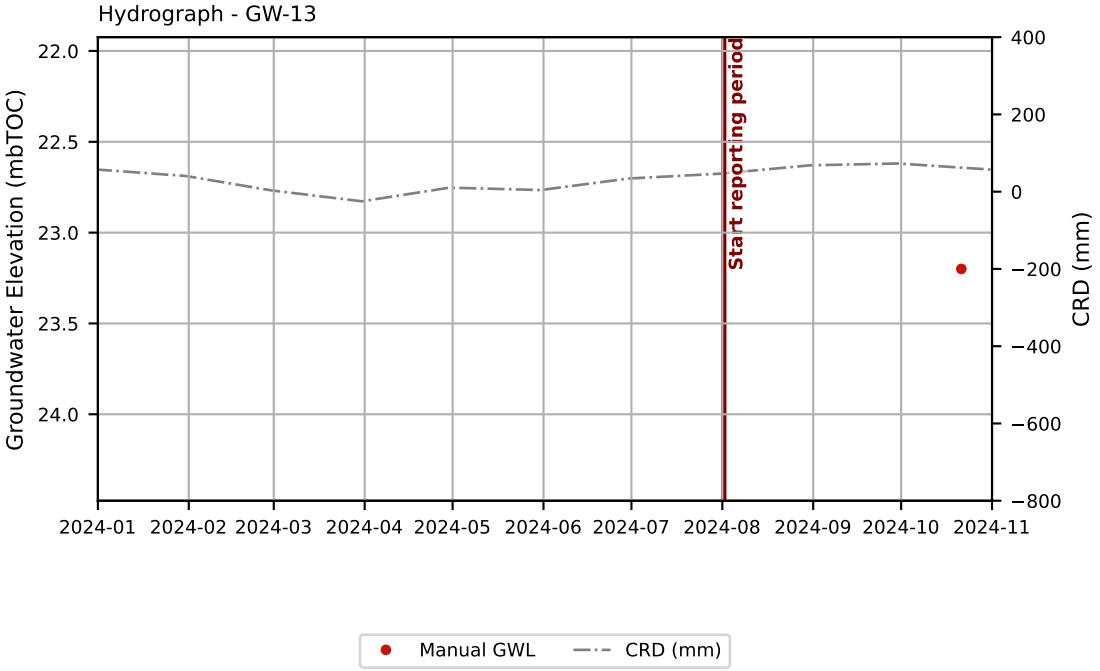
**Whitehaven Coal Ltd**

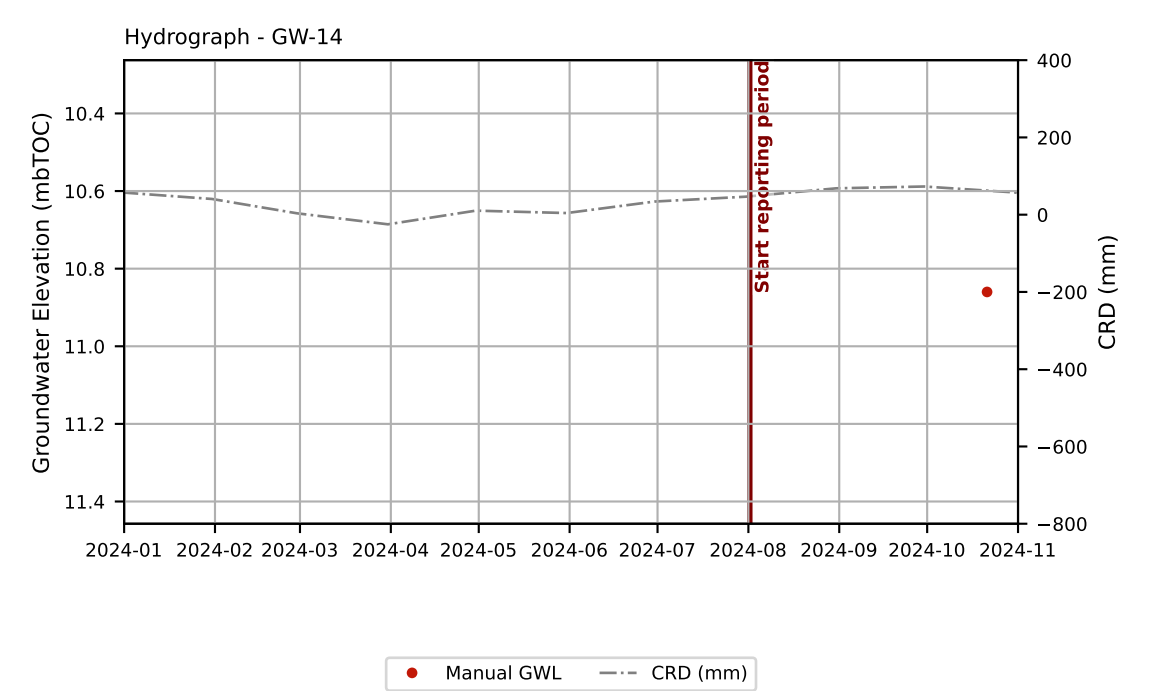
SLR Project No.: 640.031099.00001

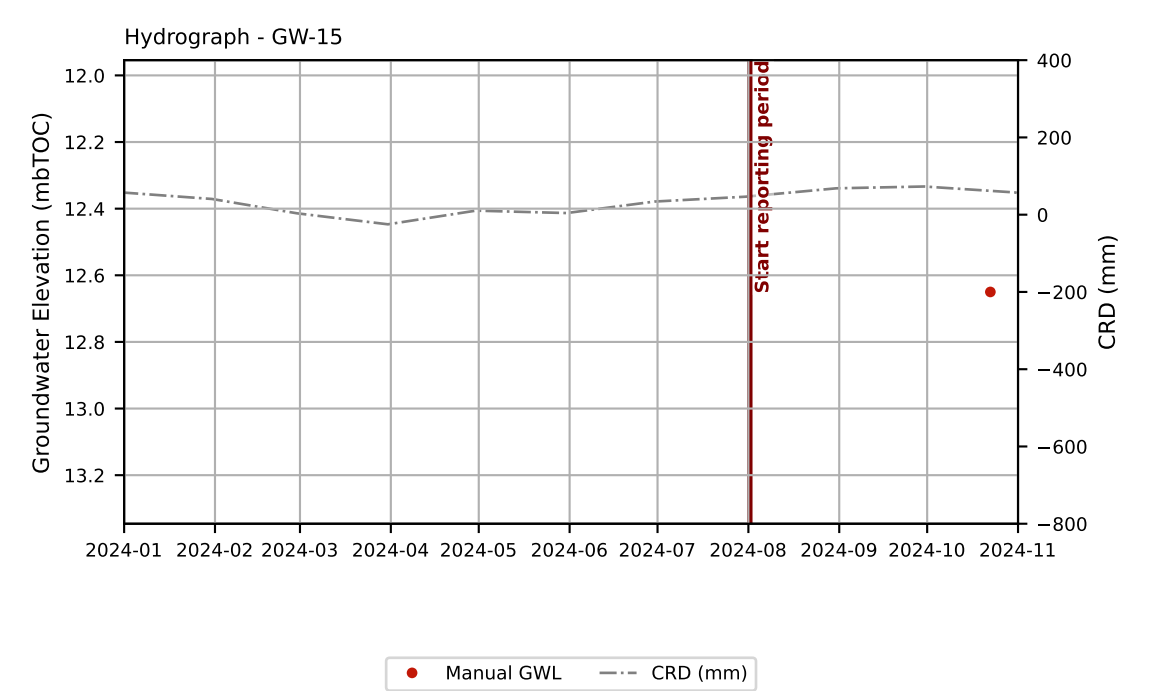
23 December 2024

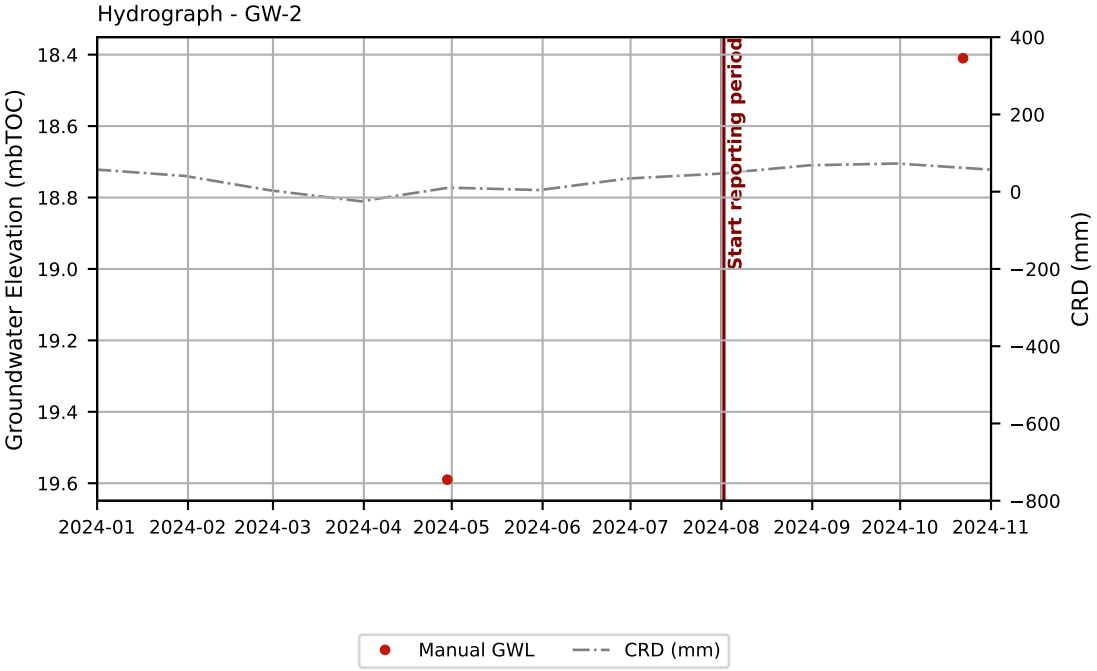

Hydrograph - GW-10
Groundwater Elevation (mbTOC)
17.00
17.25
17.50
17.75
18.00
18.25
18.50
18.75
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

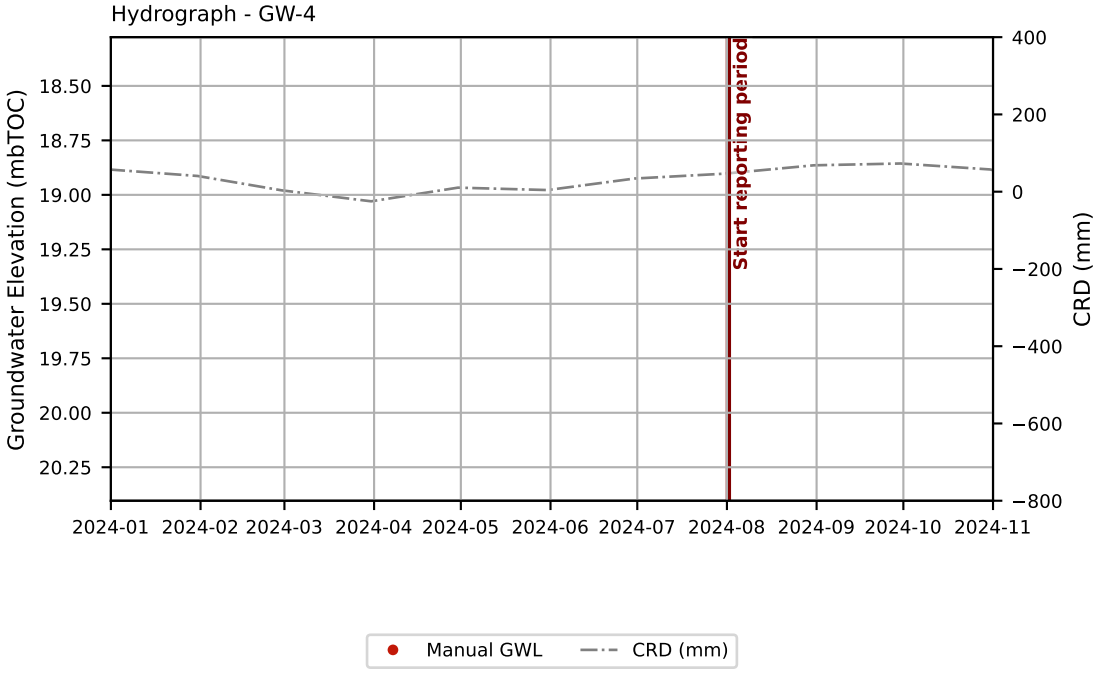

Hydrograph - GW-11
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
236
235
234
233
232
231
400
200
0
−200
−400
−600
−800
2008
2010
2012
2014
2016
2018
2020
2022
2024
Trigger Level - GW-11
Manual GWL
CRD (mm)

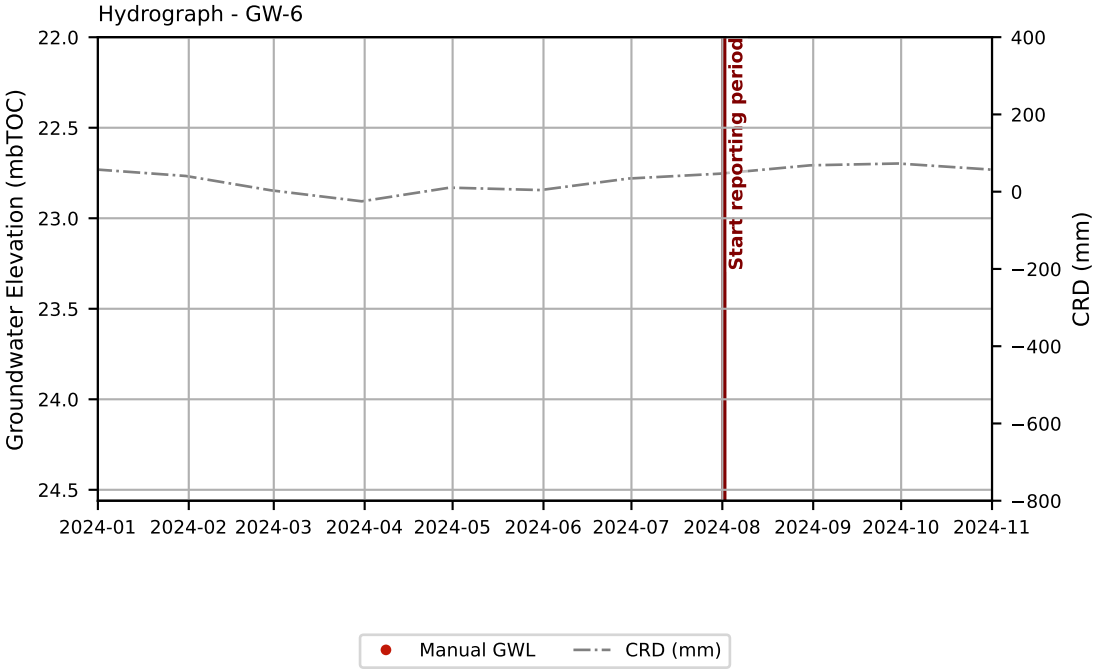

Hydrograph - GW-13
Groundwater Elevation (mbTOC)
22.0
22.5
23.0
23.5
24.0
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

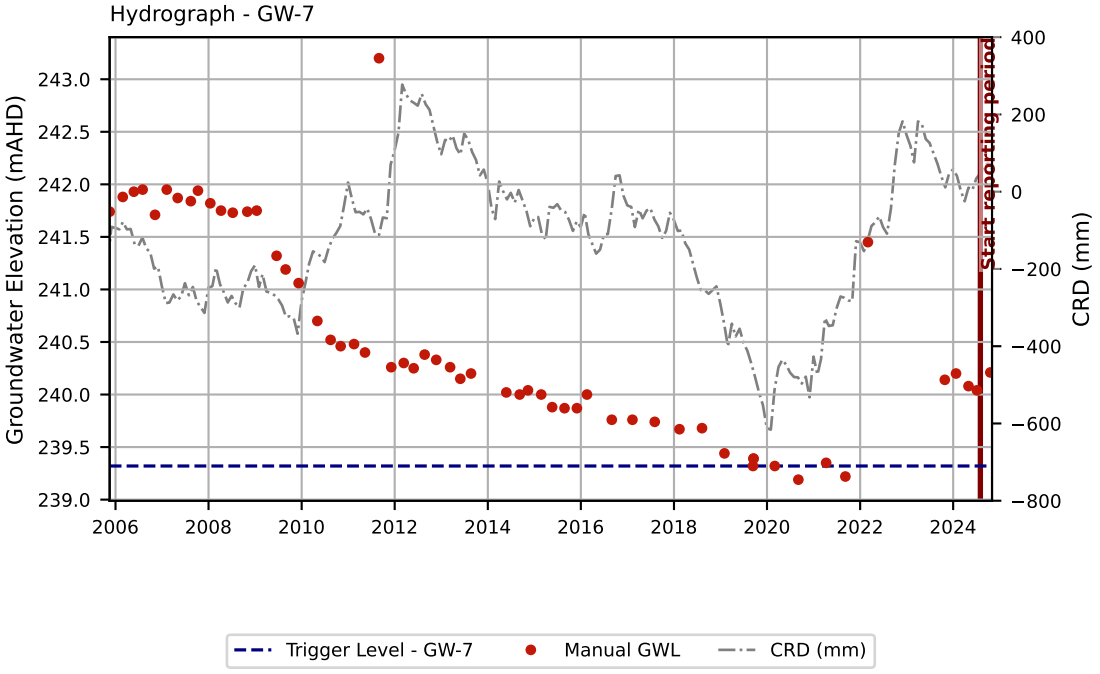

Hydrograph - GW-14
Groundwater Elevation (mbTOC)
10.4
10.6
10.8
11.0
11.2
11.4
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

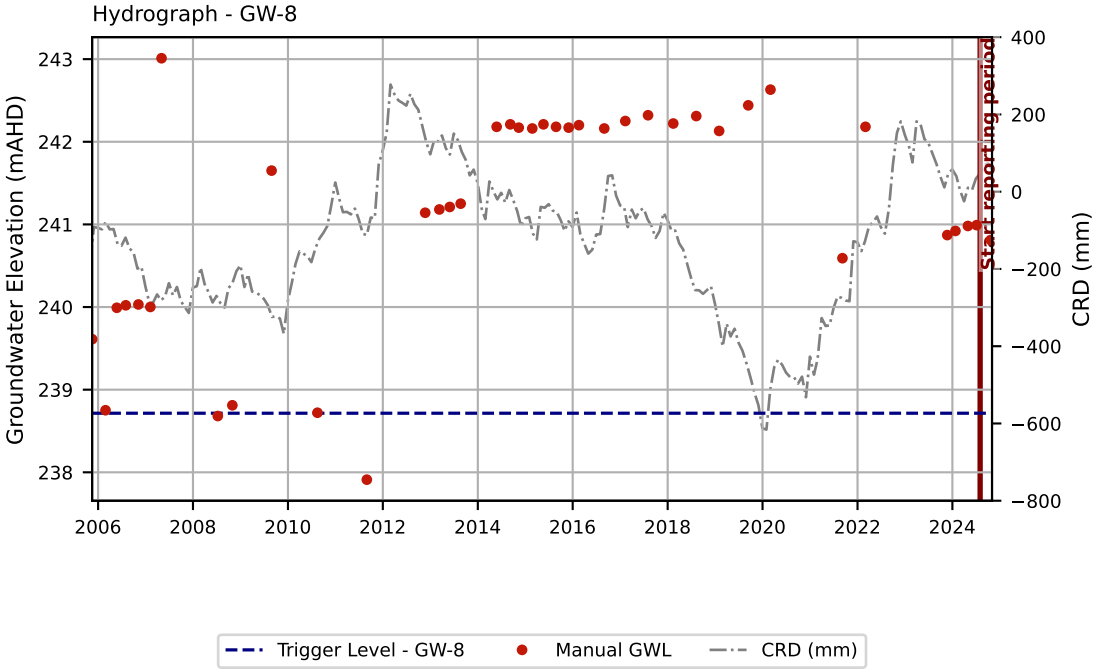

Hydrograph - GW-15
Groundwater Elevation (mbTOC)
12.0
12.2
12.4
12.6
12.8
13.0
13.2
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

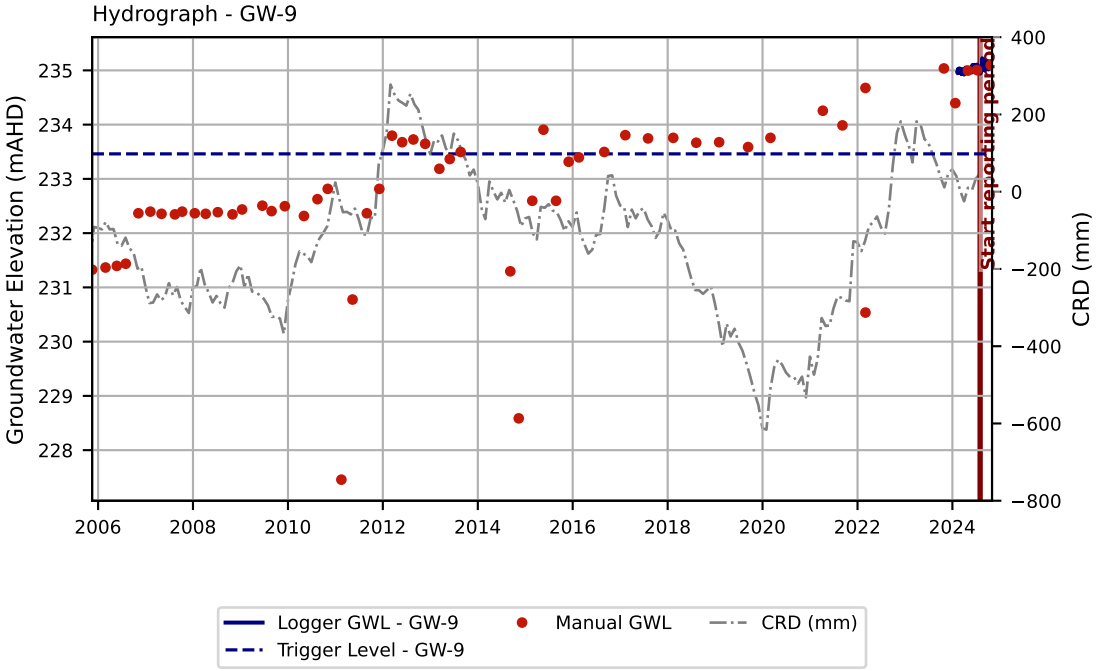

Hydrograph - GW-2
Groundwater Elevation (mbTOC)
CRD (mm)
Start reporting period
18.4
18.6
18.8
19.0
19.2
19.4
19.6
400
200
0
−200
−400
−600
−800
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

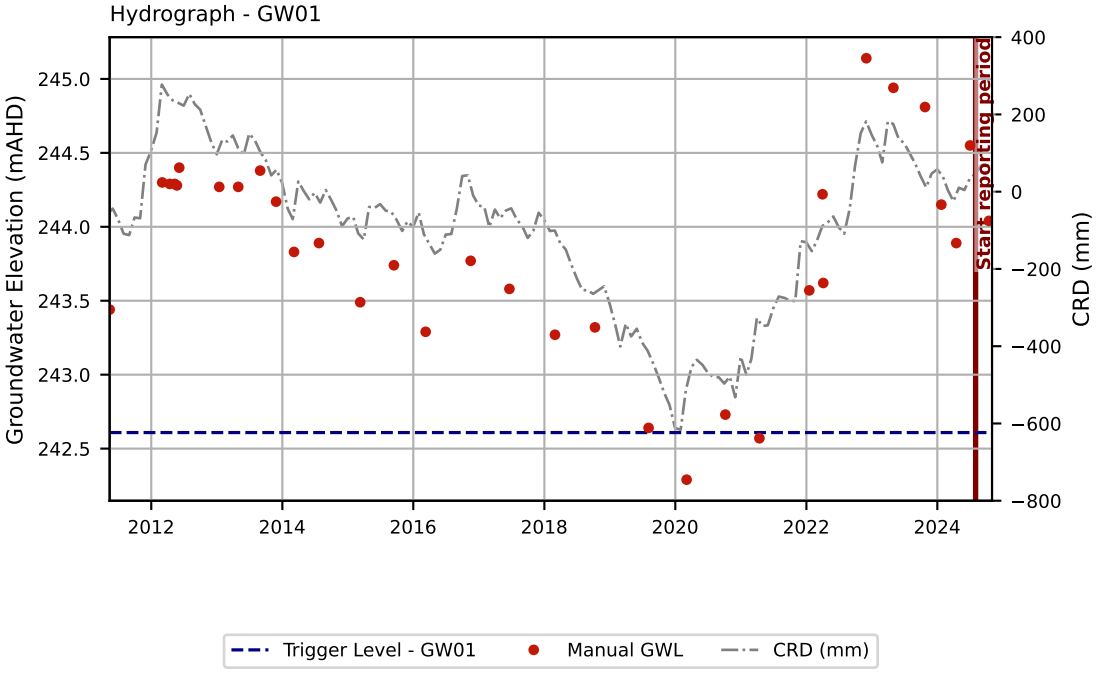

Hydrograph - GW-4
Groundwater Elevation (mbTOC)
18.50
18.75
19.00
19.25
19.50
19.75
20.00
20.25
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

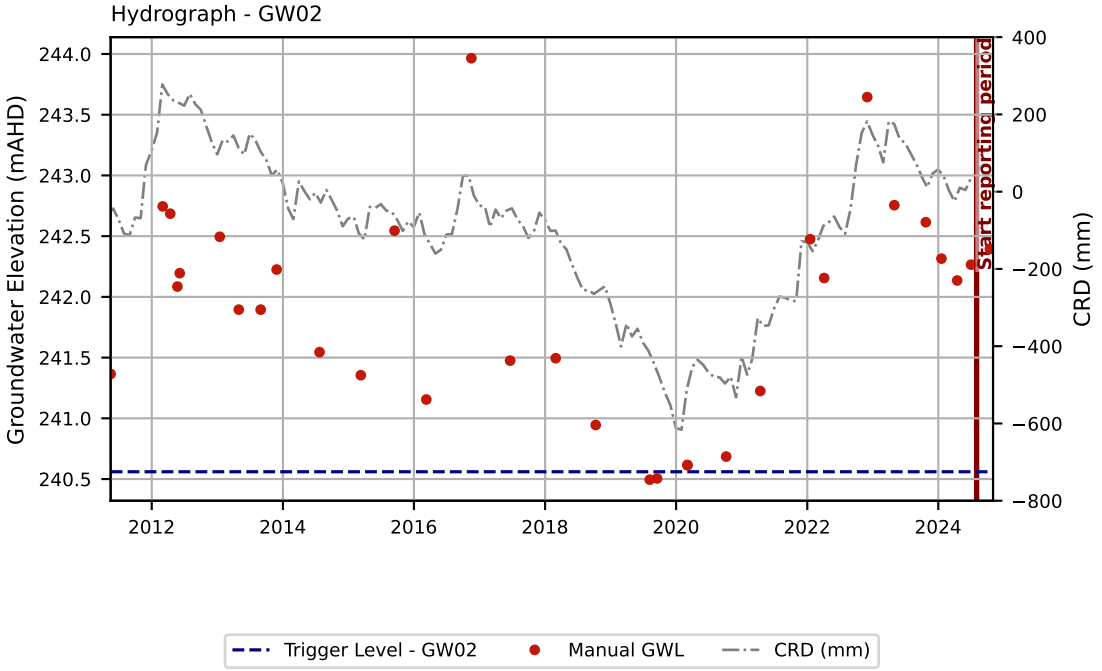

Hydrograph - GW-6
Groundwater Elevation (mbTOC)
CRD (mm)
Start reporting period
22.0
22.5
23.0
23.5
24.0
24.5
400
200
0
−200
−400
−600
−800
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

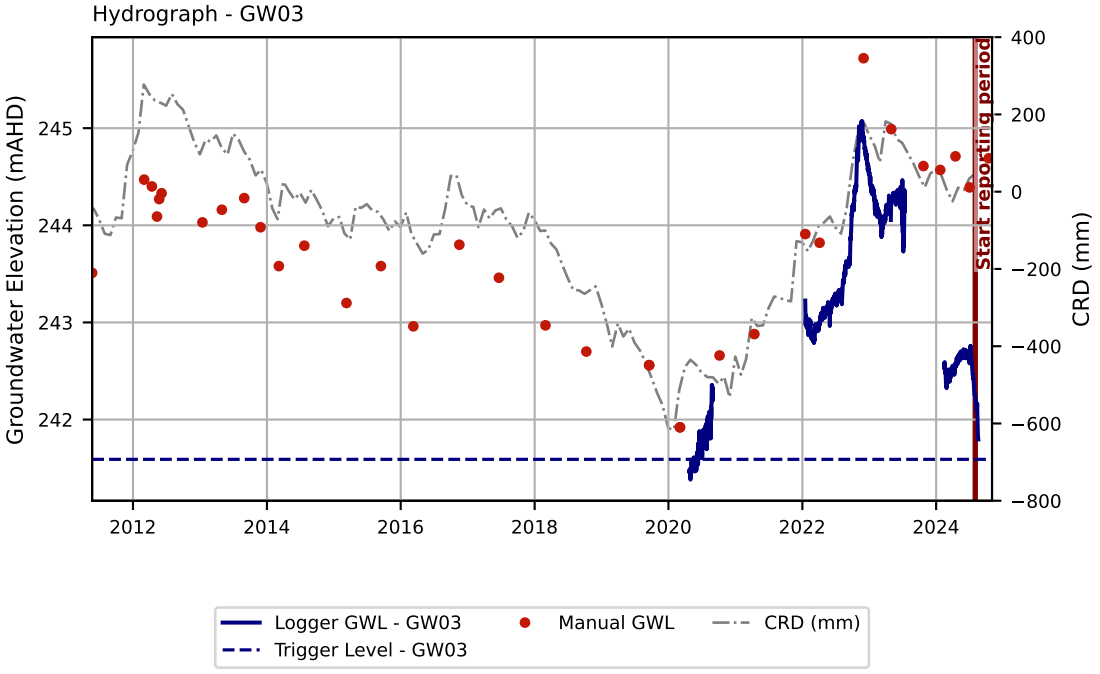

Hydrograph - GW-7
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
243.0
242.5
242.0
241.5
241.0
240.5
240.0
239.5
239.0
400
200
0
−200
−400
−600
−800
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
Trigger Level - GW-7
Manual GWL
CRD (mm)

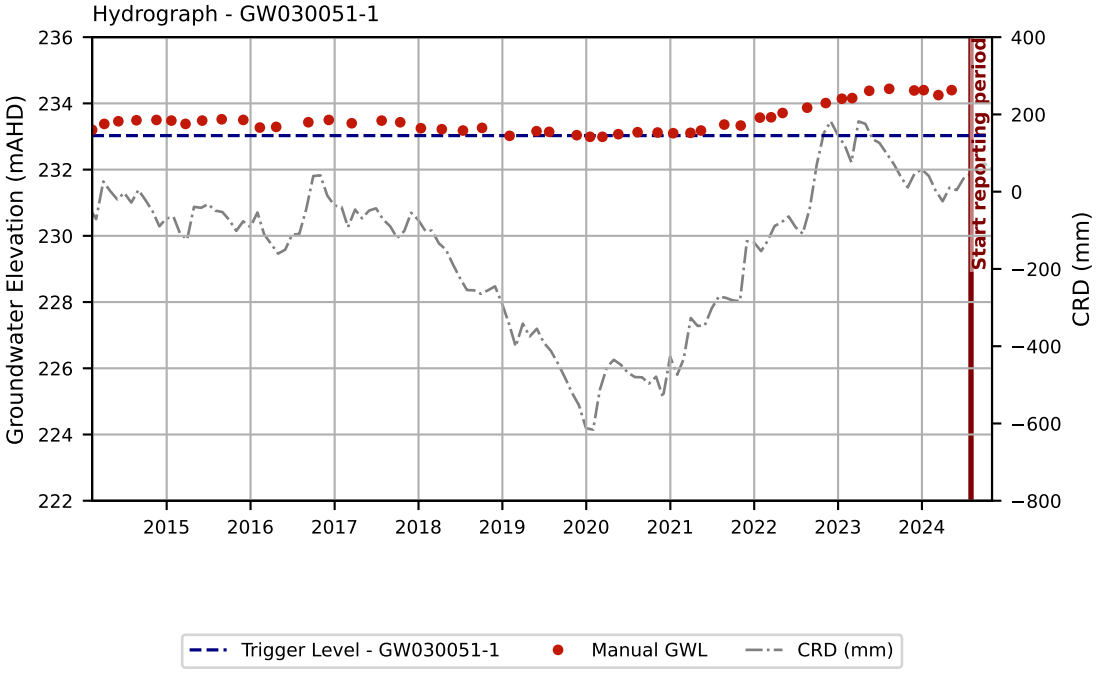

Hydrograph - GW-8
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
243
242
241
240
239
238
400
200
0
−200
−400
−600
−800
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
Trigger Level - GW-8
Manual GWL
CRD (mm)

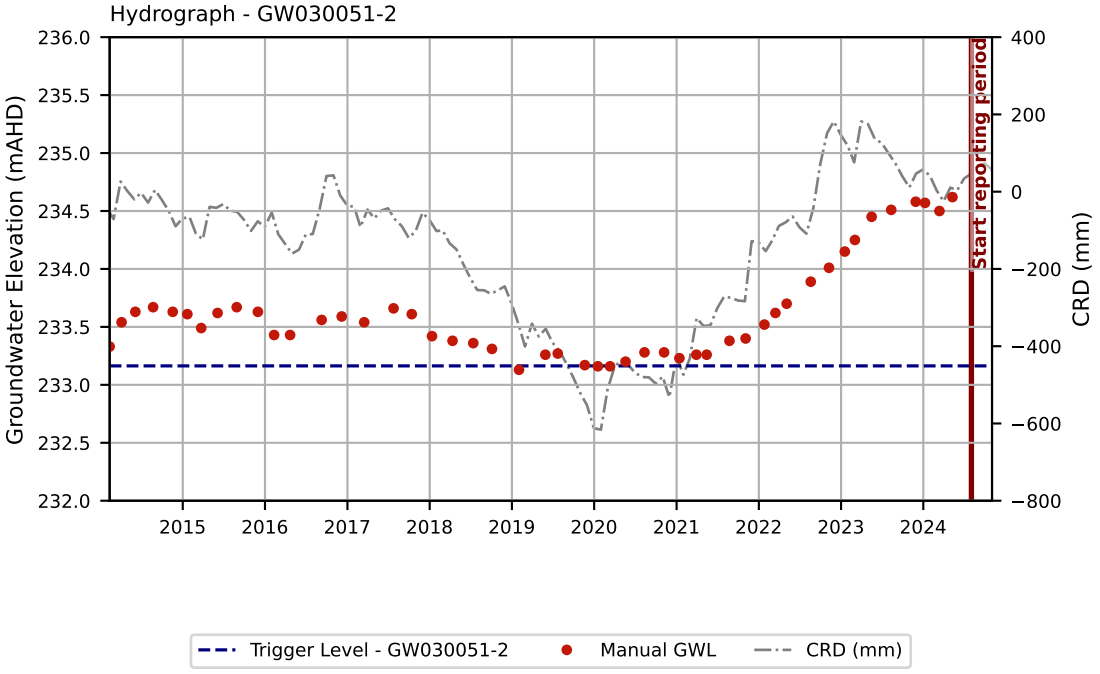

Hydrograph - GW-9
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
235
234
233
232
231
230
229
228
400
200
0
−200
−400
−600
−800
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
Logger GWL - GW-9
Trigger Level - GW-9
Manual GWL
CRD (mm)

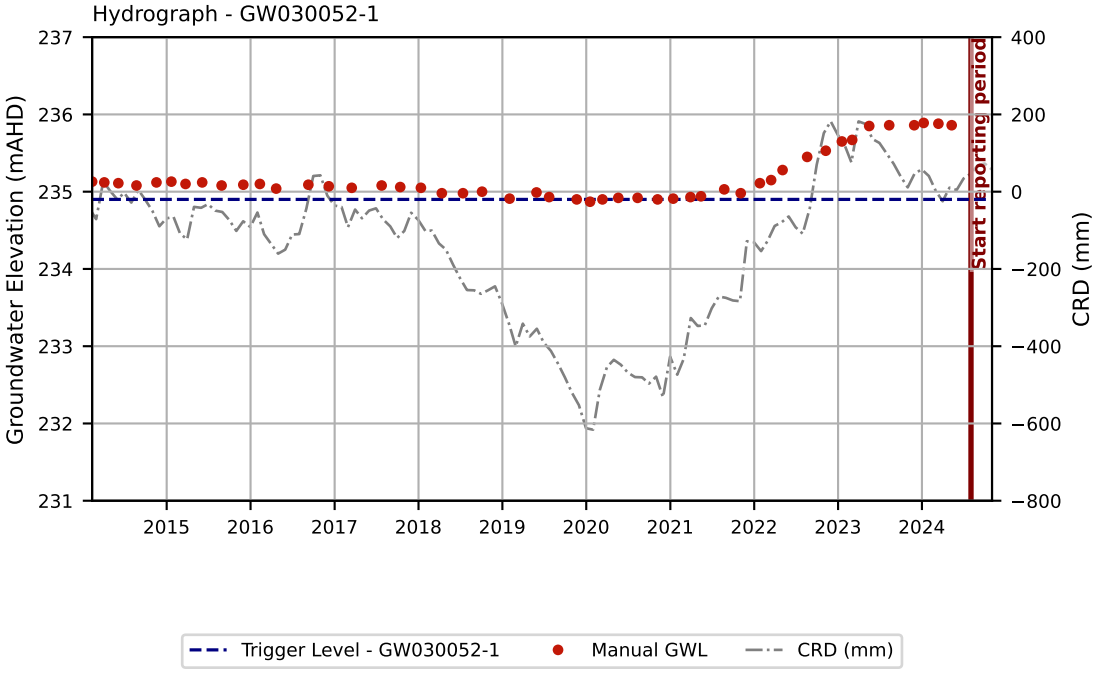

Hydrograph - GW01
Groundwater Elevation (mAHD)
245.0
244.5
244.0
243.5
243.0
242.5
2012
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Stark reporting period
Trigger Level - GW01
Manual GWL
CRD (mm)

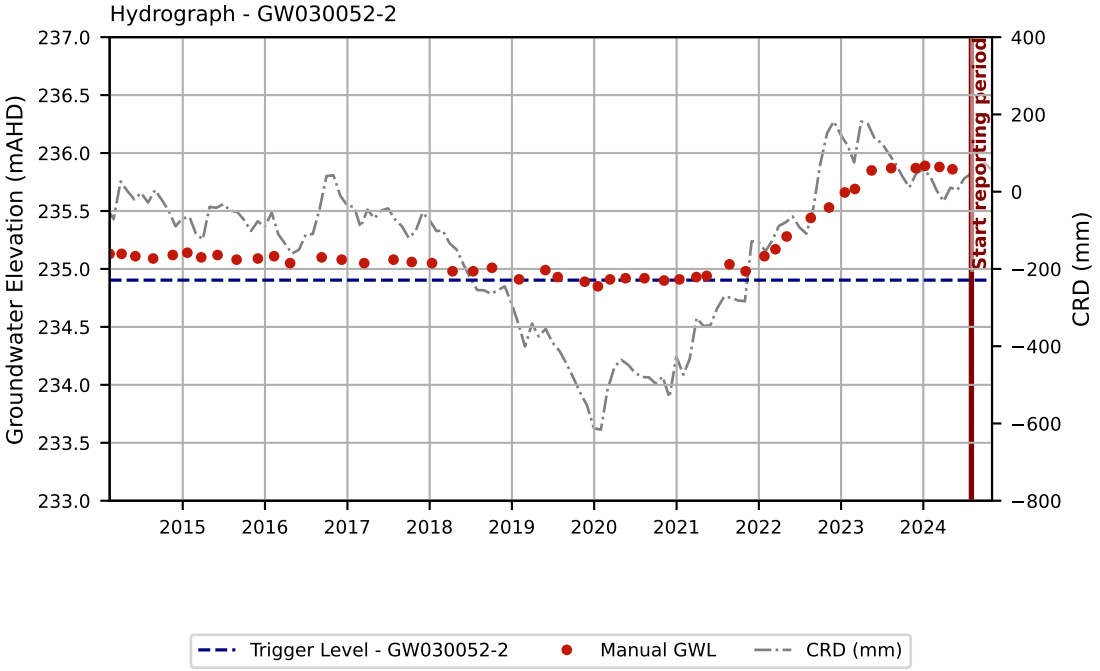

Hydrograph - GW02
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
244.0
243.5
243.0
242.5
242.0
241.5
241.0
240.5
400
200
0
−200
−400
−600
−800
2012
2014
2016
2018
2020
2022
2024
Trigger Level - GW02
Manual GWL
CRD (mm)

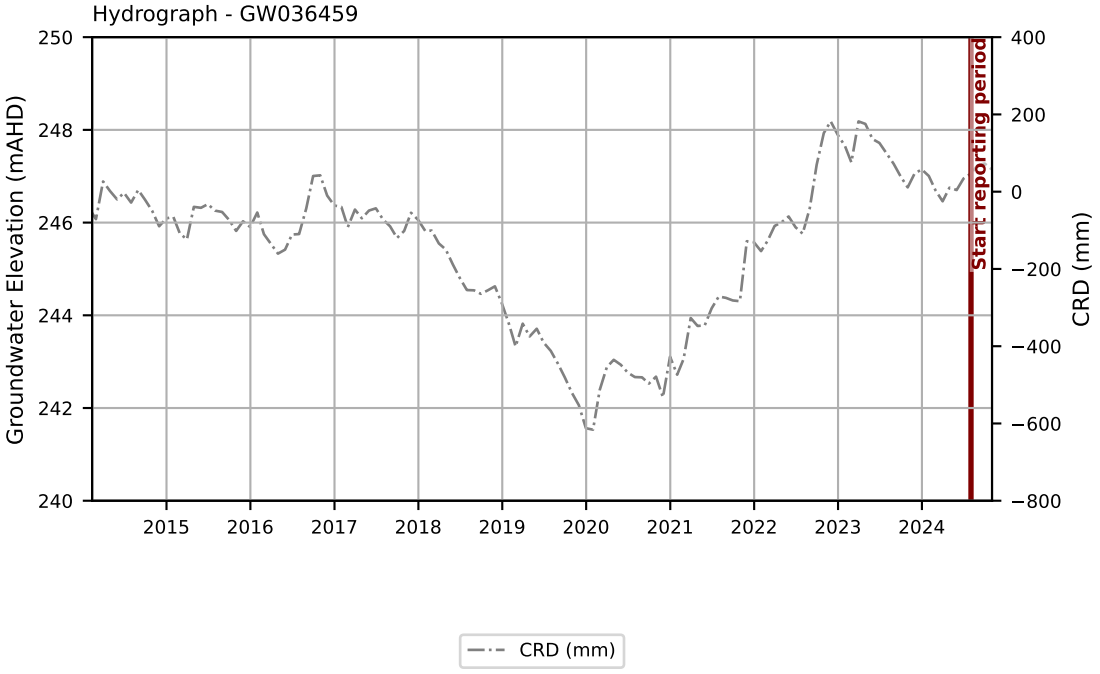

Hydrograph - GW03
Groundwater Elevation (mAHD)
245
244
243
242
2012
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
Logger GWL - GW03
Trigger Level - GW03
Manual GWL
CRD (mm)

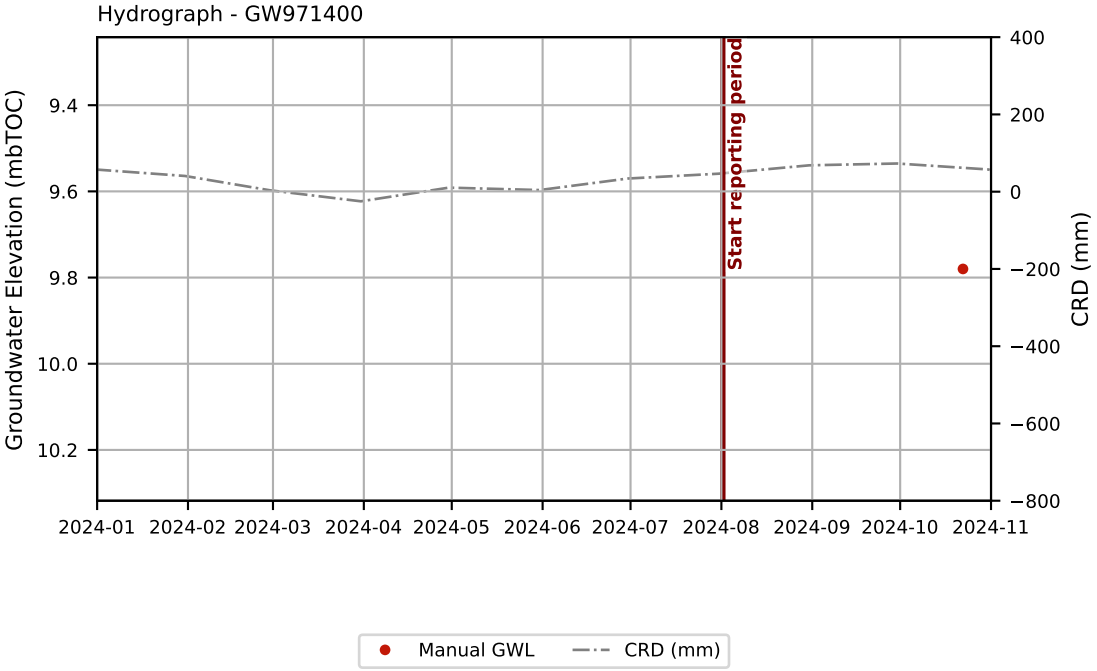

Hydrograph - GW030051-1
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
236
234
232
230
228
226
224
222
400
200
0
−200
−400
−600
−800
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Trigger Level - GW030051-1
Manual GWL
CRD (mm)

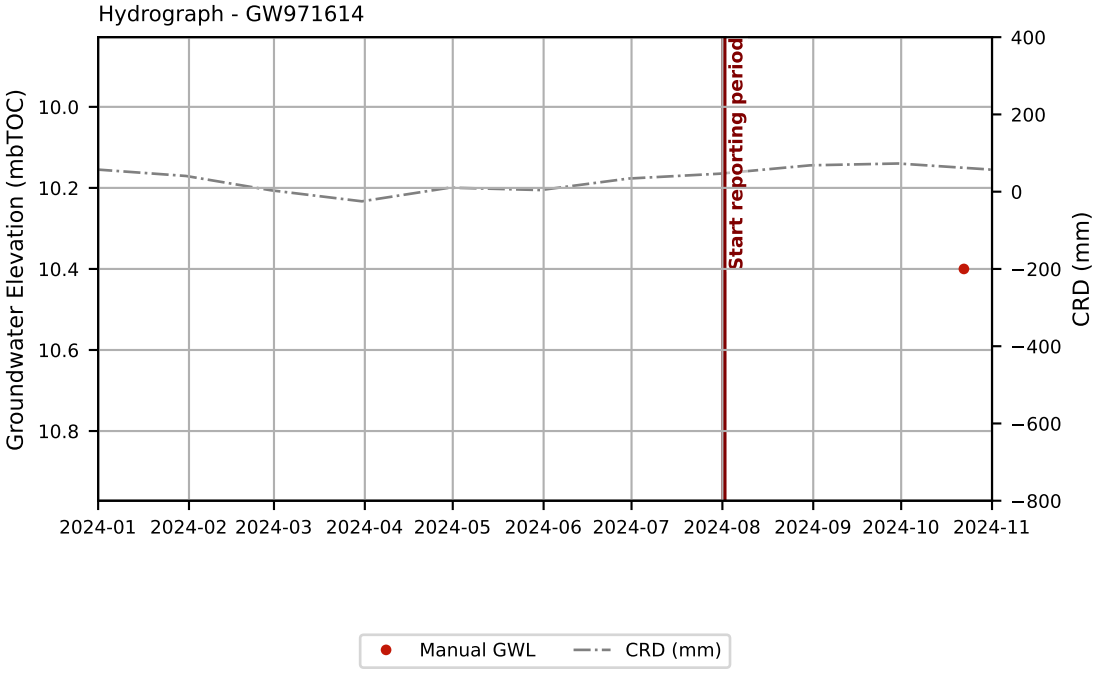

Hydrograph - GW030051-2
Groundwater Elevation (mAHD)
CRD (mm)
236.0
235.5
235.0
234.5
234.0
233.5
233.0
232.5
232.0
400
200
0
−200
−400
−600
−800
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Start reporting period
Trigger Level - GW030051-2
Manual GWL
CRD (mm)

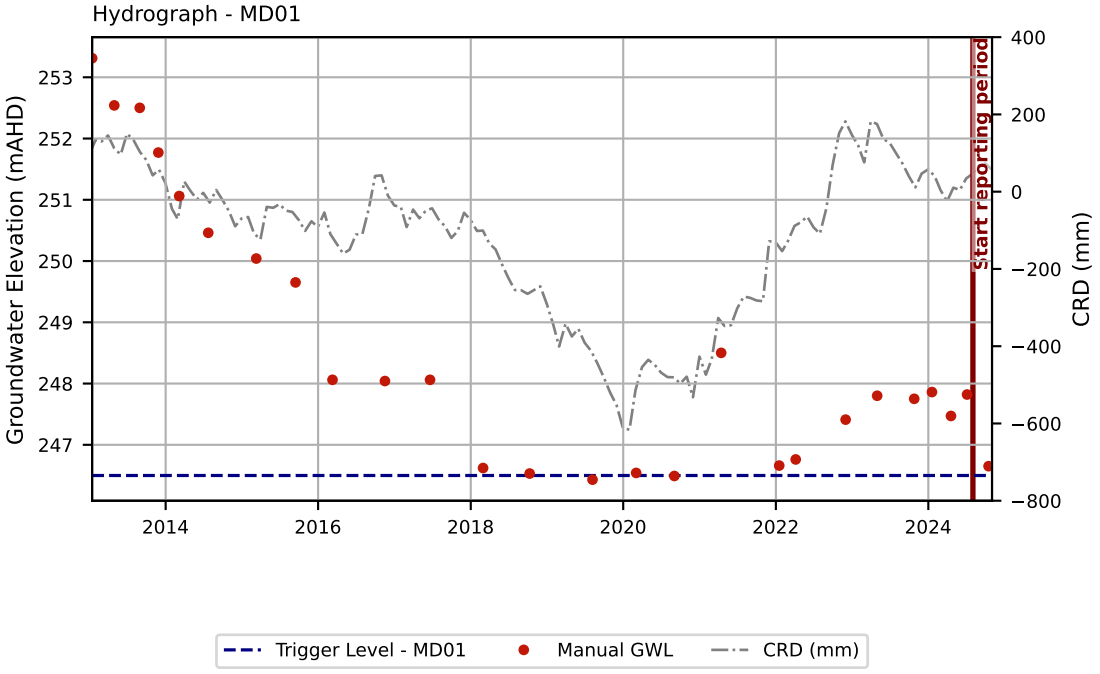

Hydrograph - GW030052-1
Groundwater Elevation (mAHD)
CRD (mm)
237
236
235
234
233
232
231
400
200
0
−200
−400
−600
−800
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Start reporting period
Trigger Level - GW030052-1
Manual GWL
CRD (mm)

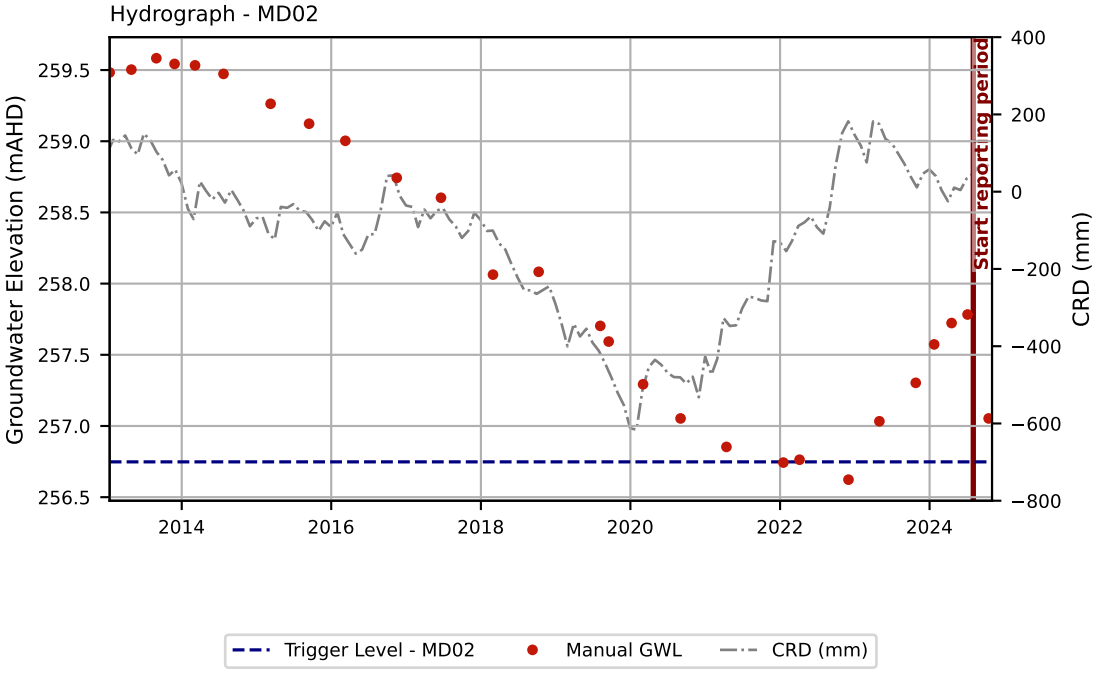

Hydrograph - GW030052-2
Groundwater Elevation (mAHD)
CRD (mm)
237.0
236.5
236.0
235.5
235.0
234.5
234.0
233.5
233.0
400
200
0
−200
−400
−600
−800
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Start reporting period
Trigger Level - GW030052-2
Manual GWL
CRD (mm)

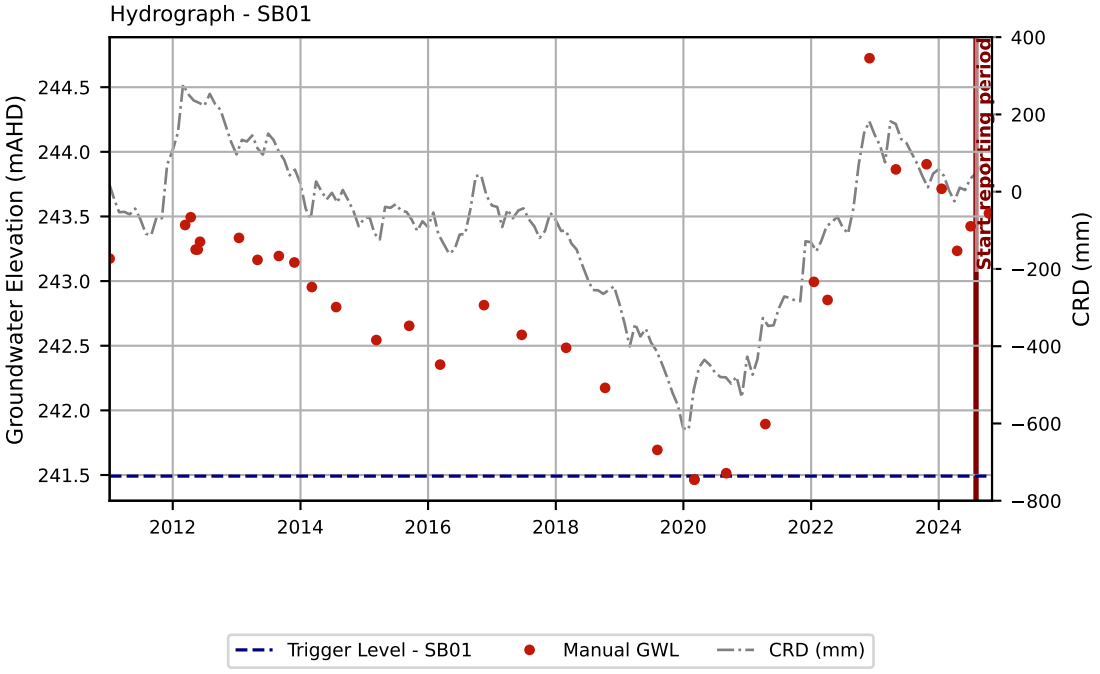

Hydrograph - GW036459
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
250
248
246
244
242
240
400
200
0
−200
−400
−600
−800
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
CRD (mm)


Hydrograph - GW971400
Groundwater Elevation (mbTOC)
9.4
9.6
9.8
10.0
10.2
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

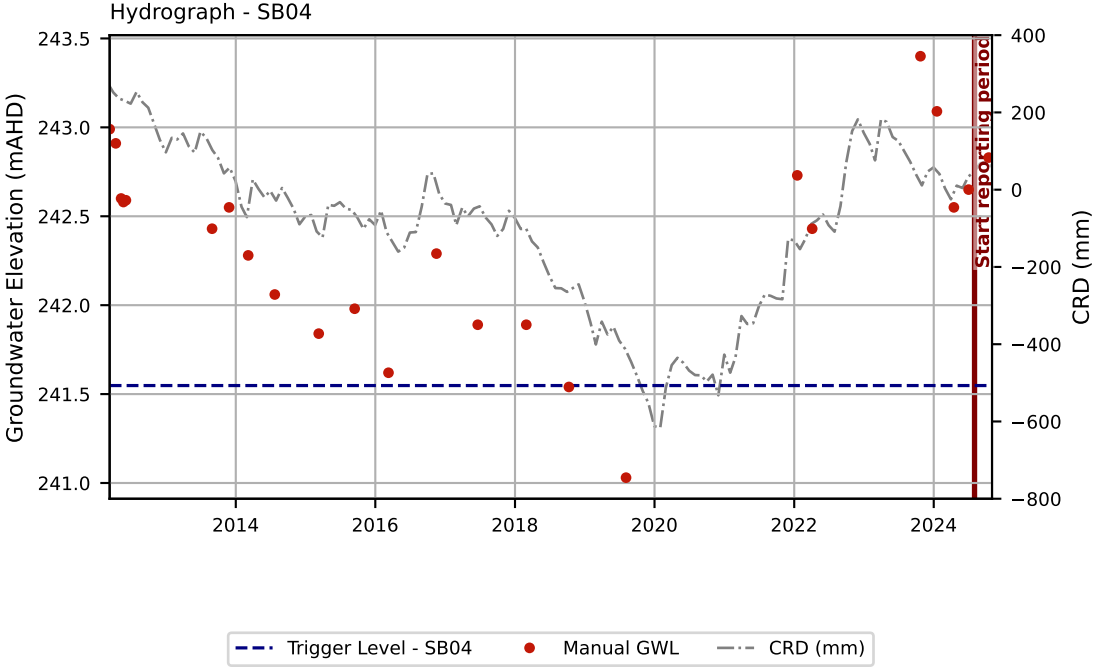

Hydrograph - GW971614
Groundwater Elevation (mbTOC)
10.0
10.2
10.4
10.6
10.8
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Manual GWL
CRD (mm)

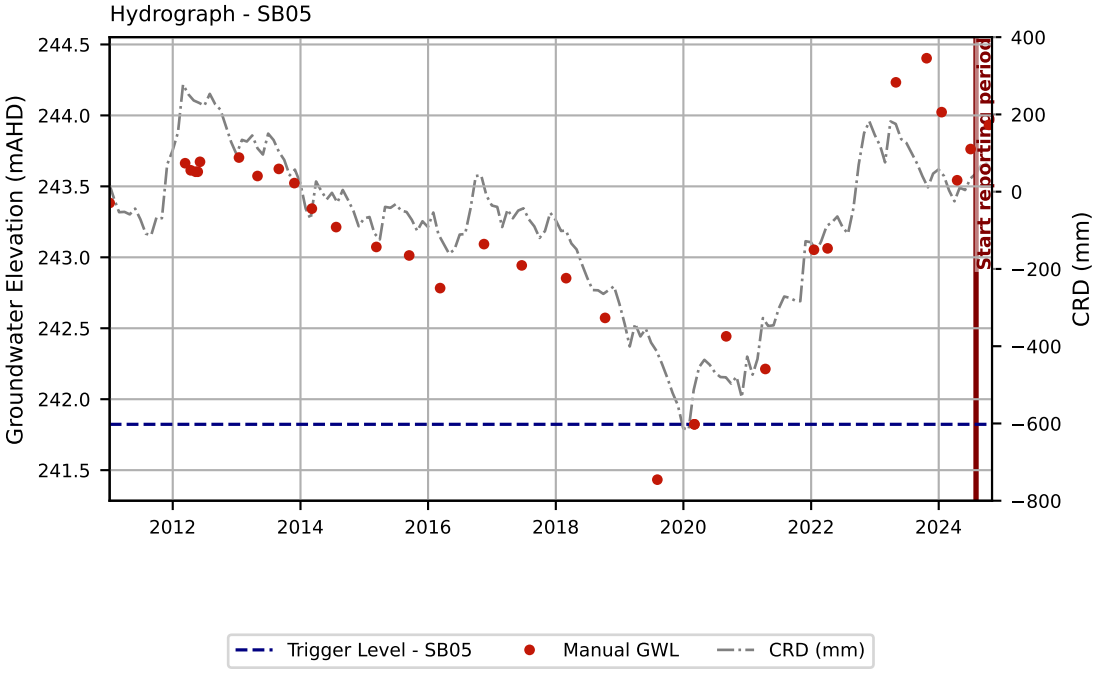

Hydrograph - MD01
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
253
252
251
250
249
248
247
400
200
0
−200
−400
−600
−800
2014
2016
2018
2020
2022
2024
Trigger Level - MD01
Manual GWL
CRD (mm)

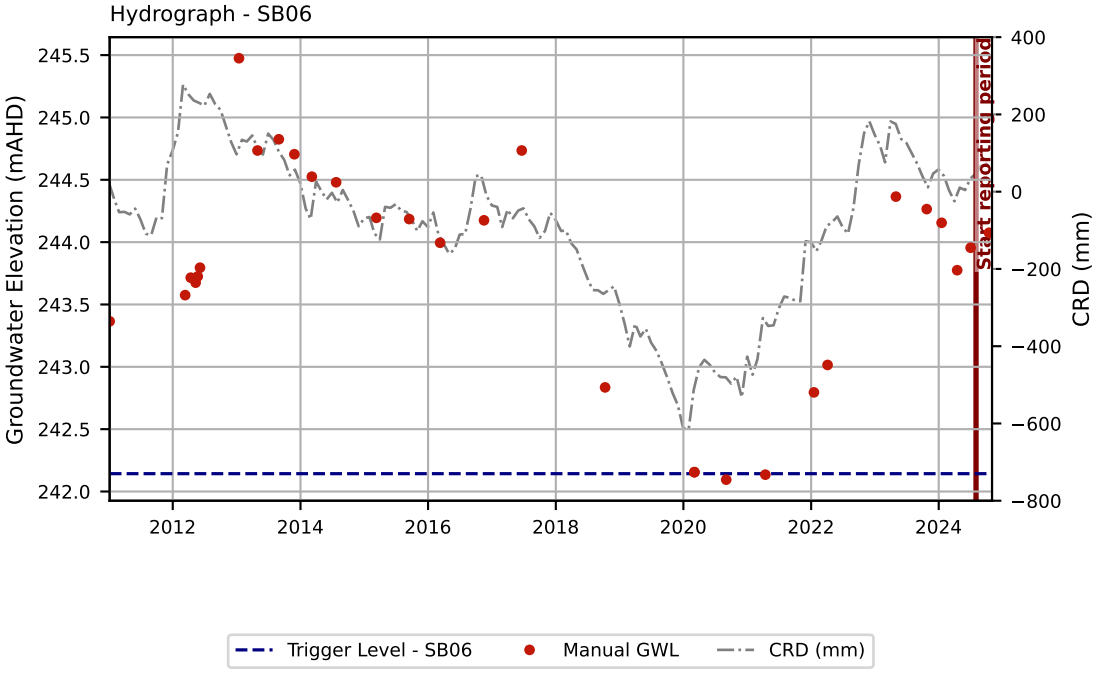

Hydrograph - MD02
Groundwater Elevation (mAHD)
CRD (mm)
259.5
259.0
258.5
258.0
257.5
257.0
256.5
400
200
0
−200
−400
−600
−800
2014
2016
2018
2020
2022
2024
Start reporting period
Trigger Level - MD02
Manual GWL
CRD (mm)

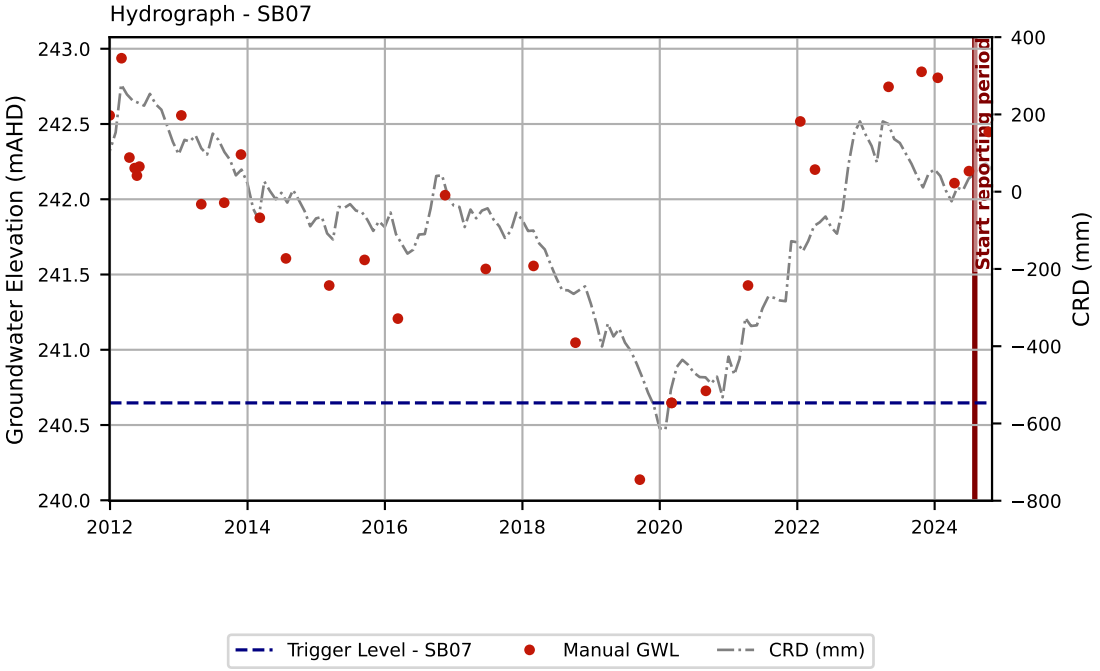

Hydrograph - SB01
Groundwater Elevation (mAHD)
CRD (mm)
244.5
244.0
243.5
243.0
242.5
242.0
241.5
400
200
0
−200
−400
−600
−800
2012
2014
2016
2018
2020
2022
2024
Start reporting period
Trigger Level - SB01
Manual GWL
CRD (mm)

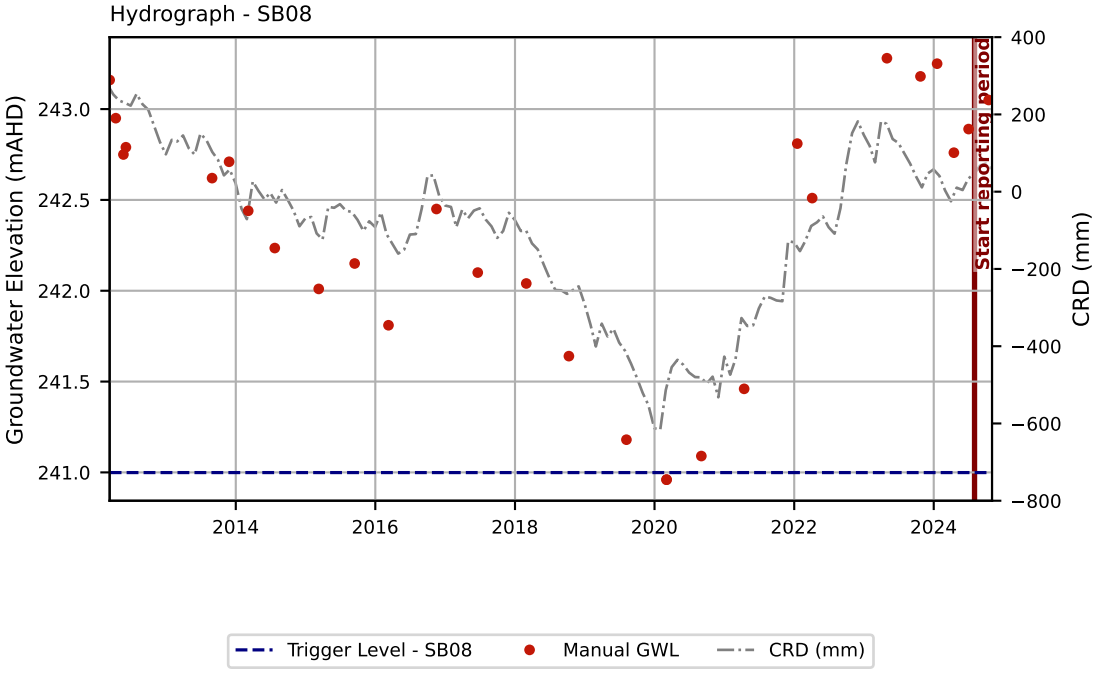

Hydrograph - SB02
Groundwater Elevation (mAHD)
252
250
248
246
244
2012
2014
2016
2018
2020
2022
2024
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
Trigger Level - SB02
Manual GWL
CRD (mm)

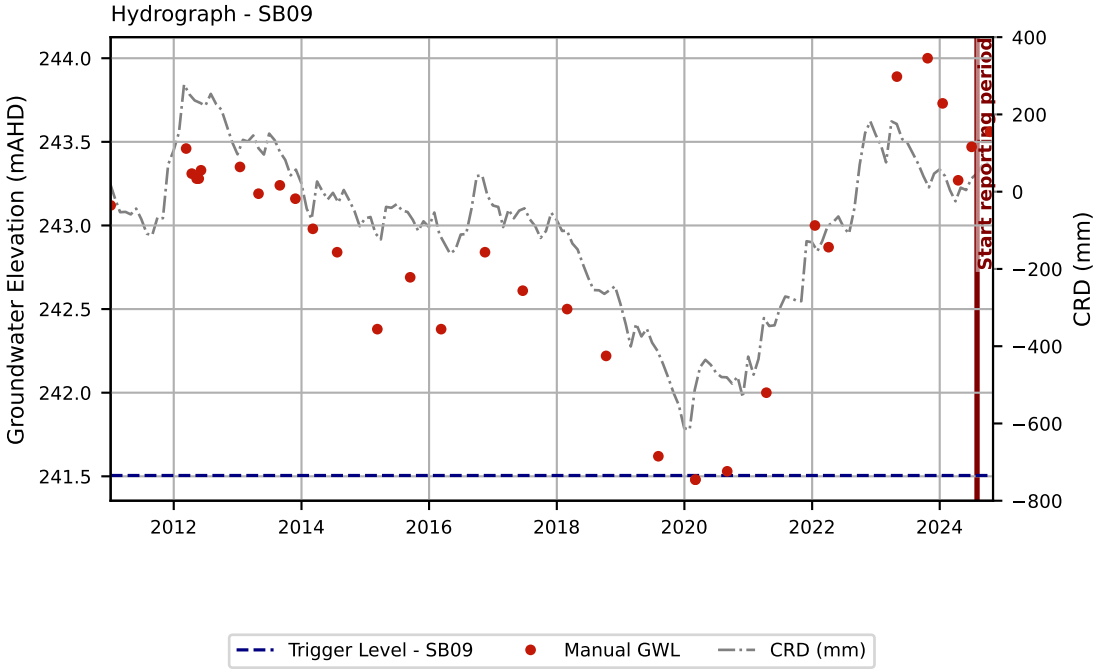

Hydrograph - SB04
Groundwater Elevation (mAHD)
CRD (mm)
243.5
243.0
242.5
242.0
241.5
241.0
400
200
0
−200
−400
−600
−800
2014
2016
2018
2020
2022
2024
Start reporting period
Trigger Level - SB04
Manual GWL
CRD (mm)

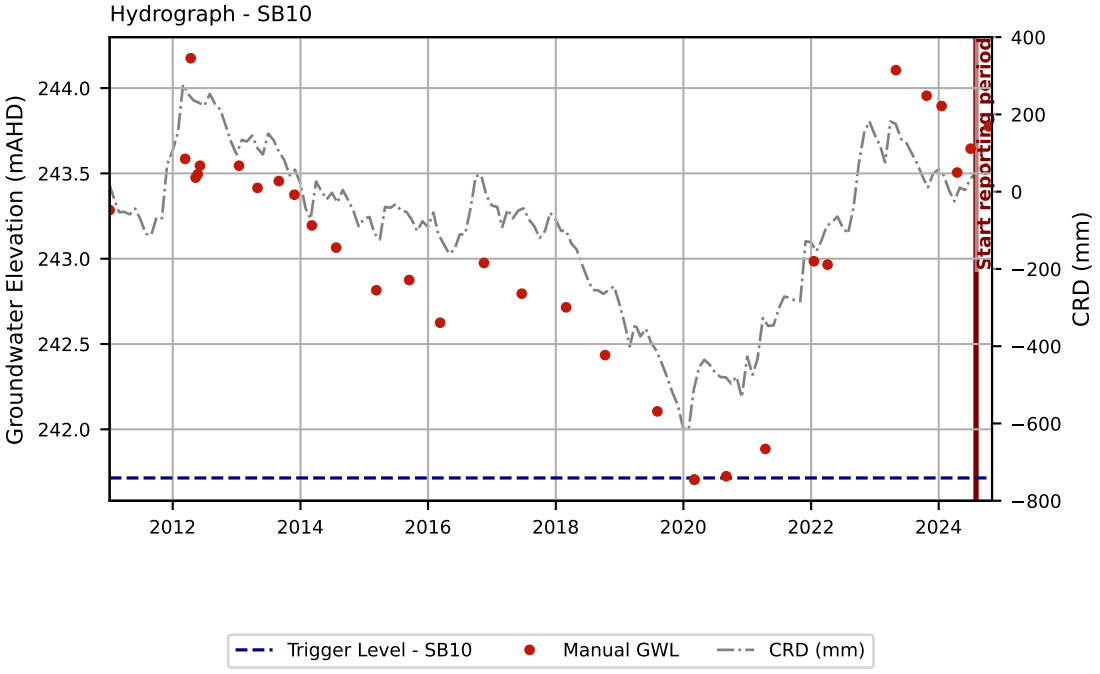

Hydrograph - SB05
Groundwater Elevation (mAHD)
CRD (mm)
244.5
244.0
243.5
243.0
242.5
242.0
241.5
400
200
0
−200
−400
−600
−800
2012
2014
2016
2018
2020
2022
2024
Start reporting period
Trigger Level - SB05
Manual GWL
CRD (mm)

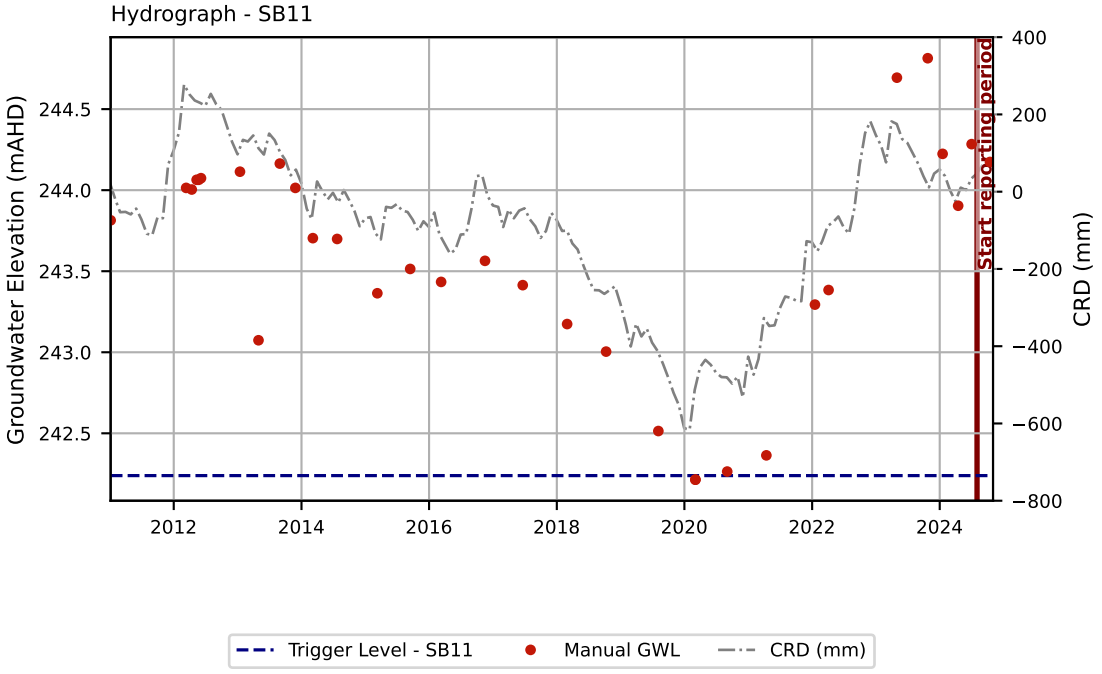

Hydrograph - SB06
Groundwater Elevation (mAHD)
CRD (mm)
245.5
245.0
244.5
244.0
243.5
243.0
242.5
242.0
400
200
0
−200
−400
−600
−800
2012
2014
2016
2018
2020
2022
2024
Start reporting period
Trigger Level - SB06
Manual GWL
CRD (mm)

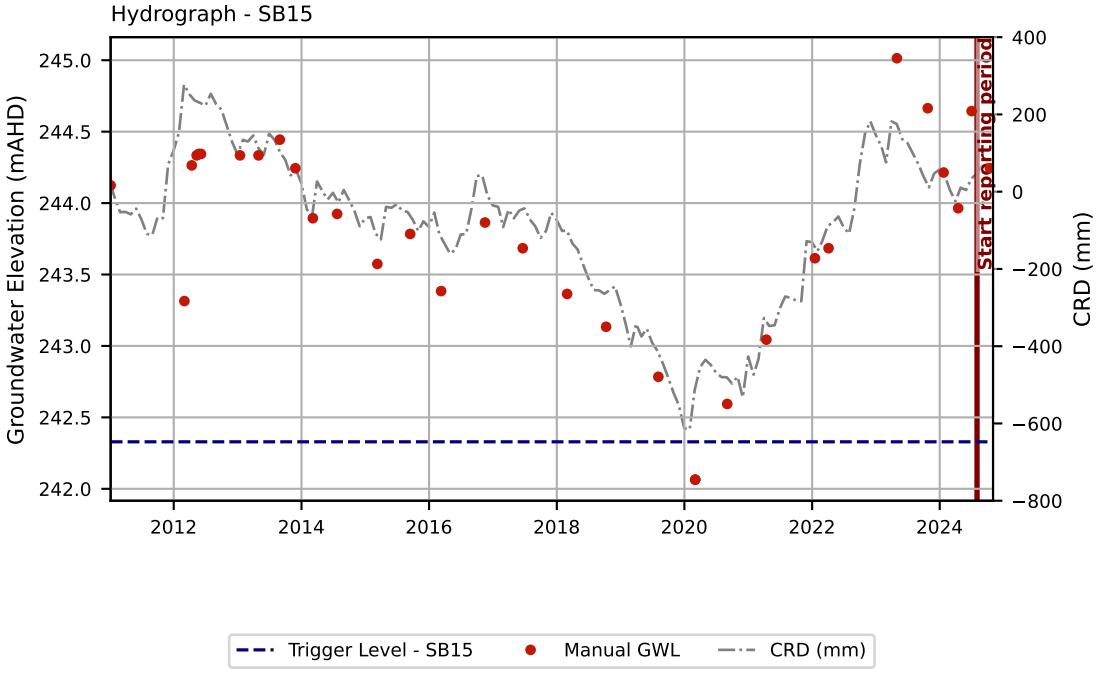

Hydrograph - SB07
Groundwater Elevation (mAHD)
CRD (mm)
243.0
242.5
242.0
241.5
241.0
240.5
240.0
400
200
0
−200
−400
−600
−800
2012
2014
2016
2018
2020
2022
2024
Start reporting period
Trigger Level - SB07
Manual GWL
CRD (mm)

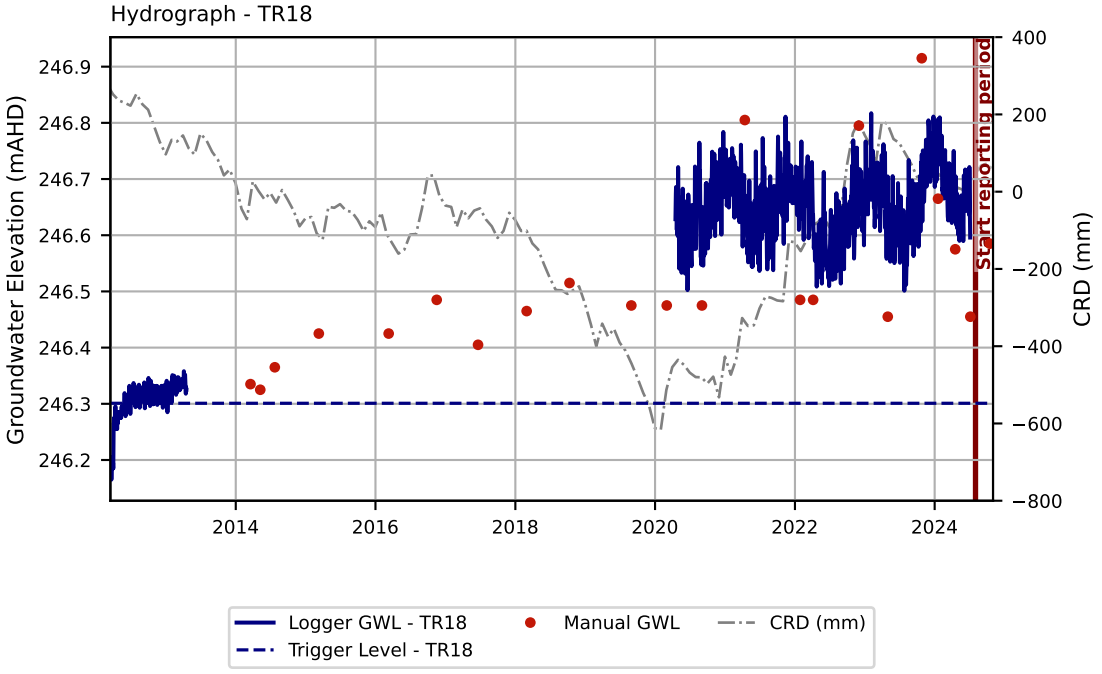

Hydrograph - SB08
Groundwater Elevation (mAHD)
243.0
242.5
242.0
241.5
241.0
2014
2016
2018
2020
2022
2024
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
Trigger Level - SB08
Manual GWL
CRD (mm)

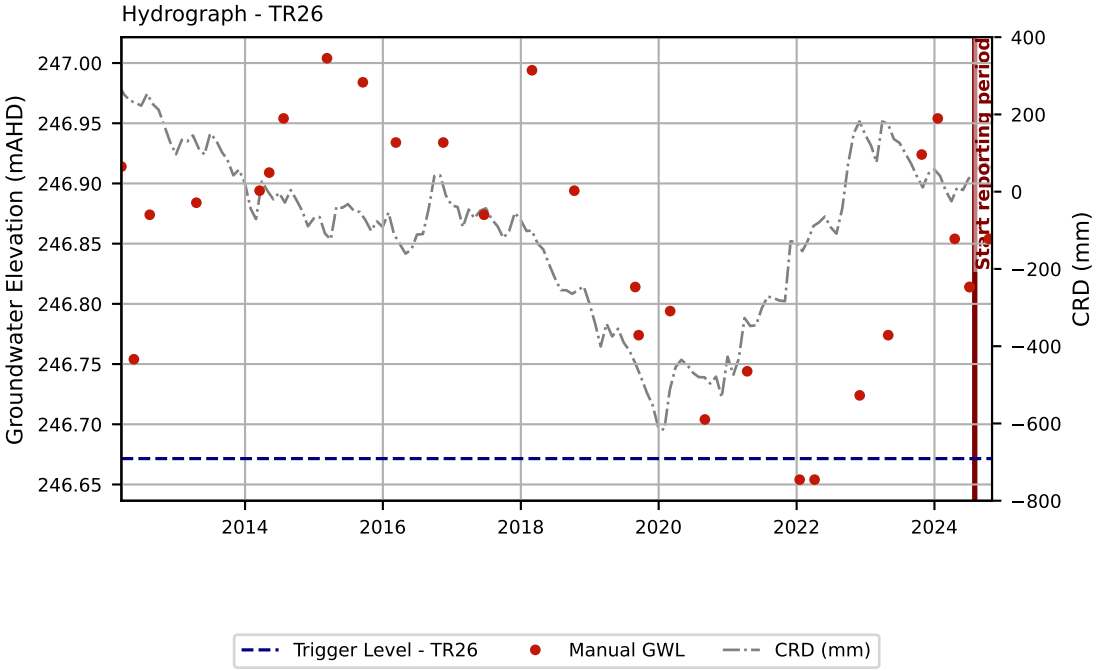

Hydrograph - SB09
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
244.0
243.5
243.0
242.5
242.0
241.5
400
200
0
−200
−400
−600
−800
2012
2014
2016
2018
2020
2022
2024
Trigger Level - SB09
Manual GWL
CRD (mm)

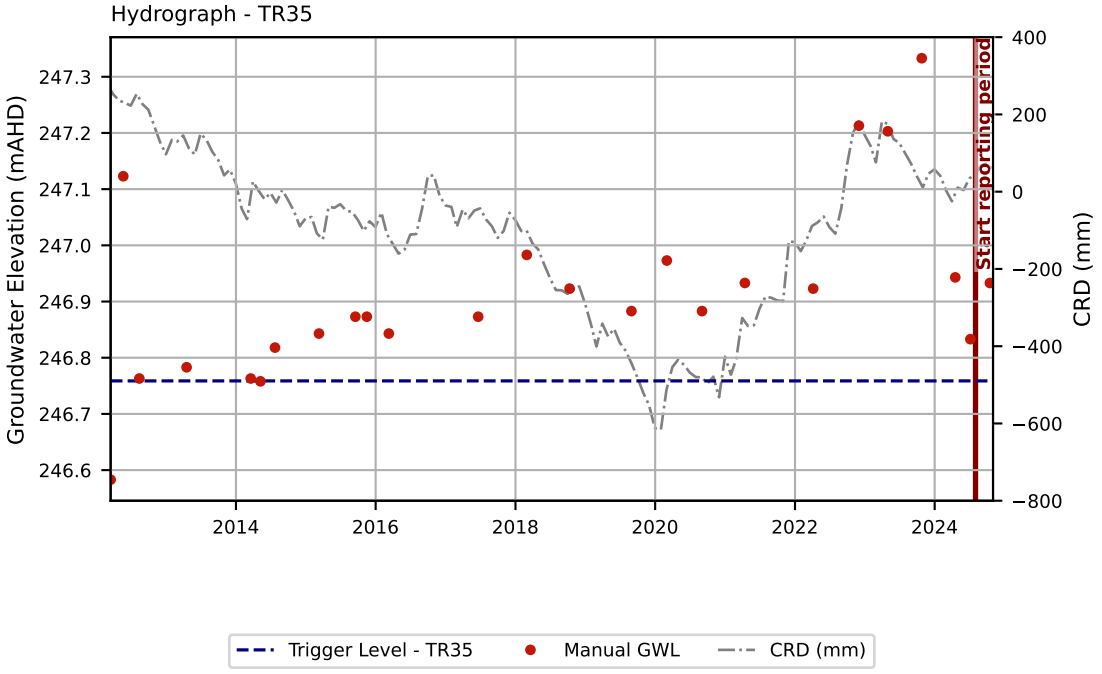

Hydrograph - SB10
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
244.0
243.5
243.0
242.5
242.0
400
200
0
−200
−400
−600
−800
2012
2014
2016
2018
2020
2022
2024
Trigger Level - SB10
Manual GWL
CRD (mm)

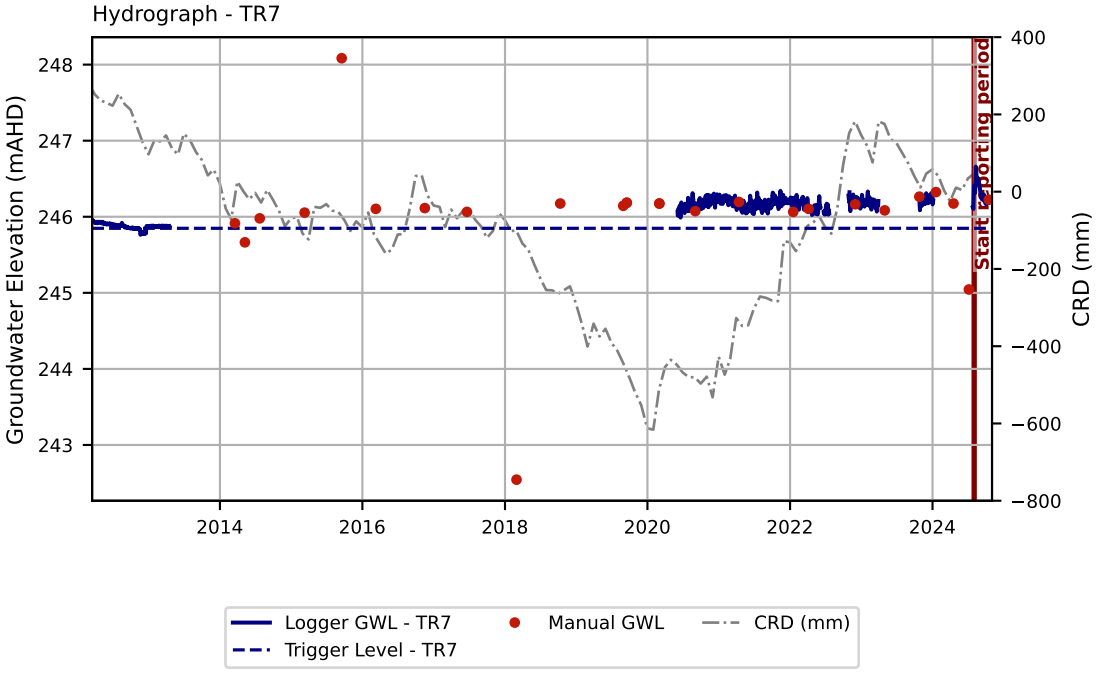

Hydrograph - SB11
Groundwater Elevation (mAHD)
244.5
244.0
243.5
243.0
242.5
2012
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
Trigger Level - SB11
Manual GWL
CRD (mm)

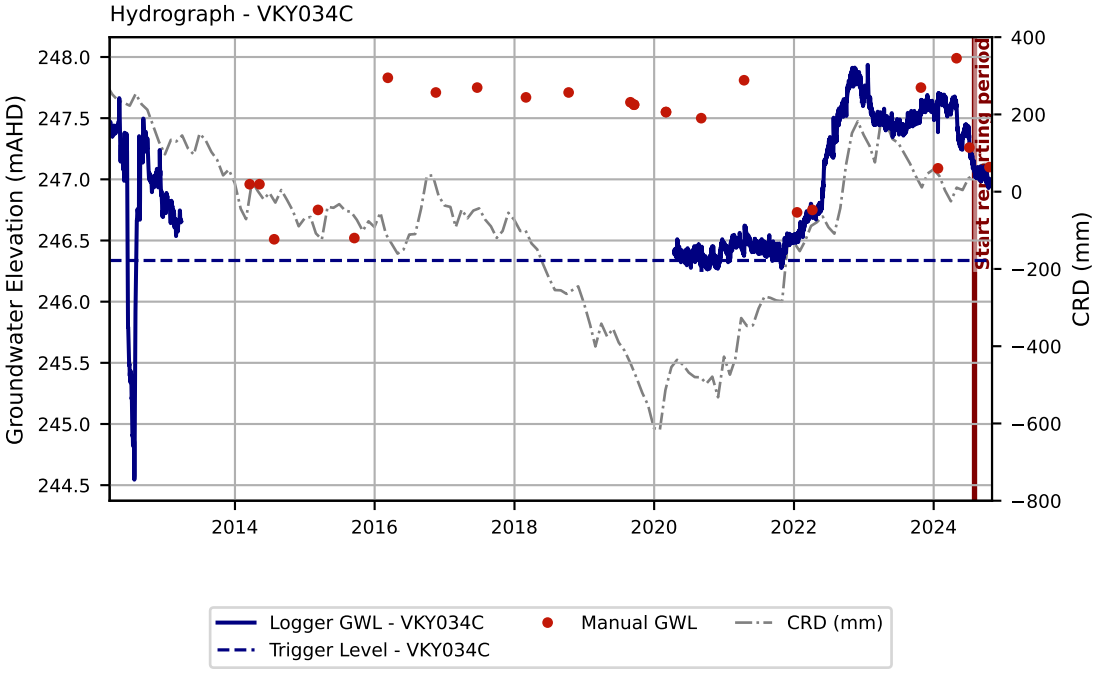

Hydrograph - SB15
Groundwater Elevation (mAHD)
245.0
244.5
244.0
243.5
243.0
242.5
242.0
2012
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
Trigger Level - SB15
Manual GWL
CRD (mm)

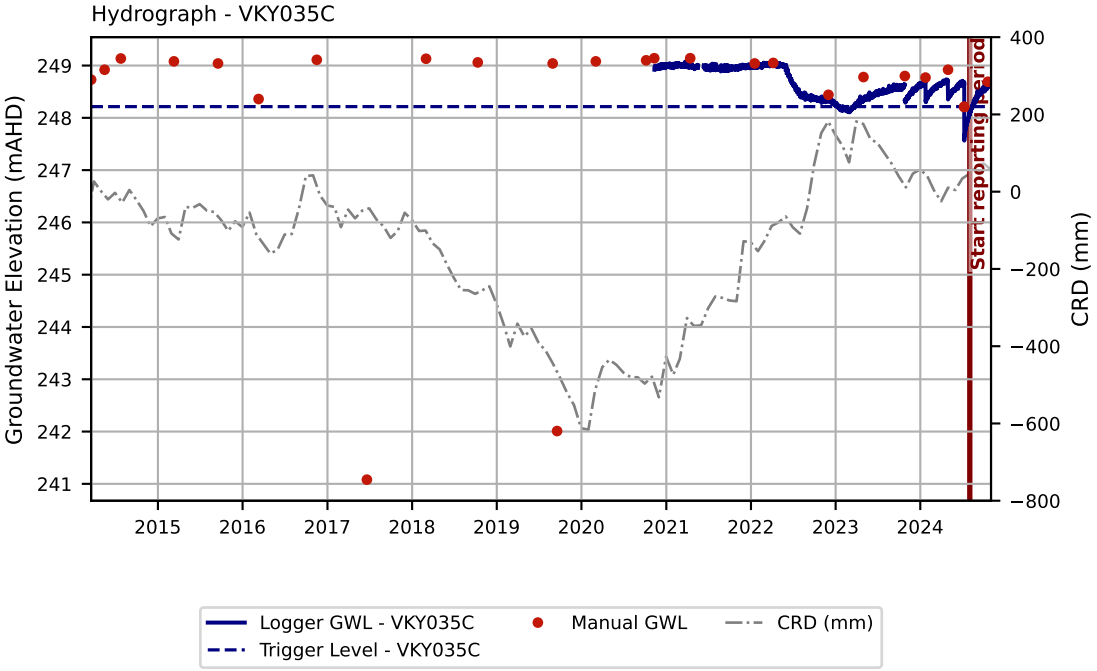

Hydrograph - TR18
Groundwater Elevation (mAHD)
246.9
246.8
246.7
246.6
246.5
246.4
246.3
246.2
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
Logger GWL - TR18
Trigger Level - TR18
Manual GWL
CRD (mm)

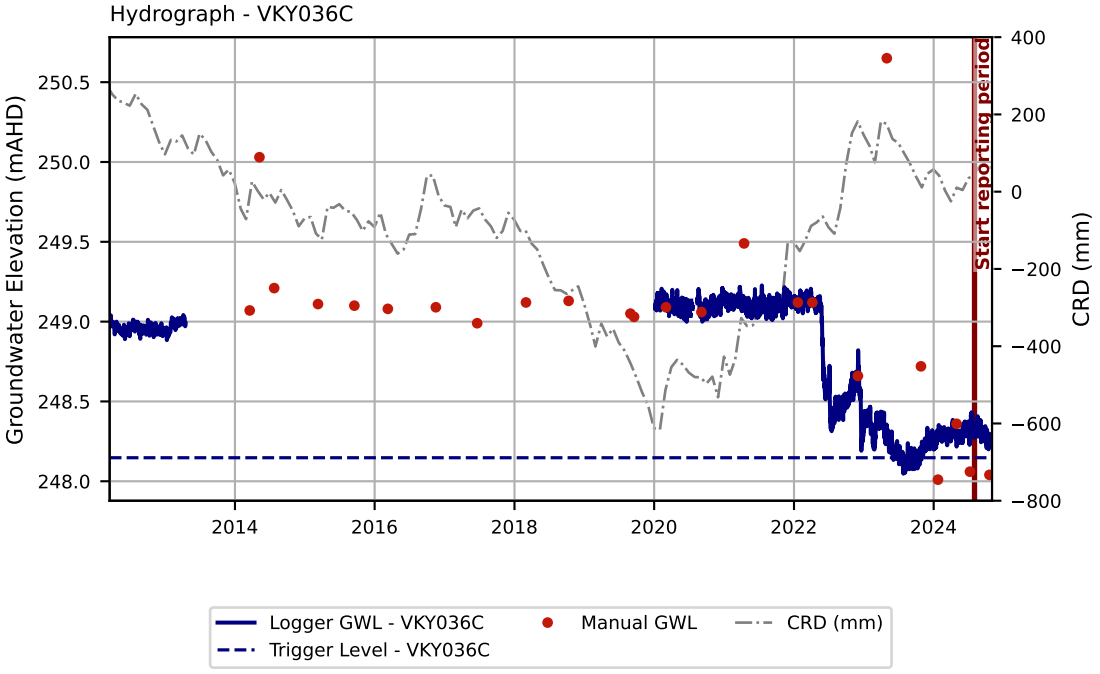

Hydrograph - TR26
Groundwater Elevation (mAHD)
CRD (mm)
247.00
246.95
246.90
246.85
246.80
246.75
246.70
246.65
400
200
0
−200
−400
−600
−800
2014
2016
2018
2020
2022
2024
Start reporting period
Trigger Level - TR26
Manual GWL
CRD (mm)

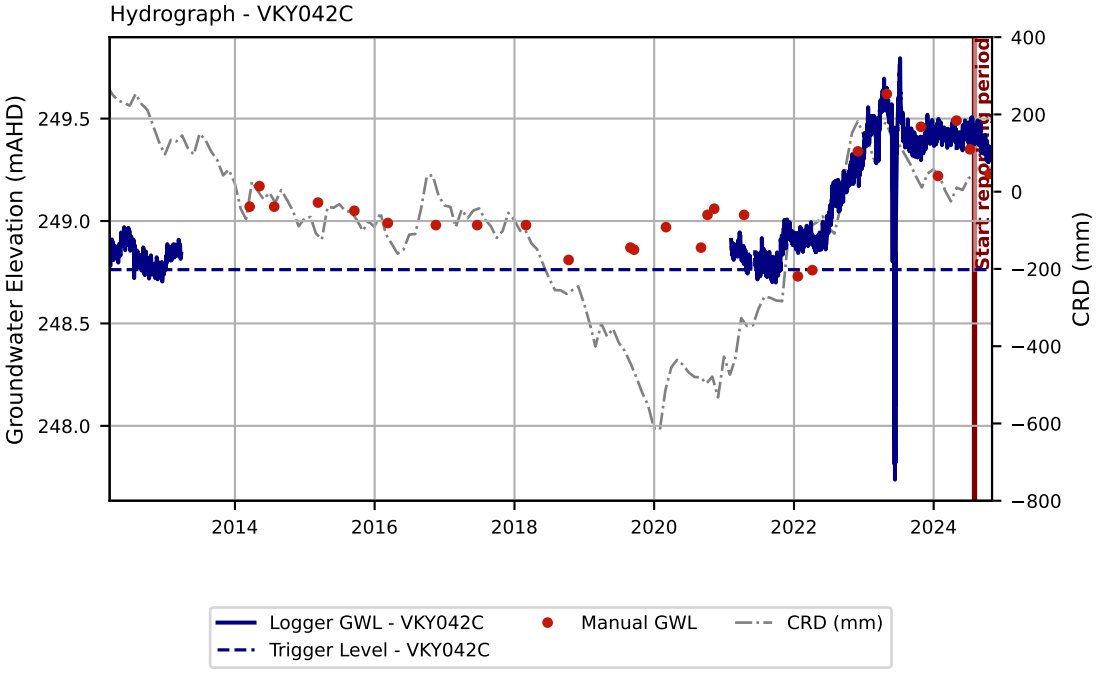

Hydrograph - TR35
Groundwater Elevation (mAHD)
247.3
247.2
247.1
247.0
246.9
246.8
246.7
246.6
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
Trigger Level - TR35
Manual GWL
CRD (mm)

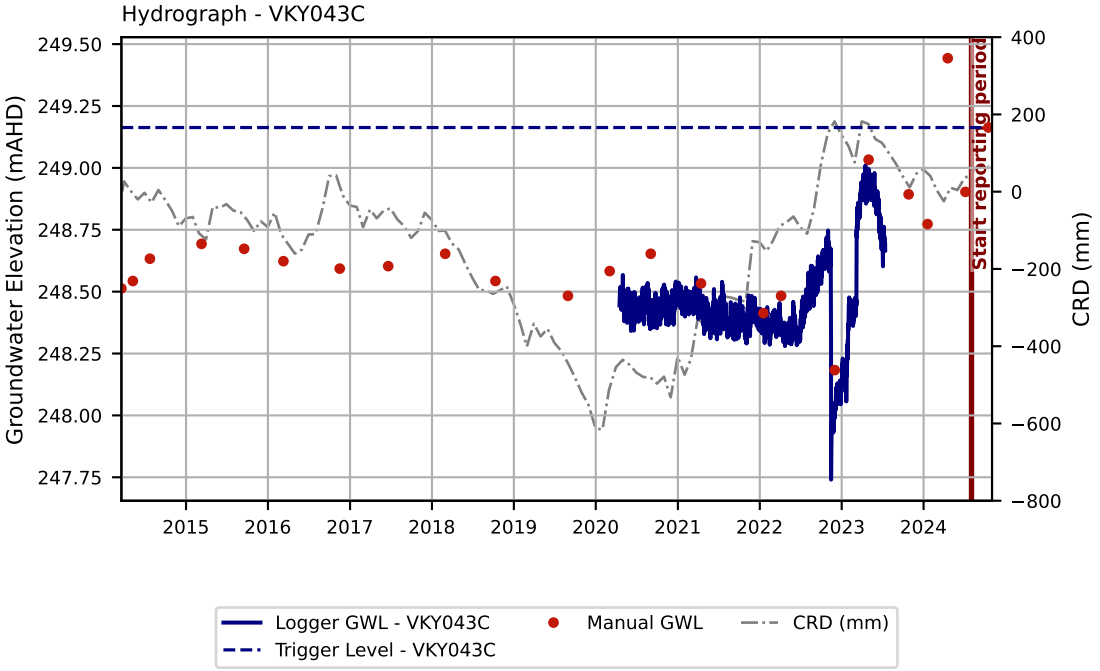

Hydrograph - TR7
Groundwater Elevation (mAHD)
CRD (mm)
248
247
246
245
244
243
400
200
0
−200
−400
−600
−800
2014
2016
2018
2020
2022
2024
Start reporting period
Logger GWL - TR7
Trigger Level - TR7
Manual GWL
CRD (mm)

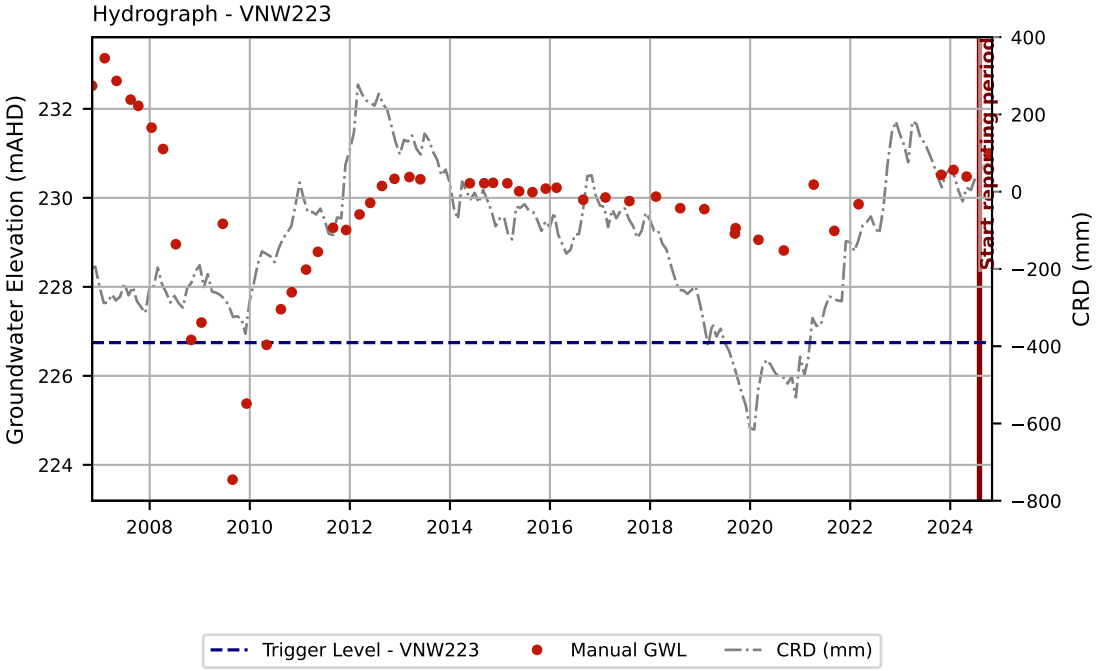

Hydrograph - VKY034C
Groundwater Elevation (mAHD)
CRD (mm)
248.0
247.5
247.0
246.5
246.0
245.5
245.0
244.5
400
200
0
−200
−400
−600
−800
2014
2016
2018
2020
2022
2024
Start reporting period
Logger GWL - VKY034C
Trigger Level - VKY034C
Manual GWL
CRD (mm)

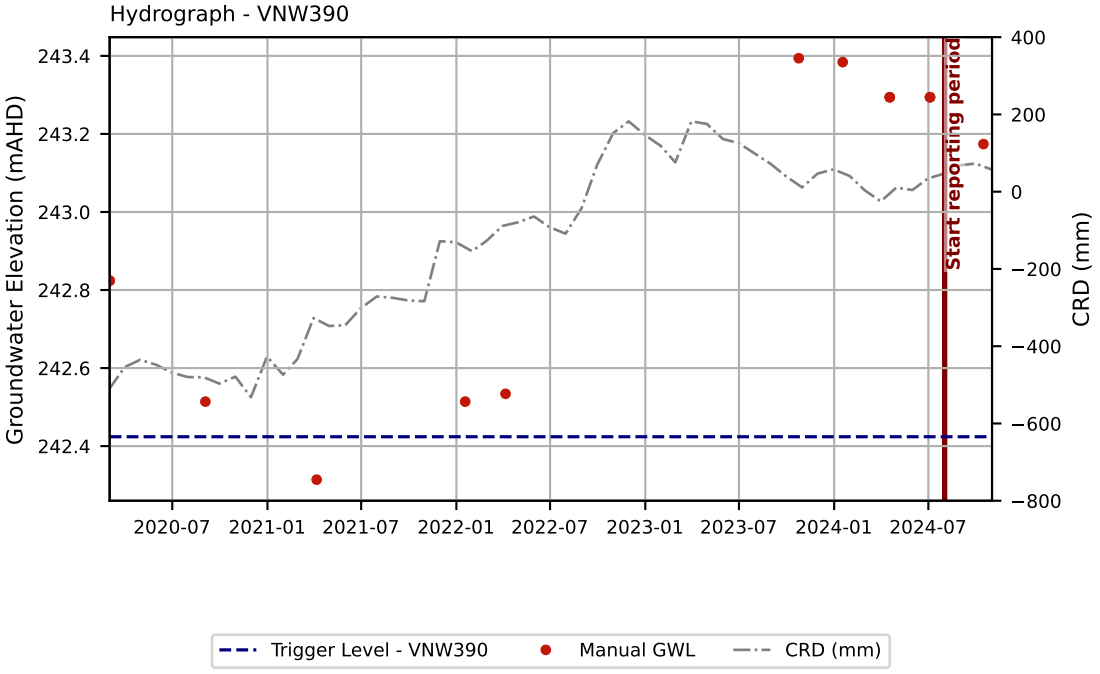

Hydrograph - VKY035C
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
249
248
247
246
245
244
243
242
241
400
200
0
−200
−400
−600
−800
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Logger GWL - VKY035C
Trigger Level - VKY035C
Manual GWL
CRD (mm)

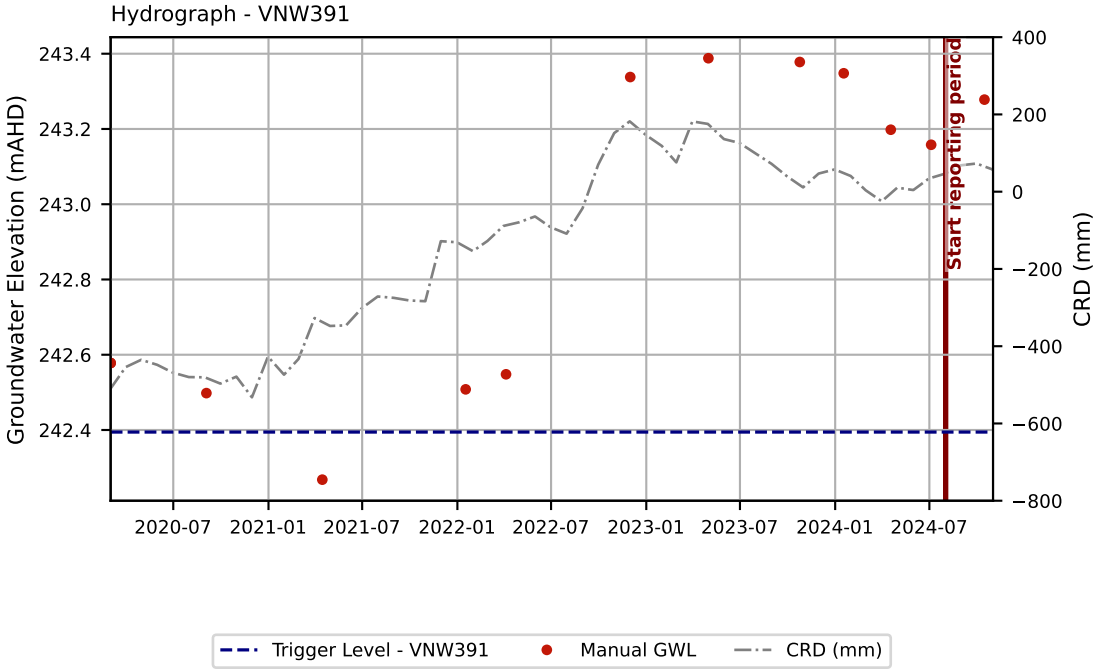

Hydrograph - VKY036C
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
250.5
250.0
249.5
249.0
248.5
248.0
400
200
0
−200
−400
−600
−800
2014
2016
2018
2020
2022
2024
Logger GWL - VKY036C
Trigger Level - VKY036C
Manual GWL
CRD (mm)

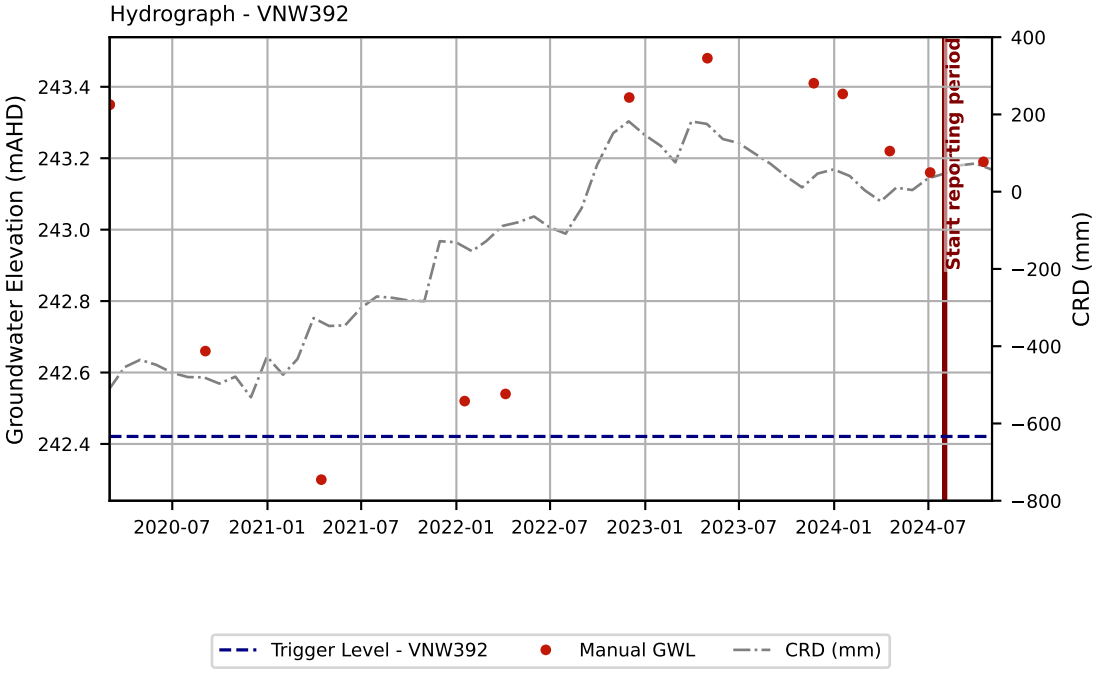

Hydrograph - VKY042C
Groundwater Elevation (mAHD)
249.5
249.0
248.5
248.0
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
Logger GWL - VKY042C
Trigger Level - VKY042C
Manual GWL
CRD (mm)

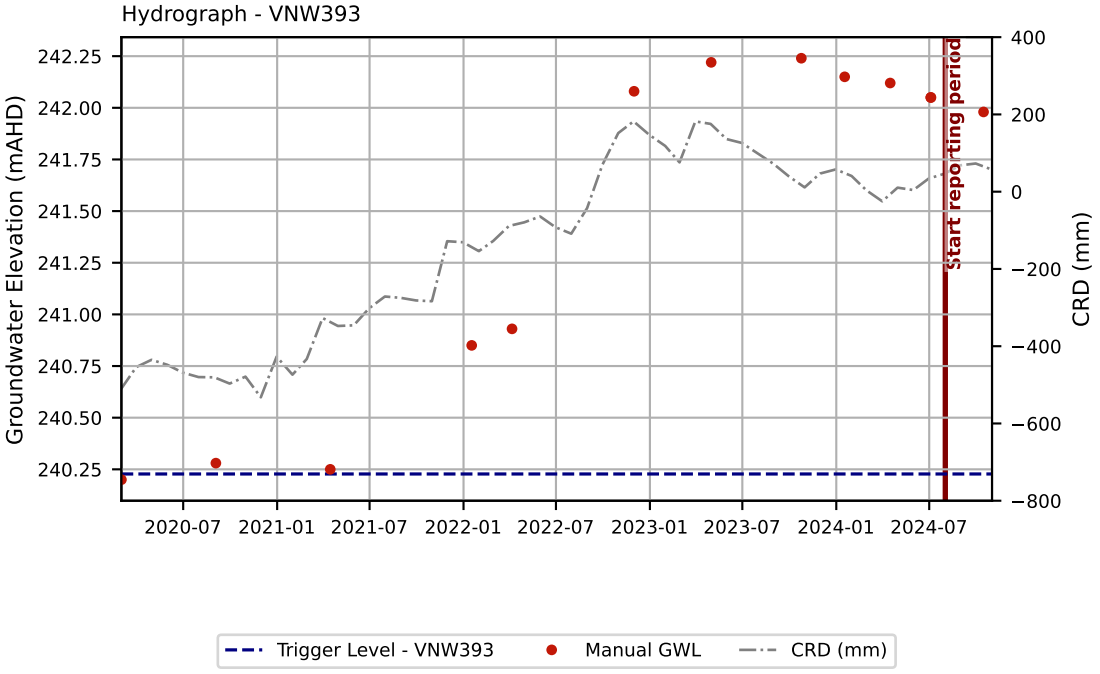

Hydrograph - VKY043C
Groundwater Elevation (mAHD)
CRD (mm)
249.50
249.25
249.00
248.75
248.50
248.25
248.00
247.75
400
200
0
−200
−400
−600
−800
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Start reporting period
Logger GWL - VKY043C
Trigger Level - VKY043C
Manual GWL
CRD (mm)

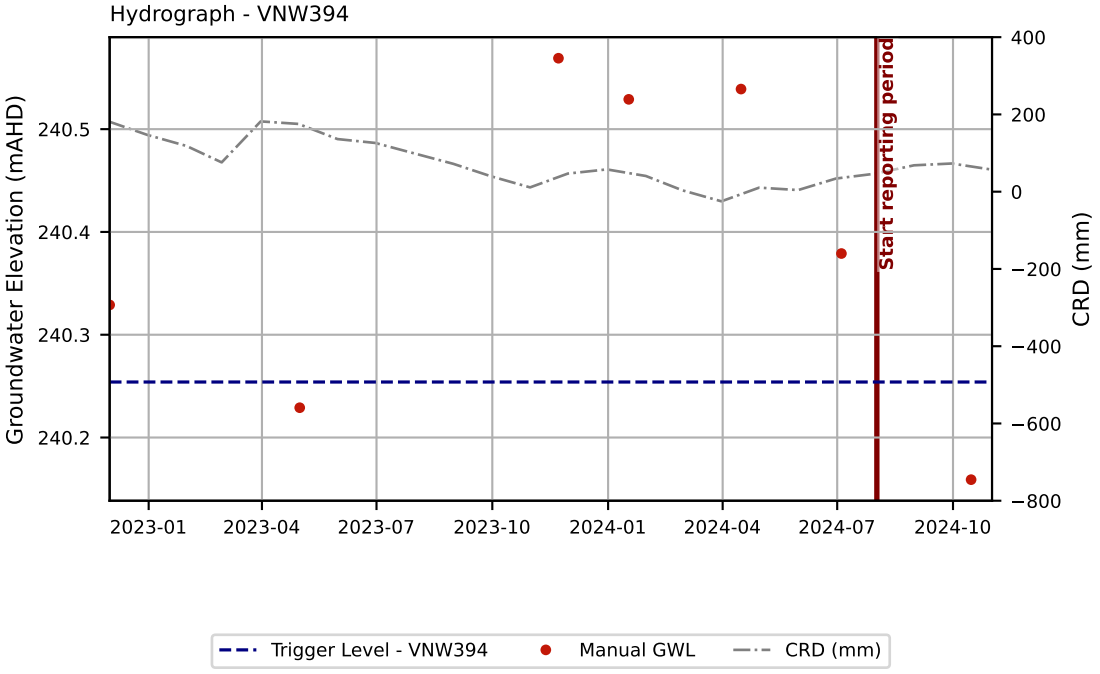

Hydrograph - VNW223
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
232
230
228
226
224
400
200
0
−200
−400
−600
−800
2008
2010
2012
2014
2016
2018
2020
2022
2024
Trigger Level - VNW223
Manual GWL
CRD (mm)

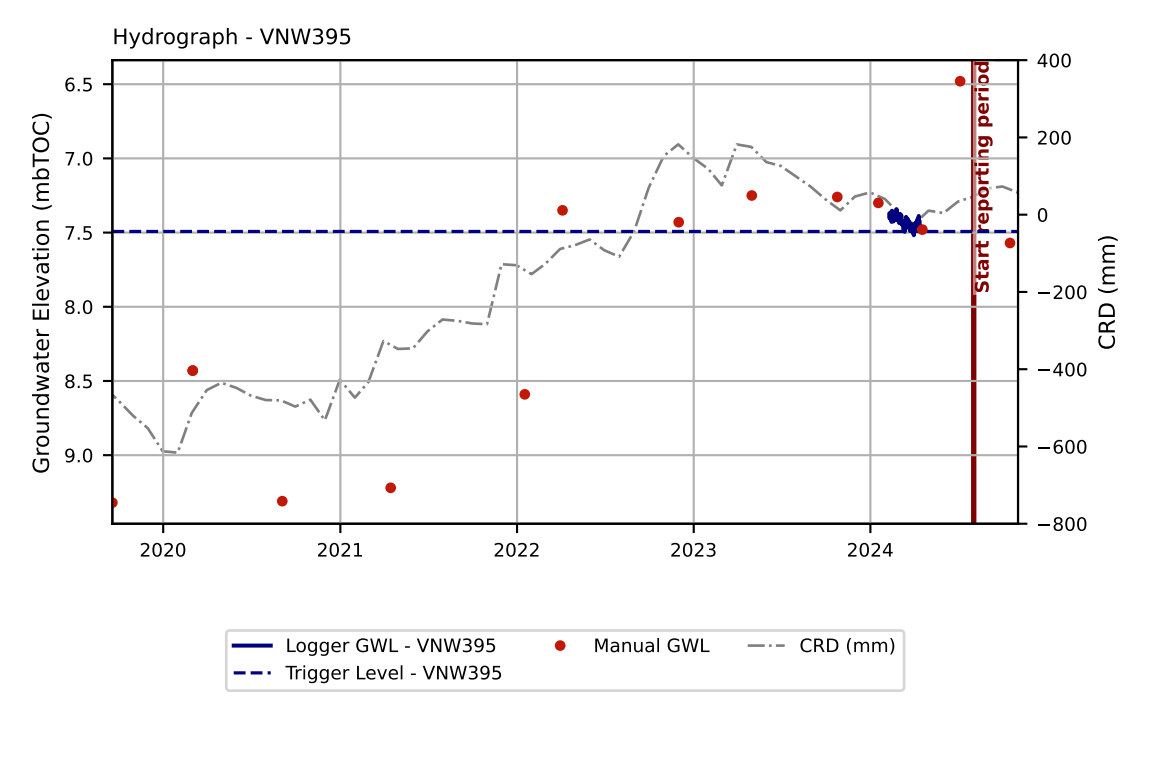

Hydrograph - VNW390
Groundwater Elevation (mAHD)
243.4
243.2
243.0
242.8
242.6
242.4
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2020-07
2021-01
2021-07
2022-01
2022-07
2023-01
2023-07
2024-01
2024-07
Trigger Level - VNW390
Manual GWL
CRD (mm)

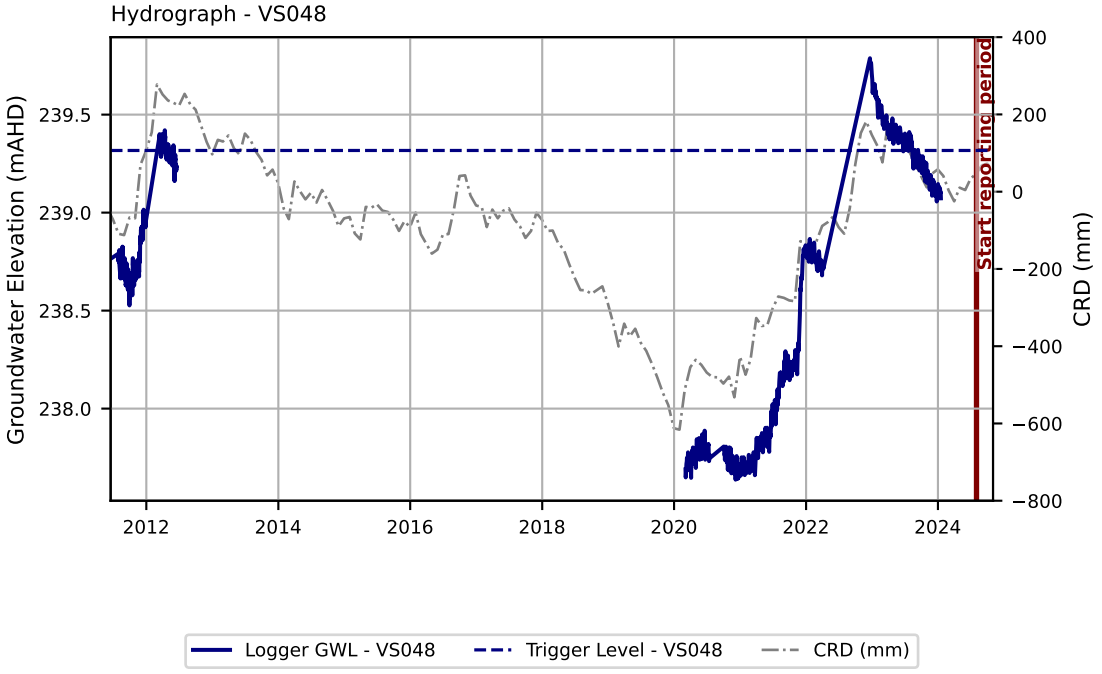

Hydrograph - VNW391
Groundwater Elevation (mAHD)
243.4
243.2
243.0
242.8
242.6
242.4
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2020-07
2021-01
2021-07
2022-01
2022-07
2023-01
2023-07
2024-01
2024-07
Trigger Level - VNW391
Manual GWL
CRD (mm)

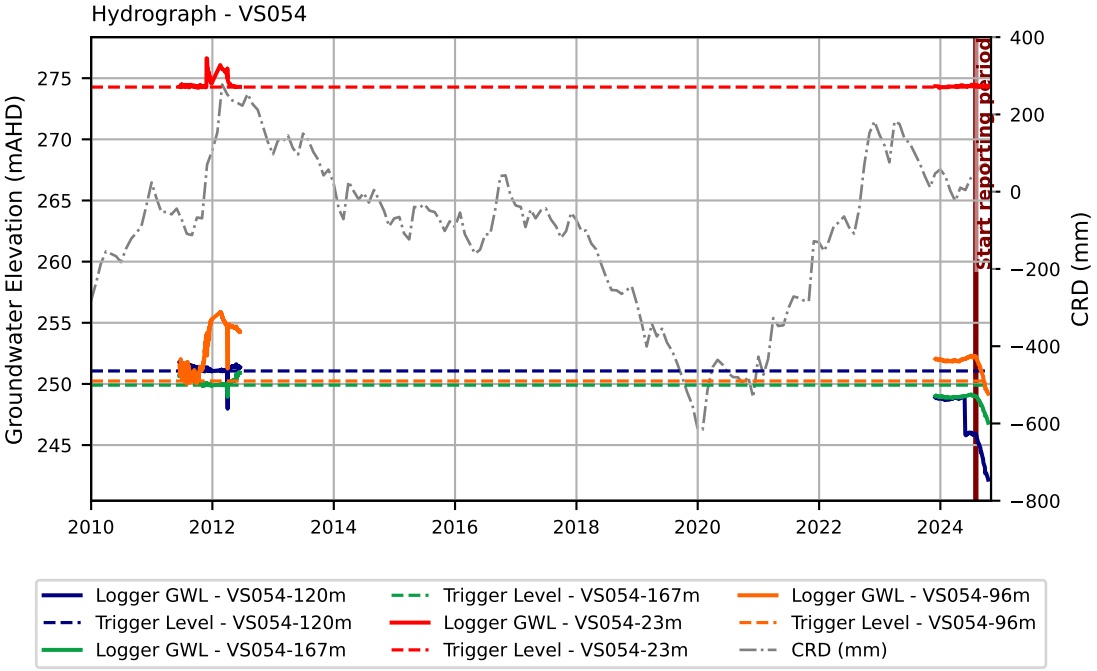

Hydrograph - VNW392
Groundwater Elevation (mAHD)
243.4
243.2
243.0
242.8
242.6
242.4
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2020-07
2021-01
2021-07
2022-01
2022-07
2023-01
2023-07
2024-01
2024-07
Trigger Level - VNW392
Manual GWL
CRD (mm)

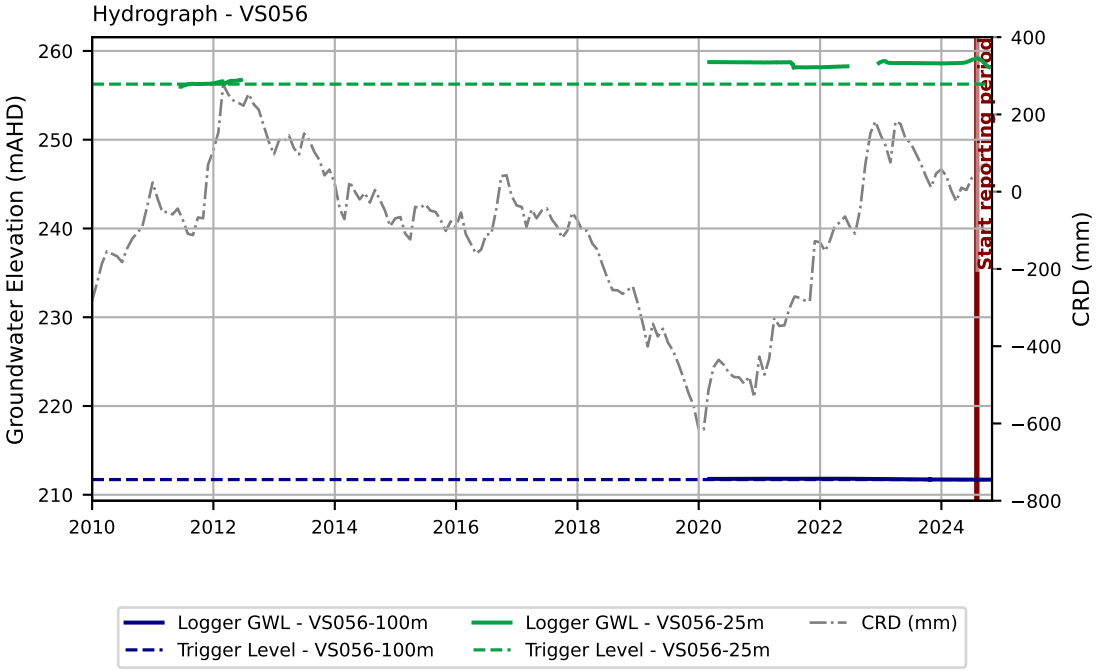

Hydrograph - VNW393
Groundwater Elevation (mAHD)
242.25
242.00
241.75
241.50
241.25
241.00
240.75
240.50
240.25
CRD (mm)
400
200
0
−200
−400
−600
−800
Start reporting period
2020-07
2021-01
2021-07
2022-01
2022-07
2023-01
2023-07
2024-01
2024-07
Trigger Level - VNW393
Manual GWL
CRD (mm)

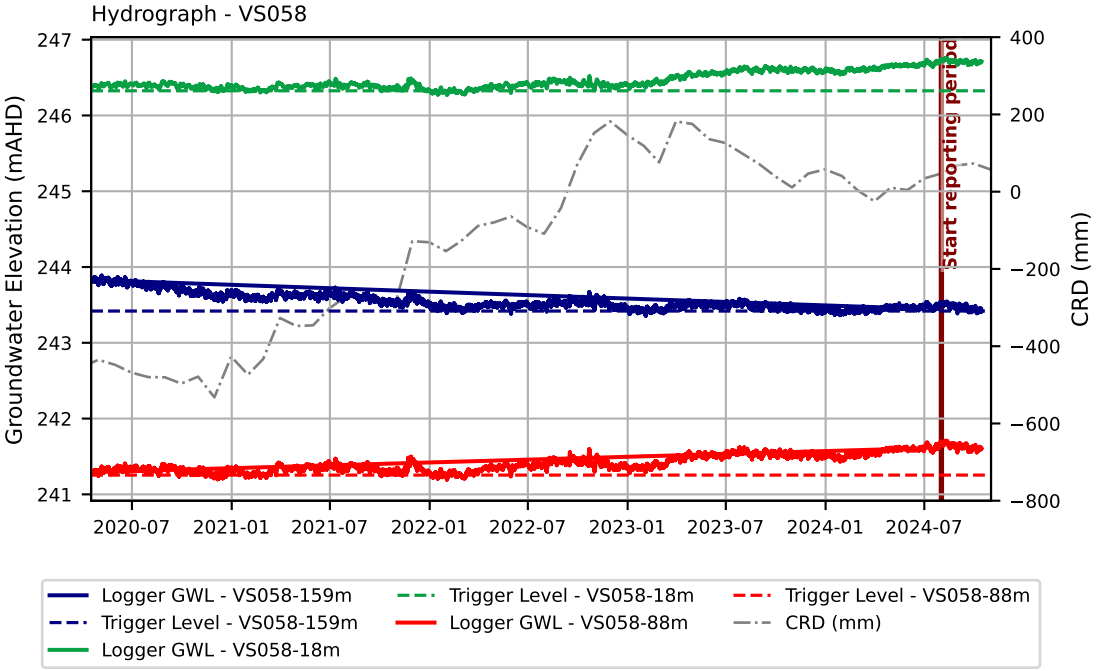

Hydrograph - VNW394
Groundwater Elevation (mAHD)
240.5
240.4
240.3
240.2
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
2023-01
2023-04
2023-07
2023-10
2024-01
2024-04
2024-07
2024-10
Trigger Level - VNW394
Manual GWL
CRD (mm)

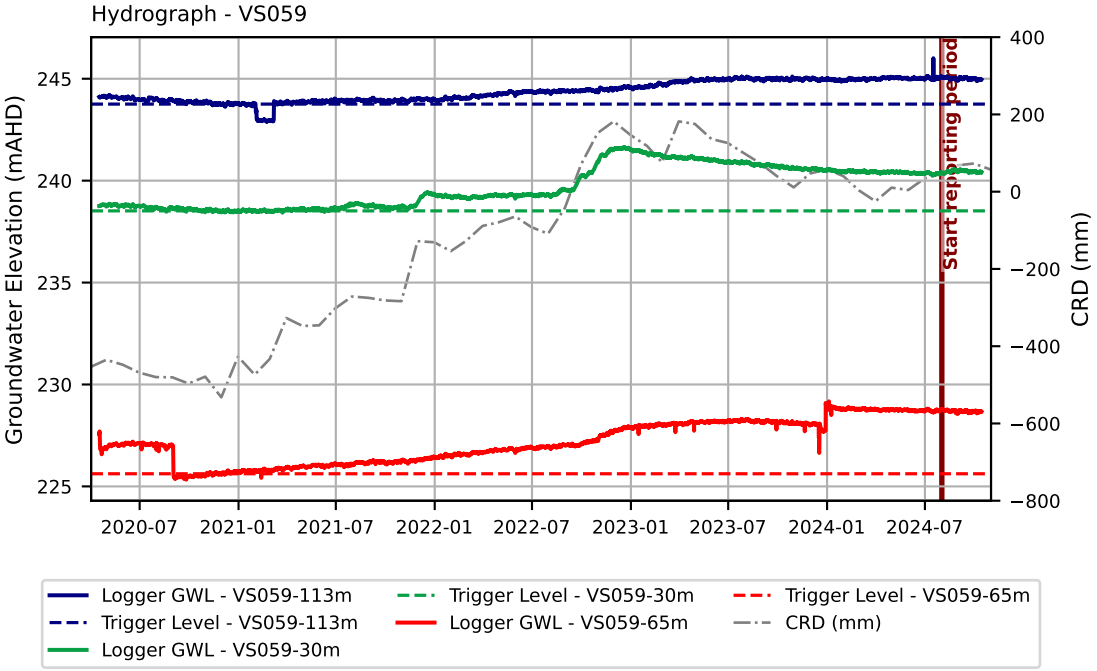

Hydrograph - VNW395
Groundwater Elevation (mbTOC)
6.5
7.0
7.5
8.0
8.5
9.0
CRD (mm)
400
200
0
−200
−400
−600
−800
2020
2021
2022
2023
2024
Start reporting period
Logger GWL - VNW395
Trigger Level - VNW395
Manual GWL
CRD (mm)

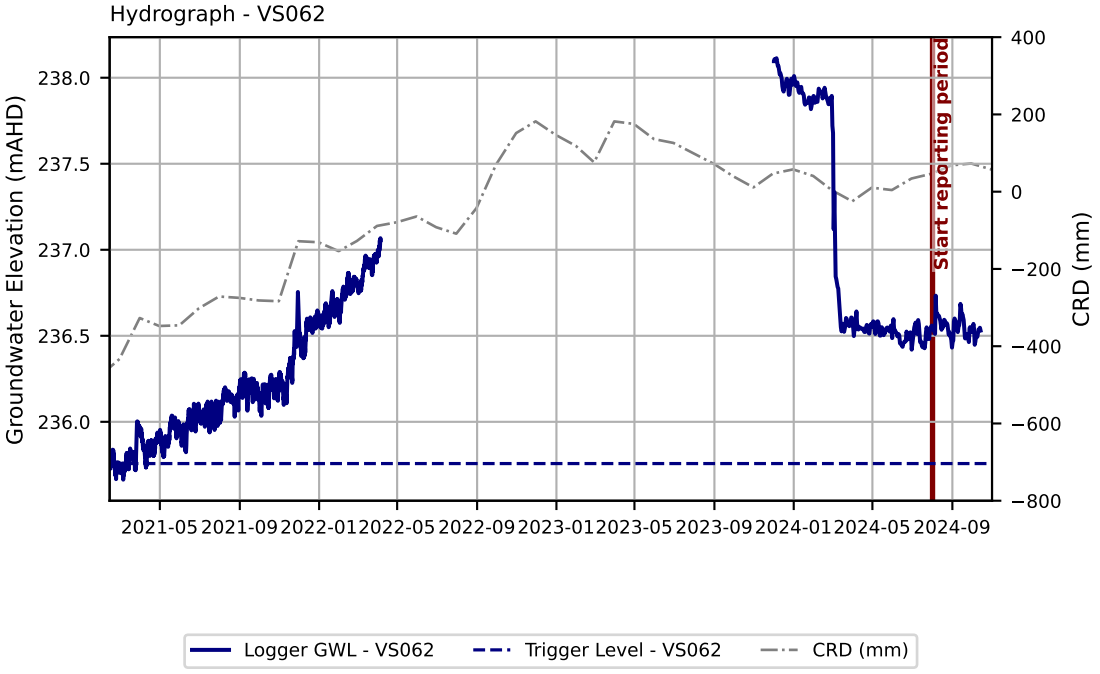

Hydrograph - VS048
Groundwater Elevation (mAHD)
239.5
239.0
238.5
238.0
2012
2014
2016
2018
2020
2022
2024
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
Logger GWL - VS048
Trigger Level - VS048
CRD (mm)

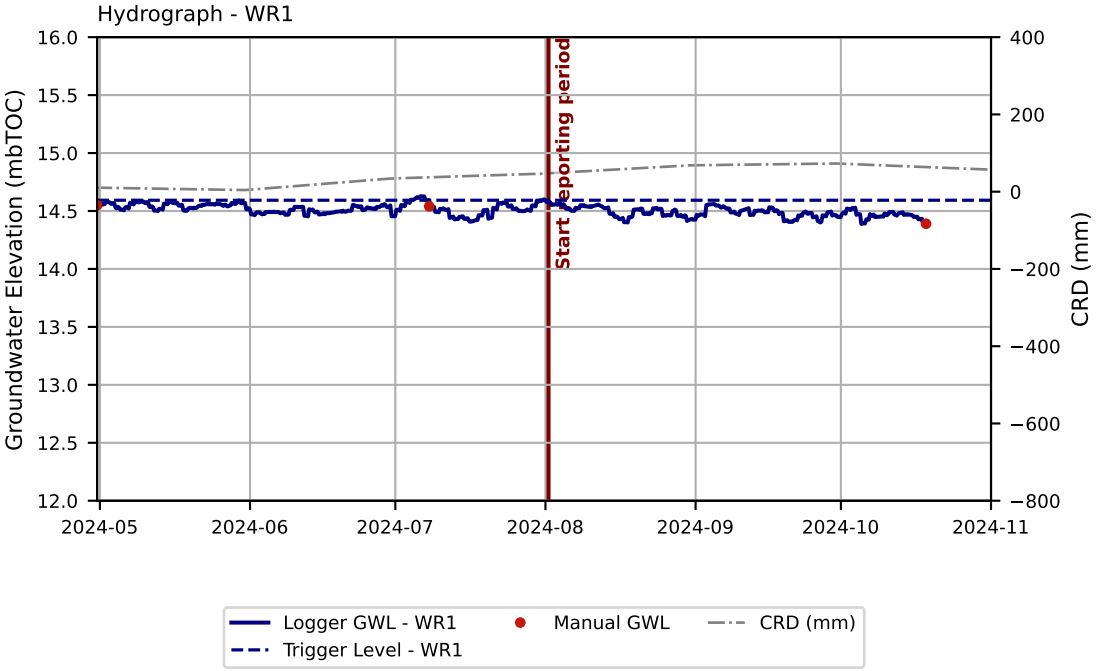

Hydrograph - VS054
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
275
270
265
260
255
250
245
400
200
0
−200
−400
−600
−800
2010
2012
2014
2016
2018
2020
2022
2024
Logger GWL - VS054-120m
Trigger Level - VS054-120m
Logger GWL - VS054-167m
Trigger Level - VS054-167m
Logger GWL - VS054-23m
Trigger Level - VS054-23m
Logger GWL - VS054-96m
Trigger Level - VS054-96m
CRD (mm)

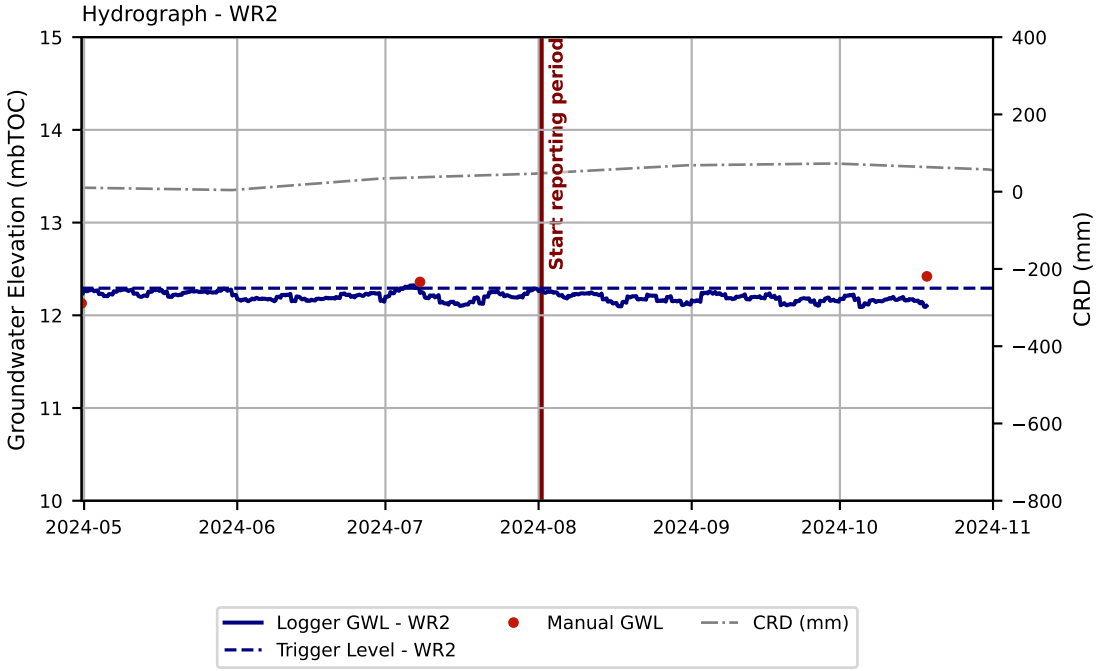

Hydrograph - VS056
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
260
250
240
230
220
210
400
200
0
−200
−400
−600
−800
2010
2012
2014
2016
2018
2020
2022
2024
Logger GWL - VS056-100m
Trigger Level - VS056-100m
Logger GWL - VS056-25m
Trigger Level - VS056-25m
CRD (mm)


Hydrograph - VS058
Groundwater Elevation (mAHD)
CRD (mm)
247
246
245
244
243
242
241
400
200
0
−200
−400
−600
−800
2020-07
2021-01
2021-07
2022-01
2022-07
2023-01
2023-07
2024-01
2024-07
Start reporting period
Logger GWL - VS058-159m
Trigger Level - VS058-159m
Logger GWL - VS058-18m
Trigger Level - VS058-18m
Logger GWL - VS058-88m
Trigger Level - VS058-88m
CRD (mm)


Hydrograph - VS059
Groundwater Elevation (mAHD)
CRD (mm)
Start reporting period
245
240
235
230
225
400
200
0
−200
−400
−600
−800
2020-07
2021-01
2021-07
2022-01
2022-07
2023-01
2023-07
2024-01
2024-07
Logger GWL - VS059-113m
Trigger Level - VS059-113m
Logger GWL - VS059-30m
Trigger Level - VS059-30m
Logger GWL - VS059-65m
Trigger Level - VS059-65m
CRD (mm)


Hydrograph - VS062
Groundwater Elevation (mAHD)
238.0
237.5
237.0
236.5
236.0
400
200
0
−200
−400
−600
−800
CRD (mm)
Start reporting period
2021-05
2021-09
2022-01
2022-05
2022-09
2023-01
2023-05
2023-09
2024-01
2024-05
2024-09
Logger GWL - VS062
Trigger Level - VS062
CRD (mm)


Hydrograph - WR1
Groundwater Elevation (mbTOC)
CRD (mm)
Start reporting period
16.0
15.5
15.0
14.5
14.0
13.5
13.0
12.5
12.0
400
200
0
−200
−400
−600
−800
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Logger GWL - WR1
Trigger Level - WR1
Manual GWL
CRD (mm)


Hydrograph - WR2
Groundwater Elevation (mbTOC)
CRD (mm)
Start reporting period
15
14
13
12
11
10
400
200
0
−200
−400
−600
−800
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
Logger GWL - WR2
Trigger Level - WR2
Manual GWL
CRD (mm)

# Appendix C Groundwater Quality Results

## Vickery Extension Project Groundwater Monitoring Report

### Quarterly Review August 2024 – October 2024

**Whitehaven Coal Ltd**

SLR Project No.: 640.031099.00001

23 December 2024

## Table C-1: Field GW Monitoring Data

| Sample Location | Date | pH - Field | EC - Field (uS) | Temperature | Redox | Odour | Appearance | Colour | Comments |
|---|---|---|---|---|---|---|---|---|---|
| SB02 | 24-10-2023 10:40 | 7.21 | 7250 | 24.1 | 44 | Nil | Slightly turbid | Orange | Quarterly sampling |
| GW01 | 24-10-2023 9:36 | 7.33 | 1042 | 22.4 | 79 | Nil | Clear | Colourless | Quarterly sampling |
| SB15 | 24-10-2023 10:10 | 7.29 | 1019 | 22.6 | 59 | Nil | Clear | Colourless | Quarterly sampling |
| SB06 | 24-10-2023 7:35 | 7.35 | 3280 | 20.6 | 41 | Nil | Clear | Colourless | Quarterly sampling |
| SB11 | 24-10-2023 8:25 | 7.26 | 1080 | 22.6 | 46 | Nil | Clear | Colourless | Quarterly sampling |
| SB10 | 23-10-2023 15:55 | 7.43 | 1880 | 24.3 | 34 | Nil | Clear | Colourless | Quarterly sampling; small amount of sediment in water |
| SB05 | 23-10-2023 16:20 | 2.09 | 3740 | 25 | 43 | Nil | Clear | Colourless | Quarterly sampling |
| SB09 | 23-10-2023 15:20 | 3.32 | 949 | 27.3 | 28 | Nil | Slightly turbid | Orange/brown | Quarterly sampling; a lot of sediment in water, possible rust particles |
| SB01 | 23-10-2023 15:00 | 7.44 | 1541 | 26.5 | 36 | Nil | Clear | Colourless | Quarterly sampling |
| SB04 | 23-10-2023 13:19 | 7.29 | 2680 | 28.2 | 47 | Slight | Slightly turbid | Grey | Quarterly sampling; bailed due to depth; Standpipe extremely unstable; too shallow to hydrasleeve so bailed to test. |
| SB08 | 23-10-2023 13:35 | 7.24 | 983 | 26.3 | 41 | Nil | Clear | Colourless | Quarterly sampling |
| SB07 | 23-10-2023 11:47 | 7.35 | 770 | 23.2 | 46 | Nil | Clear | Colourless | Quarterly sampling |
| GW02 | 23-10-2023 10:51 | 7.59 | 731 | 25.2 | 25 | Nil | Clear | Colourless | Quarterly sampling |
| MD01 | 25-10-2023 9:50 | 11.58 | 1799 | 25.6 | -91 | Slight | Clear | Colourless | Quarterly sampling; Slight unknown odour. No cap on bore; |
| MD02 | 25-10-2023 11:10 | 6.84 | 1195 | 27.4 | -69 | Nil | Clear | Colourless | Quarterly sampling |
| GW03 | 23-10-2023 14:14 | 7.19 | 862 | 25.9 | 21 | Nil | Clear | Colourless | Quarterly sampling; fence panels down and logger missing (assume down the bore). |
| TR26 | 25-10-2023 12:00 | 7.06 | 6290 | 26.3 | 52 | Nil | Clear | Colourless | Quarterly sampling |
| TR7 | 25-10-2023 12:25 | 6.53 | #### | 26.4 | 61 | Nil | Clear | Colourless | Quarterly sampling |
| TR18 | 25-10-2023 13:30 | 6.58 | #### | 27.8 | 99 | Nil | Clear | Colourless | Quarterly sampling |
| TR35 | 25-10-2023 14:10 | 6.66 | #### | 25.5 | -55 | Slight | Clear | Colourless | Quarterly sampling |
| VKY043C | 26-10-2023 8:25 | 7.72 | 2990 | 20 | -32 | Nil | Clear | Colourless | Quarterly sampling |
| VKY042C | 26-10-2023 11:45 | 6.75 | 5420 | 28.1 | -28 | Nil | Clear | Colourless | Quarterly sampling; Unable to determine total bore depth as it was greater than 150m (length of the dip tape) |
| VKY035C | 26-10-2023 10:40 | 7.1 | 3110 | 25.5 | -26 | Nil | Clear | Colourless | Quarterly sampling |
| VKY034C | 26-10-2023 9:15 | 7.3 | 3590 | 23.4 | 70 | Nil | Clear | Colourless | Quarterly sampling |
| VKY036C | 26-10-2023 12:40 | 7.08 | 5600 | 25.1 | -39 | Nil | Clear | Colourless | Quarterly sampling |
| VNW390 | 24-10-2023 12:35 | 6.92 | 2300 | 22.6 | -96 | Moderate | Clear | Colourless | Quarterly sampling; Sulphur odour |
| VNW391 | 24-10-2023 14:20 | 7.04 | 2530 | 23.9 | -60 | Nil | Clear | Colourless | Quarterly sampling |
| VNW392 | 22-11-2023 13:58 | 6.74 | 3690 | 20.8 | -96 | Slight | Clear | Colourless | Quarterly sampling; No access - locked out on 24/10/2023; Sampled 22/11/2023; Slight H2S odour |
| VNW393 | 24-10-2023 13:05 | 7.36 | 2740 | 22.1 | 26 | Slight | Clear | Colourless | Quarterly sampling; Slight sulphur odour |
| VNW394 | 22-11-2023 13:12 | 7.13 | 5520 | 12.8 | -70 | Nil | Slight | Grey | Quarterly sampling; |
| VNW395 | 24-10-2023 13:41 | 7.47 | 463 | 20.9 | 57 | Slight | Clear | Colourless | Quarterly sampling; no logger |
| GW-8 | 22-11-2023 15:47 | 7.11 | 4290 | 22.5 | -176 | Nil | Slight | Brown | Quarterly sampling; Unable to locate on 27/10/2023; Sampled 22/11/2023 |
| GW-7 | 27-10-2023 11:50 | 8.89 | 4300 | 22.7 | 60 | Nil | Clear | Colourless | Quarterly sampling; Suspended matter in water |
| VNW223 | 27-10-2023 10:10 | 7.25 | 5940 | 19.9 | 49 | Nil | Clear | Colourless | |
| GW-11 | 27-10-2023 9:40 | 7.36 | 4360 | 21.5 | -111 | Nil | Clear | Colourless | Quarterly sampling; old windmill overhead |
| GW-9 | 27-10-2023 12:55 | 7.94 | 6110 | 22.6 | -87 | Nil | Clear | Brown | Quarterly sampling; old windmill overhead |
| VKY GW Duplicate 1 | 24-10-2023 8:25 | 7.26 | 1081 | 22.6 | 46 | Nil | Clear | Colourless | Quarterly sampling; site duplicate taken from SB11 |
| VKY GW Duplicate 2 | 26-10-2023 8:25 | 7.71 | 2990 | 20.1 | -32 | Nil | Clear | Colourless | Quarterly sampling; site duplicate taken from VKY0043C |
| VKY GW Lab Split Dup 1 | 24-10-2023 8:25 | 7.27 | 1080 | 22.7 | 47 | Nil | Clear | Colourless | Quarterly sampling; site split duplicate taken from SB11 |
| VKY GW Lab Split Dup 2 | 26-10-2023 8:25 | 7.71 | 2990 | 20 | -33 | Nil | Clear | Colourless | Quarterly sampling; site split duplicate taken from VKY0043C |

| Sample Location | Date | pH - Field | EC - Field (uS) | Temperature | Redox | Odour | Appearance | Colour | Comments |
|---|---|---|---|---|---|---|---|---|---|
| VKY GW Blank | 24-10-2023 7:35 | 8.77 | 13 | 15.4 | 70 | Nil | Clear | Colourless | Quarterly sampling; blank |
| SB02 | 25-10-2023 12:25 | 7.28 | 7330 | 22.5 | Clear | Nil | Slightly turbid | Orange | - |
| GW01 | 23-01-2024 7:39 | 7.2 | 1265 | 19.6 | -15.7 | Nil | Clear | Colourless | - |
| SB15 | 23-01-2024 8:05 | 7.23 | 1070 | 21.1 | -88 | Nil | Clear | Colourless | - |
| SB06 | 17-01-2024 12:55 | 7.61 | 3460 | 26.5 | -84 | Nil | Turbid | Brown | - |
| SB11 | 17-01-2024 13:26 | 7.7 | 1021 | 26.4 | -62 | Nil | Clear | Colourless | - |
| SB10 | 17-01-2024 13:49 | 7.47 | 1972 | 29.7 | -69 | Nil | Clear | Colourless | - |
| SB05 | 17-01-2024 14:31 | 7.73 | 3690 | 28 | -131 | Nil | Clear | Colourless | - |
| SB09 | 17-01-2024 15:18 | 7.56 | 1014 | 26.1 | -70 | Nil | Slightly turbid | Black | - |
| SB01 | 17-01-2024 14:58 | 7.31 | 1716 | 28.3 | -70 | Nil | Clear | Colourless | - |
| SB04 | 17-01-2024 15:51 | 7.43 | 3360 | 24.6 | -188 | Slightly | Clear | Colourless | Slight H2S odour |
| SB08 | 18-01-2024 16:09 | 7.39 | 1115 | 23.4 | -119 | Nil | Clear | Colourless | - |
| SB07 | 17-01-2024 16:32 | 7.47 | 919 | 24.5 | -87 | Nil | Clear | Colourless | - |
| GW02 | 18-01-2024 10:54 | 7.79 | 971 | 23.9 | -74 | Nil | Clear | Colourless | - |
| MD01 | 18-01-2024 9:10 | 11.69 | 1786 | 22.9 | -135 | Nil | Slightly turbid | Brown | - |
| MD02 | 23-01-2024 10:29 | 6.78 | 1306 | 24.3 | -140 | Nil | Clear | Colourless | - |
| GW03 | 23-01-2024 6:59 | 7.16 | 888 | 19.6 | 66 | Nil | Clear | Colourless | - |
| TR26 | 18-01-2024 13:35 | 7.16 | 8380 | 24.8 | -62 | Nil | Slightly turbid | Brown | - |
| TR7 | 18-01-2024 13:55 | 7.05 | 1539 | 25.2 | -30 | Nil | Slightly turbid | Brown | - |
| TR18 | 18-01-2024 14:28 | 6.85 | 1364 | 24.5 | -21 | Nil | Slightly turbid | Brown | - |
| TR35 | 18-01-2024 15:25 | 6.75 | 1733 | 24 | -63 | Nil | Clear | Colourless | - |
| VKY043C | 18-01-2024 14:58 | 7.8 | 3410 | 24.1 | -74 | Nil | Clear | Colourless | - |
| VKY042C | 23-01-2024 12:58 | 6.72 | 5430 | 31 | -119 | Nil | Clear | Colourless | - |
| VKY035C | 23-01-2024 12:14 | 7.01 | 3340 | 27.2 | -170 | Nil | Clear | Colourless | - |
| VKY034C | 23-01-2024 11:05 | 6.94 | 3850 | 29.4 | -149 | Nil | Slightly turbid | Brown | - |
| VKY036C | 23-01-2024 11:35 | 6.79 | 5810 | 28.7 | -139 | Nil | Clear | Colourless | - |
| VNW390 | 17-01-2024 11:23 | 7.13 | 2376 | 24.3 | -69 | Nil | Clear | Colourless | - |
| VNW391 | 17-01-2024 11:52 | 7.31 | 2471 | 23.1 | -109 | Nil | Clear | Colourless | - |
| VNW392 | 17-01-2024 12:22 | 6.74 | 3310 | 26.1 | -149 | Nil | Clear | Grey | - |
| VNW393 | 17-01-2024 10:51 | 7.56 | 2830 | 29.5 | -90 | Slightly | Clear | Colourless | Very slight H2S odour |
| VNW394 | 17-01-2024 9:30 | 6.92 | 5410 | 23.9 | -104 | Nil | Slightly turbid | Grey | - |
| VNW395 | 17-01-2024 11:39 | 7.77 | 1395 | 27 | -168 | Nil | Clear | Grey | - |
| GW-8 | 24-01-2024 13:55 | 7.03 | 3950 | 26.5 | -208 | Nil | Clear | Black | - |
| GW-7 | 23-01-2024 9:12 | 8.82 | 4490 | 23 | -64 | Nil | Clear | Colourless | Site overgrown and dangerous - Need cleanning up |
| VNW223 | 24-01-2024 | - | - | - | - | - | - | - | Blocked at 1.3 mbtoc |
| GW-11 | 23-01-2024 14:26 | 6.93 | 4340 | 30.6 | -192 | Nil | Slightly turbid | Orange | - |
| GW-9 | 23-01-2024 13:49 | 6.68 | 3320 | 24.2 | -196 | Nil | Slightly turbid | Brown | No logger |
| GW030051 | - | - | - | - | - | - | - | - | No access - NSWWater locked bore |
| GW030052 | - | - | - | - | - | - | - | - | No access - NSWWater locked bore |
| GW-2 | - | - | - | - | - | - | - | - | Unable to locate |
| VKY GW Duplicate 1 - MD01 | 18-01-2024 9:38 | 11.54 | 1848 | 22.9 | -147 | Nil | Slightly turbid | Brown | - |

| Sample Location | Date | pH - Field | EC - Field (uS) | Temperature | Redox | Odour | Appearance | Colour | Comments |
|---|---|---|---|---|---|---|---|---|---|
| VKY GW Duplicate 2 - GW-11 | 23-01-2024 14:26 | - | - | - | - | - | - | - | - |
| VKY GW Lab Split Dup 1 - MD01 | 18-01-2024 9:42 | 11.73 | 1872 | 22.9 | -149 | Nil | Slightly turbid | Brown | - |
| VKY GW Lab Split Dup 2 - | 23-01-2024 13:53 | 6.65 | 3490 | 24.8 | -193 | Nil | Slightly turbid | Brown | - |
| VKY GW Blank | 17-01-2024 9:35 | 8.94 | 3.1 | 22.8 | 100 | Nil | Clear | Colourless | - |
| VS058 | 15-04-2024 13:49 | - | - | - | - | - | - | - | Li Battery 3.67V |
| SB02 | 15-04-2024 13:36 | 7.14 | 7210 | 24.7 | -128 | Nil | Slightly Turbid | Orange | |
| GW01 | 15-04-2024 13:12 | 7.14 | 1384 | 26.5 | -127 | Nil | Slightly Turbid | Black | Suspended solids minor |
| SB15 | 15-04-2024 12:56 | 7.17 | 972 | 27 | 43 | Nil | Clear | Clear | Suspended solids minor |
| SB06 | 15-04-2024 12:21 | 7.42 | 3410 | 26.1 | -70 | Nil | Turbid | Black | - |
| SB11 | 15-04-2024 12:37 | 7.45 | 1048 | 24.3 | 69 | Nil | Clear | Clear | - |
| SB10 | 15-04-2024 11:11 | 7.28 | 1859 | 24 | -5 | Nil | Slightly Turbid | Black | Suspended solids minor |
| SB05 | 15-04-2024 11:31 | 7.63 | 3680 | 22.9 | -113 | Nil | Slightly Turbid | Black | Suspended solids moderate |
| SB09 | 15-04-2024 10:52 | 7.27 | 973 | 21.7 | -61 | Nil | Turbid | Black | Suspended solids minor |
| SB01 | 15-04-2024 10:34 | 7.2 | 1698 | 24.1 | -91 | Nil | Clear | Grey | Suspended solids minor |
| SB04 | 15-04-2024 9:21 | 7.27 | 1868 | 24.1 | -214 | Yes | Turbid | Black | Sufer odour, suspended solids |
| SB08 | 15-04-2024 9:31 | 7.17 | 1039 | 21.2 | -55 | Nil | Clear | Clear | - |
| SB07 | 15-04-2024 8:48 | 7.28 | 934 | 21 | 57 | Nil | Clear | Clear | Suspended solids minor |
| GW02 | 15-04-2024 8:16 | 7.14 | 926 | 24.3 | 8 | Nil | Clear | Clear | Suspended solids moderate |
| VS062 | 15-04-2024 9:04 | - | - | - | - | - | - | - | Li Battery 3.64V |
| VS059 | 15-04-2024 12:05 | - | - | - | - | - | - | - | Li Battery 3.64V |
| VS056 | 17-04-2024 11:23 | - | - | - | - | - | - | - | - |
| VS056 | 17-04-2024 11:26 | - | - | - | - | - | - | - | - |
| MD01 | 18-04-2024 10:23 | 10.73 | 1283 | 24.2 | -286 | Strong | Slightly Turbid | Grey | Strong fecal odour |
| VS048 | 17-04-2024 10:59 | - | - | - | - | - | - | - | - |
| VS054 | 17-04-2024 11:50 | - | - | - | - | - | - | - | Li Battery 3.65V |
| MD02 | 17-04-2024 11:38 | 6.59 | 1210 | 31.1 | -114 | Slight | Clear | Clear | Suspended solids moderate |
| GW03 | 15-04-2024 9:56 | 7.05 | 862 | 24 | -26 | Nil | Clear | Grey | Suspended solids minor |
| TR26 | 17-04-2024 12:31 | 7.11 | 5180 | 29.4 | 60 | Nil | Clear | Clear | |
| TR7 | 17-04-2024 12:49 | 6.71 | 14410 | 27.4 | 157 | Nil | Clear | Orange | Logger length recorded |
| TR18 | 17-04-2024 13:26 | 6.69 | 12730 | 27.8 | 57 | Nil | Slightly Turbid | Orange | Logger length recorded |
| TR35 | 17-04-2024 14:20 | 6.72 | 16740 | 22.8 | 48 | Nil | Clear | Clear | |
| VKY43C | 17-04-2024 14:06 | 7.65 | 3410 | 23.6 | -47 | Nil | Slightly Turbid | Orange | Logger was not working, removed at client request, not being replaced |
| VKY041C | 17-04-2024 12:14 | | | | | | | | 51.7% (should be battery) |
| | 17-04-2024 12:17 | | | | | | | | 35.2% (battery?) |
| VKY042C | 29-04-2024 10:32 | 6.61 | 5480 | 24.3 | -36 | Nil | Clear | Clear | last 8m of logger cable rusty |
| VKY33C | 18-04-2024 11:03 | - | - | - | - | - | - | - | - |
| | 18-04-2024 11:04 | - | - | - | - | - | - | - | - |
| VKY035C | 29-04-2024 14:41 | 6.88 | 3230 | 25 | -120 | Nil | Clear | Clear | |
| VKY034C | 29-04-2024 9:58 | 7.05 | 4030 | 23.4 | -80 | Nil | Clear | Grey | |
| VKY036C | 29-04-2024 14:10 | 6.8 | 5780 | 24.6 | -93 | Nil | Clear | Clear | |
| VKY3053C | 29-04-2024 8:41 | - | - | - | - | - | - | - | In forest? Incline to east VKY034C; Battery = 34.9% |
| VNW390 | 17-04-2024 8:30 | 6.59 | 2291 | 23.9 | -98 | Yes | Clear | Clear | Very slight sulfur odour |

| Sample Location | Date | pH - Field | EC - Field (uS) | Temperature | Redox | Odour | Appearance | Colour | Comments |
|---|---|---|---|---|---|---|---|---|---|
| VNW391 | 17-04-2024 10:11 | 7.06 | 2352 | 24.3 | -107 | Nil | Clear | Clear | |
| VNW392 | 17-04-2024 10:25 | 6.66 | 3480 | 21.9 | -90 | Nil | Clear | Grey | Suspended solids minor |
| VNW393 | 15-04-2024 14:40 | 7.2 | 2840 | 26.9 | -103 | Nil | Clear | Grey | |
| VNW394 | 15-04-2024 14:16 | 6.94 | 5400 | 25.7 | -104 | Nil | Turbid | Black | |
| VNW395 | 17-04-2024 9:28 | 7.77 | 1681 | 27.1 | 41 | Nil | Clear | Clear | Logger length recorded |
| GW036459 | - | - | - | - | - | - | - | - | - |
| GW-8 | 29-04-2024 8:28 | 6.95 | 4000 | 19.7 | -151 | Nil | Clear | Grey | |
| GW-7 | 30-04-2024 11:31 | 8.79 | 4560 | 21.9 | 97 | Nil | Clear | Clear | |
| VWN223 | 29-04-2024 13:42 | - | - | - | - | - | - | - | Blocked at 1.3m |
| GW-11 | 29-04-2024 12:59 | 6.59 | 4550 | 25.1 | -123 | Nil | Clear | Orange | |
| GW-9 | 29-04-2024 12:10 | 6.81 | 5630 | 22.2 | -125 | Nil | Slightly Turbid | Orange | |
| GW030051 | - | - | - | - | - | - | - | - | No access, NSW Water locked bore |
| GW030052 | - | - | - | - | - | - | - | - | No access, NSW Water locked bore |
| GW-2 | 29-04-2024 11:30 | 6.85 | 1218 | 25.3 | 70 | Nil | Clear | Clear | Located, NotE? |
| WR-1 | 30-04-2024 10:15 | 6.7 | #### | 22.7 | 217 | Nil | Clear | Grey | Logger + HS installed |
| WR-2 | 30-04-2024 11:50 | 6.57 | #### | 22.5 | 155 | Nil | Slightly Turbid | Orange | Logger + HS installed |
| VKY GW Duplicate 1 - VWN390 | 17-04-2024 9:07 | 6.72 | 2320 | 22.4 | -96 | Nil | Clear | Clear | |
| VKY GW Duplicate 2 - GW-9 | 29-04-2024 12:33 | 6.72 | 5650 | 22.4 | -155 | Nil | Clear | Orange | |
| VKY GW Blank | 17-04-2024 8:25 | 7.56 | 3.7 | 18.1 | 141 | Nil | Clear | Clear | |
| VKY GW Lab Split Dup 1 - TR18 | 17-04-2024 13:52 | 6.77 | #### | 25.2 | 139 | Nil | Slightly Turbid | Orange | |
| VKY GW Lab Split Dup 2 - GW-11 | 29-04-2024 13:20 | 6.55 | 4520 | 25.1 | -121 | Nil | Clear | Orange | |
| VS058 | 01-07-2024 14:28 | - | - | - | - | - | - | - | - |
| SB02 | 01-07-2024 14:04 | 7.2 | 6860 | 20.3 | -109 | Nil | Slightly Turbid | Brown | - |
| GW01 | 01-07-2024 13:42 | 7.2 | 1052 | 19.1 | -32 | Nil | Clear | Clear | - |
| SB15 | 01-07-2024 13:25 | 7.3 | 1049 | 19.6 | 8 | Nil | Clear | Clear | - |
| SB06 | 01-07-2024 12:36 | 7.56 | 3440 | 18.6 | -56 | Nil | Turbid | Brown | Turbid brown |
| SB11 | 01-07-2024 13:05 | 7.77 | 461 | 17.9 | -11 | Nil | Clear | Clear | - |
| SB10 | 01-07-2024 12:01 | 7.5 | 1928 | 18 | -23 | Nil | Clear | Clear | Black particulate |
| SB05 | 01-07-2024 12:18 | 7.58 | 3490 | 18.6 | -126 | Nil | Clear | Clear | - |
| SB09 | 01-07-2024 11:40 | 7.52 | 1013 | 18.4 | -84 | Nil | Clear | Clear | Black particulate |
| SB01 | 01-07-2024 11:15 | 7.21 | 1756 | 17.6 | -134 | Nil | Clear | Clear | Black particulate |
| SB04 | 01-07-2024 10:07 | 7.12 | 2390 | 15.5 | -204 | H2S | Clear | Clear | $H_2S$ |
| SB08 | 01-07-2024 10:16 | 7.29 | 1088 | 16.9 | -132 | Nil | Clear | Clear | - |
| SB07 | 01-07-2024 9:51 | 7.22 | 978 | 15.8 | 28 | Nil | Clear | Clear | - |
| GW02 | 01-07-2024 9:00 | 7.23 | 1065 | 14.4 | 151 | Nil | Clear | Clear | - |
| VS062 | 01-07-2024 8:44 | - | - | - | - | - | - | - | - |
| VS059 | 01-07-2024 13:25 | - | - | - | - | - | - | - | - |
| VS056 | 04-07-2024 12:50 | - | - | - | - | - | - | - | - |
| VS056 | 04-07-2024 12:55 | - | - | - | - | - | - | - | - |
| MD01 | 04-07-2024 12:45 | 9.59 | 1505 | 19.6 | -244 | - | Slightly Turbid | Brown | H2S; Vegetable matter |
| VS048 | 04-07-2024 11:55 | - | - | - | - | - | - | - | - |
| VS054 | 04-07-2024 12:15 | - | - | - | - | - | - | - | Comm Port 25 (V3.66) |

| Sample Location | Date | pH - Field | EC - Field (uS) | Temperature | Redox | Odour | Appearance | Colour | Comments |
|---|---|---|---|---|---|---|---|---|---|
| MD02 | 04-07-2024 12:24 | 6.57 | 1224 | 19.9 | -117 | - | Clear | Clear | Black particulate; vegetable matter |
| GW03 | 01-07-2024 10:45 | 7.36 | 947 | 15.7 | -143 | - | Clear | Clear | Slight H2S |
| TR26 | 05-07-2024 9:37 | 6.69 | 7330 | 20.4 | - | - | Slightly Turbid | Brown | |
| TR7 | 05-07-2024 10:27 | 6.82 | #### | 17.9 | - | - | Clear | Clear | |
| TR18 | 05-07-2024 10:53 | 6.64 | #### | 17.2 | - | - | Slightly Turbid | Brown | |
| TR35 | 05-07-2024 12:02 | 6.75 | #### | 18.7 | - | - | Clear | Clear | |
| VKY43C | 05-07-2024 11:38 | 7.85 | 3290 | 7.2 | - | - | Clear | Clear | |
| VKY041C | 04-07-2024 13:45 | - | - | - | - | - | - | - | Battery 53% |
| VKY041C | 04-07-2024 13:45 | - | - | - | - | - | - | - | Battery 34% |
| VKY042C | 08-07-2024 15:02 | 6.65 | 5990 | 19.5 | -13 | - | Clear | Clear | |
| VKY33C | 05-07-2024 12:32 | - | - | - | - | - | - | - | Lithium 34% |
| VKY33C | 05-07-2024 12:32 | - | - | - | - | - | - | - | Lithium 37.1% |
| VKY035C | 08-07-2024 13:25 | 6.9 | 3290 | 20.6 | -88 | - | Clear | Clear | - |
| VKY034C | 05-07-2024 12:40 | 7.25 | 4170 | 19.3 | - | - | Slightly Turbid | Grey | Slightly turbid; too turbid to filter, lab to filter; Grey |
| VKY036C | 08-07-2024 14:27 | 7.19 | 5830 | 20.5 | -111 | - | Clear | Clear | - |
| VKY3053C | 05-07-2024 8:31 | - | - | - | - | - | - | - | Lithium |
| VNW390 | 04-07-2024 9:45 | 6.84 | 2473 | 17.7 | -117 | - | Clear | Clear | - |
| VNW391 | 04-07-2024 11:03 | 6.81 | 2458 | 19.2 | -134 | - | Clear | Clear | - |
| VNW392 | 04-07-2024 11:24 | 6.51 | 3510 | 19.6 | -78 | - | Clear | Clear | Slight H2S odor, black particulate |
| VNW393 | 04-07-2024 8:45 | 7.13 | 3090 | 18.4 | 104 | - | Clear | Clear | - |
| VNW394 | 04-07-2024 8:28 | 6.62 | 5620 | 18.2 | 227 | - | Slightly Turbid | Grey | - |
| VNW395 | 04-07-2024 10:27 | 7.61 | 1832 | 18.5 | -4 | - | Clear | Clear | Logger not responding |
| GW036459 | - | - | - | - | - | - | - | - | No access - WaterNSW locked bore |
| GW-8 | 05-07-2024 8:00 | 6.49 | 4100 | 12.5 | - | - | Slightly Turbid | Brown | - |
| GW-7 | 05-07-2024 10:39 | 8.67 | 4710 | 18.1 | 135 | - | Clear | Clear | - |
| VWN223 | 05-07-2024 12:58 | - | - | - | - | - | - | - | Blocked at 1.38mboc |
| GW-11 | 08-07-2024 12:20 | 6.09 | 4760 | 18.8 | -54 | | Slightly Turbid | Brown | - |
| GW-9 | 08-07-2024 11:50 | 6.76 | 1591 | 19.3 | -130 | | Slightly Turbid | Green | Slightly turbid; green |
| GW030051 | - | - | - | - | - | - | - | - | No access - WaterNSW locked bore |
| GW030052 | - | - | - | - | - | - | - | - | No access - WaterNSW locked bore |
| GW-2 | - | - | - | - | - | - | - | - | Unable to locate |
| WR-1 | 08-07-2024 0:00 | 6.47 | 26800 | 18.2 | 254 | - | Slightly Turbid | Brown | - |
| WR-2 | 08-07-2024 0:00 | 6.52 | 26600 | 17 | 10 | - | Slightly Turbid | Brown | - |
| VKY GW Duplicate 1 - VNW390 | 04-07-2024 0:00 | 6.69 | 2366 | 19 | -111 | - | Clear | Clear | - |
| VKY GW Duplicate 2 - TR26 | 05-07-2024 0:00 | 7.03 | 7330 | 20.4 | - | - | Slightly Turbid | Brown | - |
| VKY GW Blank | 01-07-2024 0:00 | 7.1 | 2315 | 14.4 | -124 | - | Clear | Clear | - |
| VKY GW Lab Split Dup 1 - VNW393 | 04-07-2024 0:00 | 6.97 | 3270 | 20.5 | -85 | - | Clear | Clear | - |
| VKY GW Lab Split Dup 2 - VKY035C | 08-07-2024 0:00 | 8 | 1.6 | 11 | 92 | - | Clear | Clear | - |
| GW-11 | 18-10-2024 9:25 | 7.17 | 4760 | 22.6 | -94 | NIL | Clear | Brown | Overgrown |
| GW-13 | 21-10-2024 12:48 | 7.35 | 1647 | 23.5 | -158 | NIL | Clear | Black | C? |
| GW-14 | 21-10-2024 10:33 | 6.95 | 3840 | 23.4 | 22 | NIL | Clear | Colourless | Overgrown |
| GW-2 | 22-10-2024 10:58 | 6.84 | 1226 | 21 | 100 | NIL | Clear | Colourless | - |

| Sample Location | Date | pH - Field | EC - Field (uS) | Temperature | Redox | Odour | Appearance | Colour | Comments |
|---|---|---|---|---|---|---|---|---|---|
| GW-6 | 15-11-2024 9:11 | 7.73 | 1459 | 27.3 | -142 | NIL | Slightly Turbid | Black | No access to bore on 21-10-24; uncovered on 15-11-24 |
| GW-7 | 18-10-2024 13:30 | 8.3 | 4470 | 24.5 | 55 | NIL | Clear | Colourless | Overgrown |
| GW-8 | 21-10-2024 8:40 | 7 | 3930 | 16.1 | -210 | NIL | Slightly Turbid | Brown | - |
| GW-9 | 21-10-2024 9:40 | 6.68 | 1099 | 20.7 | -188 | NIL | Slightly Turbid | Orange | - |
| GW01 | 14-10-2024 13:47 | 7.16 | 738 | 19.8 | -84 | S | Clear | Colourless | Slight H2S odour. Ant bait changed. |
| GW02 | 14-10-2024 8:50 | 7.42 | 1016 | 18.7 | 196 | NIL | Clear | Colourless | Comport 1?. Ant bait changed. |
| GW03 | 14-10-2024 11:10 | 7.22 | 1004 | 19 | -39 | NIL | Clear | Colourless | Ant bait changed. |
| MD01 | 15-10-2024 12:16 | 8.33 | 1787 | 25 | -280 | Decomposing odour (organic matter?) | Slightly Turbid | Grey | Decomposing odour (organic matter?) |
| MD02 | 15-10-2024 12:03 | 6.72 | 1279 | 25 | -71 | NIL | Clear | Colourless | - |
| SB01 | 14-10-2024 11:31 | 7.23 | 1869 | 20.7 | -60 | NIL | Clear | Colourless | - |
| SB02 | 14-10-2024 14:06 | 7.23 | 7250 | 19.9 | -113 | NIL | Slightly Turbid | Brown | - |
| SB04 | 14-10-2024 10:22 | 7.21 | 2289 | 19.4 | -178 | Mild H2S | Clear | Colourless | Mild H2S |
| SB05 | 14-10-2024 12:27 | 7.71 | 3790 | 19.5 | -45 | NIL | Clear | Colourless | - |
| SB06 | 14-10-2024 12:48 | 7.7 | 2790 | 19.5 | -113 | NIL | Slightly Turbid | Grey | - |
| SB07 | 14-10-2024 9:42 | 7.58 | 1042 | 18.4 | 98 | NIL | Clear | Colourless | - |
| SB08 | 14-10-2024 10:35 | 7.27 | 388 | 19.3 | -57 | Mild H2S | Clear | Colourless | Mild H2S |
| SB09 | 14-10-2024 11:58 | 7.44 | 1130 | 20.6 | 7 | NIL | Clear | Colourless | - |
| SB10 | 14-10-2024 12:09 | 7.38 | 2200 | 20.4 | 32 | NIL | Clear | Grey | - |
| SB11 | 14-10-2024 13:07 | 7.51 | 1266 | 19.8 | -9 | NIL | Clear | Colourless | - |
| SB15 | 14-10-2024 13:30 | 7.24 | 1143 | 19.8 | 44 | NIL | Clear | Colourless | - |
| TR18 | 15-10-2024 14:05 | 6.79 | 13820 | 21.3 | 100 | NIL | Slightly Turbid | Brown | Logger removed |
| TR26 | 15-10-2024 13:30 | 6.93 | 6090 | 28.5 | -31 | NIL | Clear | Colourless | - |
| TR35 | 15-10-2024 14:34 | 6.73 | 16690 | 23 | 92 | NIL | Clear | Colourless | - |
| TR7 | 15-10-2024 13:45 | 6.63 | 1484 | 26.2 | 80 | NIL | Clear | Colourless | - |
| VKY035C | 18-10-2024 11:15 | 7.09 | 3330 | 28.4 | -48 | NIL | Clear | Colourless | - |
| VKY036C | 18-10-2024 10:24 | 7.21 | 6020 | 24.7 | -71 | NIL | Clear | Grey | - |
| VKY042C | 18-10-2024 10:54 | 6.72 | 5850 | 23.9 | -18 | NIL | Clear | Colourless | - |
| VKY034C | 18-10-2024 12:02 | 7.25 | 3970 | 26.4 | 29 | NIL | Turbid | Grey | Too turbid, send lab to filter |
| VKY041C | 15-10-2024 13:09 | - | - | - | - | - | - | - | Not sure which is which as no machine serial numbers on loggers.<br>Change battery in 02027.<br>Ant bait changed. |
| VKY041C | 15-10-2024 13:09 | - | - | - | - | - | - | - | Ant bait changed |
| VKY043C | 15-10-2024 14:20 | 7.7 | 3050 | 22.7 | 30 | NIL | Clear | Colourless | |
| VKY33C | 18-10-2024 12:44 | - | - | - | - | - | - | - | Ant bait changed |
| VKY33C | 18-10-2024 12:46 | - | - | - | - | - | - | - | Ant bait changed |
| VKY3053C | 21-10-2024 8:46 | - | - | - | - | - | - | - | Ant bait changed |
| VNW223 | 18-10-2024 8:32 | 7.17 | 5360 | 22.2 | 129 | NIL | Clear | Colourless | |
| VNW390 | 15-10-2024 10:09 | 6.81 | 2431 | 21.6 | -103 | NIL | Clear | Colourless | |
| VNW394 | 15-10-2024 9:10 | 7.07 | 5420 | 19.8 | -98 | NIL | Clear | Colourless | |
| VNW392 | 15-10-2024 11:04 | 6.74 | 3410 | 23.3 | -60 | NIL | Clear | Colourless | |
| VNW393 | 15-10-2024 9:45 | 7.16 | 3140 | 23.7 | -117 | NIL | Clear | Colourless | |
| VNW391 | 15-10-2024 10:45 | 7.1 | 2424 | 22.4 | -104 | NIL | Clear | Colourless | |

| Sample Location | Date | pH - Field | EC - Field (uS) | Temperature | Redox | Odour | Appearance | Colour | Comments |
|---|---|---|---|---|---|---|---|---|---|
| VNW395 | 15-10-2024 10:30 | 7.56 | 1834 | 21.7 | 40 | NIL | Clear | Colourless | No logger; Ant bait changed |
| VS048 | 15-10-2024 11:35 | - | - | - | - | - | - | - | Ant bait changed |
| VS054 | 15-10-2024 11:51 | - | - | - | - | - | - | - | Comport 25; Ant bait changed |
| VS056 | 15-10-2024 12:24 | - | - | - | - | - | - | - | Ant bait changed |
| VS056 | 15-10-2024 12:24 | - | - | - | - | - | - | - | Ant bait changed |
| VS058 | 14-10-2024 14:20 | - | - | - | - | - | - | - | Ant bait changed |
| VS059 | 14-10-2024 8:30 | - | - | - | - | - | - | - | Ant bait changed |
| VS062 | 14-10-2024 10:00 | - | - | - | - | - | - | - | Ant bait changed |
| WR-1 | 18-10-2024 13:58 | 6.5 | 2680 | 23.5 | 150 | NIL | Clear | Grey | Comport 8 |
| WR-2 | 18-10-2024 14:40 | 6.36 | 2660 | 24.2 | -37 | NIL | Slightly Turbid | Grey | |
| GW036459 | - | - | - | - | - | - | - | - | No access - NSW Water locked bore |
| GW030051 | - | - | - | - | - | - | - | - | No access - NSW Water locked bore |
| GW030052 | - | - | - | - | - | - | - | - | No access - NSW Water locked bore |
| GW-4 | 15-11-2024 8:50 | 7.92 | 2980 | 21.8 | 177 | NIL | Slightly Turbid | Colourless | No access for sampling on 22 Oct 2024, bore uncovered on 15 Nov 2024 |
| GW-10 | 22-10-2024 11:45 | 7.57 | 1438 | 23.8 | 93 | NIL | Clear | Orange | - |
| GW-15 | 22-10-2024 13:30 | 8.97 | 638 | 23.6 | 12 | NIL | Clear | Colourless | See photos |
| GW971614 | 22-10-2024 9:40 | 6.65 | 651 | 19 | 219 | NIL | Clear | Colourless | Sampled from tank outflow? |
| GW971400 | 22-10-2024 10:15 | 6.8 | 2458 | 20.2 | 76 | NIL | Clear | Colourless | Sampled from outflow |
| GW4 | 22-10-2024 11:30 | - | - | - | - | - | - | - | No access |
| VKY GW Duplicate 1 - GW-9 | 21-10-2024 9:40 | 6.66 | 1076 | 20.3 | 779 | NIL | Slightly Turbid | Orange | - |
| VKY GW Duplicate 2 - GW-10 | 22-10-2024 11:45 | 7.54 | 1478 | 23.7 | 77 | NIL | Clear | Colourless | - |
| VKY GW Blank | 21-10-2024 7:30 | 7.5 | 3.2 | 19.7 | -83 | NIL | Clear | Colourless | - |
| VKY GW Lab Split Dup 1 - GW-14 | 21-10-2024 10:33 | 6.91 | 3830 | 21.6 | 10 | NIL | Clear | Colourless | - |
| VKY GW Lab Split Dup 2 - GW-10 | 22-10-2024 11:45 | 7.6 | 1477 | 22.8 | 110 | NIL | Clear | Colourless | - |

**Table C-2: Laboratory GW Monitoring Data (as COA provided by ALS)**

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EN2413597** | Page | : 1 of 32 |
| Client | : **CBASED ENVIRONMENTAL PTY LTD** | Laboratory | : Environmental Division Newcastle |
| Contact | : All Deliverables | Contact | : |
| Address | : Unit 3 2 Enterprise Cres<br>Singleton NSW 2330 | Address | : 5/585 Maitland Road Mayfield West NSW Australia 2304 |
| Telephone | : +61 02 6571 3334 | Telephone | : +61 2 4014 2500 |
| Project | : Vickery Quarterly Groundwaters | Date Samples Received | : 24-Oct-2024 16:00 |
| Order number | : ---- | Date Analysis Commenced | : 24-Oct-2024 |
| C-O-C number | : ---- | Issue Date | : 04-Nov-2024 17:11 |
| Sampler | : CBased Environmental | | |
| Site | : | | |
| Quote number | : SYBQ/403/21v4 and PLANNED EVENTS | | |
| No. of samples received | : 50 | | |
| No. of samples analysed | : 50 | | |

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

**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* |
|---|---|---|
| Dian Dao | Senior Chemist - Inorganics | Sydney Inorganics, Smithfield, NSW |
| Gregory Towers | Laboratory Technician | Newcastle - Inorganics, Mayfield West, NSW |

## General Comments

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

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

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

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

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

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

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

- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020/ED093: Positive results for sample EN2413597-#048 have been confirmed by reanalysis.
- EK059G/EK057G: Nox/NO2 for sample 5 is re-confirmed by analysis
- EK057G/EK059G: NOX/NO2 for sample 6 is reconfirmed by analysis.
- EG020: Manganese results for samples EN2413597-#003 and #049 have been confirmed by reanalysis.
- It is recognised that total phosphrous is less than filtered total phosphrous. However, the difference is within experimental variation of the methods.
- TDS by method EA-015 sample 50 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- TDS by method EA-015 may bias high for various due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- It has been noted that Dissolved Total P is greater than Total P, however this difference is within the limits of experimental variation on various samples
- It has been noted that Dissolved Total P is greater than Total P, however this difference is within the limits of experimental variation.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | GW-11 TH9NZDD9-1 | GW-13 TH9NZDD9-2 | GW-14 TH9NZDD9-3 | GW-2 TH9NZDD9-4 | GW-7 TH9NZDD9-6 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 09:25 | 21-Oct-2024 12:48 | 21-Oct-2024 10:33 | 22-Oct-2024 10:58 | 18-Oct-2024 13:30 |
| | | | | | EN2413597-001 | EN2413597-002 | EN2413597-003 | EN2413597-004 | EN2413597-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | 6.46 | 7.61 | 7.18 | 7.04 | 8.52 |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | 4580 | 1560 | 4010 | 1140 | 4580 |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | 2790 | 962 | 2400 | 729 | 2810 |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | 83 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | 19 | 759 | 560 | 530 | 980 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | 19 | 759 | 560 | 530 | 1060 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | <1 | 24 | 435 | 26 | 396 |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | 1240 | 128 | 732 | 106 | 652 |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | 199 | 27 | 190 | 90 | 5 |
| Magnesium | 7439-95-4 | 1 | mg/L | | 51 | 14 | 90 | 32 | 149 |
| Sodium | 7440-23-5 | 1 | mg/L | | 649 | 352 | 571 | 149 | 614 |
| Potassium | 7440-09-7 | 1 | mg/L | | 11 | 11 | 2 | 2 | 311 |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Antimony | 7440-36-0 | 0.001 | mg/L | | <0.001 | 0.001 | <0.001 | <0.001 | <0.001 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | | <0.001 | 0.001 | <0.001 | 0.002 | <0.001 |
| Barium | 7440-39-3 | 0.001 | mg/L | | 0.105 | 0.046 | 0.040 | 0.184 | 0.015 |
| 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 | 0.003 | <0.001 |
| Cobalt | 7440-48-4 | 0.001 | mg/L | | <0.001 | 0.001 | <0.001 | <0.001 | <0.001 |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | GW-11 TH9NZDD9-1 | GW-13 TH9NZDD9-2 | GW-14 TH9NZDD9-3 | GW-2 TH9NZDD9-4 | GW-7 TH9NZDD9-6 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 09:25 | 21-Oct-2024 12:48 | 21-Oct-2024 10:33 | 22-Oct-2024 10:58 | 18-Oct-2024 13:30 |
| | | | | | EN2413597-001 | EN2413597-002 | EN2413597-003 | EN2413597-004 | EN2413597-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| **Copper** | 7440-50-8 | 0.001 | mg/L | | **0.019** | **0.006** | <0.001 | **0.003** | **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 | | **0.980** | **0.161** | **0.026** | **0.005** | **0.030** |
| **Molybdenum** | 7439-98-7 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Nickel** | 7440-02-0 | 0.001 | mg/L | | <0.001 | **0.006** | **0.004** | <0.001 | **0.001** |
| **Selenium** | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **Silver** | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Strontium** | 7440-24-6 | 0.001 | mg/L | | **2.90** | **0.859** | **2.50** | **0.891** | **0.079** |
| **Tin** | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Zinc** | 7440-66-6 | 0.005 | mg/L | | **0.043** | **0.019** | **0.095** | **0.006** | <0.005 |
| **Boron** | 7440-42-8 | 0.05 | mg/L | | **0.14** | **0.08** | <0.05 | <0.05 | **0.18** |
| **Iron** | 7439-89-6 | 0.05 | mg/L | | **9.16** | **2.32** | <0.05 | <0.05 | <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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **1.44** | **3.22** | **0.05** | **0.06** | **0.89** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | **0.07** |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | **0.03** | **0.03** | **0.66** | **0.31** | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | **0.03** | **0.03** | **0.66** | **0.31** | **0.02** |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| **Filtered Total Phosphorus as P** | ---- | 0.01 | mg/L | | **0.03** | **2.89** | **0.09** | **0.10** | **0.12** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| **Total Phosphorus as P** | ---- | 0.01 | mg/L | | **0.07** | **2.85** | **0.07** | **0.12** | **0.20** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | GW-11 TH9NZDD9-1 | GW-13 TH9NZDD9-2 | GW-14 TH9NZDD9-3 | GW-2 TH9NZDD9-4 | GW-7 TH9NZDD9-6 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 09:25 | 21-Oct-2024 12:48 | 21-Oct-2024 10:33 | 22-Oct-2024 10:58 | 18-Oct-2024 13:30 |
| Compound | CAS Number | LOR | Unit | | EN2413597-001 | EN2413597-002 | EN2413597-003 | EN2413597-004 | EN2413597-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **35.4** | **19.3** | **40.9** | **14.1** | **47.8** |
| ø Total Cations | ---- | 0.01 | meq/L | | **42.6** | **18.1** | **41.8** | **13.6** | **47.2** |
| ø Ionic Balance | ---- | 0.01 | % | | **9.33** | **3.17** | **1.07** | **1.67** | **0.68** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **10.1** | **9.6** | **9.9** | **9.9** | **9.8** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | GW-8 TH9NZDD9-7 | GW-9 TH9NZDD9-8 | GW01 TH9NZDD9-9 | GW02 TH9NZDD9-10 | GW03 TH9NZDD9-11 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 21-Oct-2024 08:40 | 21-Oct-2024 09:40 | 14-Oct-2024 13:55 | 14-Oct-2024 08:50 | 14-Oct-2024 11:07 |
| | | | | | EN2413597-006 | EN2413597-007 | EN2413597-008 | EN2413597-009 | EN2413597-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| **pH Value** | ---- | 0.01 | pH Unit | | **7.15** | **6.47** | **7.25** | **7.58** | **7.32** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| **Electrical Conductivity @ 25°C** | ---- | 1 | µS/cm | | **4090** | **958** | **1100** | **876** | **826** |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| **Total Dissolved Solids @180°C** | ---- | 10 | mg/L | | **2220** | **608** | **673** | **597** | **611** |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| **Hydroxide Alkalinity as CaCO3** | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Carbonate Alkalinity as CaCO3** | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Bicarbonate Alkalinity as CaCO3** | 71-52-3 | 1 | mg/L | | **766** | **21** | **502** | **378** | **427** |
| **Total Alkalinity as CaCO3** | ---- | 1 | mg/L | | **766** | **21** | **502** | **378** | **427** |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| **Sulfate as SO4 - Turbidimetric** | 14808-79-8 | 1 | mg/L | | **82** | **28** | **111** | **79** | **54** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| **Chloride** | 16887-00-6 | 1 | mg/L | | **801** | **303** | **44** | **40** | **21** |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| **Calcium** | 7440-70-2 | 1 | mg/L | | **124** | **48** | **72** | **44** | **82** |
| **Magnesium** | 7439-95-4 | 1 | mg/L | | **80** | **14** | **45** | **24** | **34** |
| **Sodium** | 7440-23-5 | 1 | mg/L | | **634** | **112** | **127** | **135** | **75** |
| **Potassium** | 7440-09-7 | 1 | mg/L | | **8** | **10** | <1 | **2** | **1** |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **Antimony** | 7440-36-0 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Arsenic** | 7440-38-2 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Barium** | 7440-39-3 | 0.001 | mg/L | | **0.236** | **0.021** | **0.072** | **0.041** | **0.083** |
| **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 | <0.001 | <0.001 |
| **Cobalt** | 7440-48-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | GW-8 TH9NZDD9-7 | GW-9 TH9NZDD9-8 | GW01 TH9NZDD9-9 | GW02 TH9NZDD9-10 | GW03 TH9NZDD9-11 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 21-Oct-2024 08:40 | 21-Oct-2024 09:40 | 14-Oct-2024 13:55 | 14-Oct-2024 08:50 | 14-Oct-2024 11:07 |
| | | | | | EN2413597-006 | EN2413597-007 | EN2413597-008 | EN2413597-009 | EN2413597-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| Copper | 7440-50-8 | 0.001 | mg/L | | <0.001 | **0.002** | <0.001 | **0.014** | <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 | | **0.176** | **2.12** | **0.155** | **0.005** | **0.043** |
| Molybdenum | 7439-98-7 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel | 7440-02-0 | 0.001 | mg/L | | **0.002** | **0.001** | <0.001 | <0.001 | **0.001** |
| Selenium | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Silver | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Strontium | 7440-24-6 | 0.001 | mg/L | | **2.72** | **1.13** | **1.45** | **0.616** | **0.970** |
| Tin | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | 7440-66-6 | 0.005 | mg/L | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Boron | 7440-42-8 | 0.05 | mg/L | | **0.07** | **0.05** | **0.07** | **0.06** | <0.05 |
| Iron | 7439-89-6 | 0.05 | mg/L | | **12.8** | **39.2** | **0.20** | <0.05 | <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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **1.07** | **0.98** | **0.17** | **0.02** | **0.04** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.01** | **0.02** | **0.11** | **0.69** | **0.33** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.01** | **0.02** | **0.11** | **0.69** | **0.33** |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Filtered Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.15** | **0.06** | **0.12** | **0.23** | **0.39** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.26** | **0.06** | **0.13** | **0.26** | **0.42** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | GW-8 TH9NZDD9-7 | GW-9 TH9NZDD9-8 | GW01 TH9NZDD9-9 | GW02 TH9NZDD9-10 | GW03 TH9NZDD9-11 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 21-Oct-2024 08:40 | 21-Oct-2024 09:40 | 14-Oct-2024 13:55 | 14-Oct-2024 08:50 | 14-Oct-2024 11:07 |
| Compound | CAS Number | LOR | Unit | | EN2413597-006 | EN2413597-007 | EN2413597-008 | EN2413597-009 | EN2413597-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **39.6** | **9.55** | **13.6** | **10.3** | **10.2** |
| ø Total Cations | ---- | 0.01 | meq/L | | **40.6** | **8.67** | **12.8** | **10.1** | **10.2** |
| ø Ionic Balance | ---- | 0.01 | % | | **1.18** | **4.80** | **2.88** | **1.13** | **0.34** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **9.4** | **8.9** | **9.7** | **10.1** | **10.5** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | MD01 TH9NZDD9-12 | MD02 TH9NZDD9-13 | SB01 TH9NZDD9-14 | SB02 TH9NZDD9-15 | SB04 TH9NZDD9-16 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 12:16 | 15-Oct-2024 12:03 | 14-Oct-2024 11:32 | 14-Oct-2024 14:07 | 14-Oct-2024 10:24 |
| | | | | | EN2413597-011 | EN2413597-012 | EN2413597-013 | EN2413597-014 | EN2413597-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | 9.28 | 6.99 | 7.36 | 7.37 | 7.41 |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | 1560 | 1220 | 1610 | 6870 | 1910 |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | 850 | 688 | 982 | 4840 | 1240 |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | 73 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | 312 | 565 | 567 | 880 | 582 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | 386 | 565 | 567 | 880 | 582 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | 14 | 29 | 193 | 1110 | 208 |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | 344 | 114 | 177 | 1100 | 255 |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | 43 | 80 | 100 | 73 | 75 |
| Magnesium | 7439-95-4 | 1 | mg/L | | 21 | 54 | 66 | 64 | 55 |
| Sodium | 7440-23-5 | 1 | mg/L | | 287 | 133 | 207 | 1490 | 313 |
| Potassium | 7440-09-7 | 1 | mg/L | | 19 | 8 | 1 | 2 | <1 |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | | 0.02 | <0.01 | <0.01 | <0.01 | <0.01 |
| Antimony | 7440-36-0 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | 0.004 | <0.001 |
| Barium | 7440-39-3 | 0.001 | mg/L | | 0.145 | 0.244 | 0.110 | 0.027 | 0.077 |
| 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 | <0.001 | <0.001 |
| Cobalt | 7440-48-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | MD01 TH9NZDD9-12 | MD02 TH9NZDD9-13 | SB01 TH9NZDD9-14 | SB02 TH9NZDD9-15 | SB04 TH9NZDD9-16 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 12:16 | 15-Oct-2024 12:03 | 14-Oct-2024 11:32 | 14-Oct-2024 14:07 | 14-Oct-2024 10:24 |
| | | | | | EN2413597-011 | EN2413597-012 | EN2413597-013 | EN2413597-014 | EN2413597-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| Copper | 7440-50-8 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <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 | | **0.022** | **0.044** | **0.211** | **0.696** | **0.061** |
| Molybdenum | 7439-98-7 | 0.001 | mg/L | | **0.008** | **0.001** | <0.001 | **0.002** | <0.001 |
| Nickel | 7440-02-0 | 0.001 | mg/L | | **0.004** | **0.011** | **0.002** | **0.001** | <0.001 |
| Selenium | 7782-49-2 | 0.01 | mg/L | | **0.01** | <0.01 | <0.01 | <0.01 | <0.01 |
| Silver | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Strontium | 7440-24-6 | 0.001 | mg/L | | **1.37** | **1.28** | **2.07** | **1.98** | **1.60** |
| Tin | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | **0.002** |
| Zinc | 7440-66-6 | 0.005 | mg/L | | **0.049** | <0.005 | **0.011** | <0.005 | <0.005 |
| Boron | 7440-42-8 | 0.05 | mg/L | | <0.05 | <0.05 | **0.08** | **0.14** | **0.08** |
| Iron | 7439-89-6 | 0.05 | mg/L | | <0.05 | **1.46** | **0.05** | **1.32** | <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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **20.9** | **0.32** | **0.06** | **0.10** | **0.08** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | **0.01** | **0.02** | **0.01** | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | **0.01** | **0.02** | **0.01** | <0.01 |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Filtered Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.30** | **0.16** | **0.07** | **1.67** | **0.07** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **1.33** | **0.16** | **0.08** | **1.66** | **0.09** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | MD01 TH9NZDD9-12 | MD02 TH9NZDD9-13 | SB01 TH9NZDD9-14 | SB02 TH9NZDD9-15 | SB04 TH9NZDD9-16 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 12:16 | 15-Oct-2024 12:03 | 14-Oct-2024 11:32 | 14-Oct-2024 14:07 | 14-Oct-2024 10:24 |
| Compound | CAS Number | LOR | Unit | | EN2413597-011 | EN2413597-012 | EN2413597-013 | EN2413597-014 | EN2413597-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **17.7** | **15.1** | **20.3** | **71.7** | **23.2** |
| ø Total Cations | ---- | 0.01 | meq/L | | **16.8** | **14.4** | **19.4** | **73.8** | **21.9** |
| ø Ionic Balance | ---- | 0.01 | % | | **2.50** | **2.31** | **2.23** | **1.41** | **2.82** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | **16** | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **7.2** | **9.9** | **10.1** | **10.0** | **9.9** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | SB05 TH9NZDD9-17 | SB06 TH9NZDD9-18 | SB07 TH9NZDD9-19 | SB08 TH9NZDD9-20 | SB09 TH9NZDD9-21 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 14-Oct-2024 12:25 | 14-Oct-2024 12:48 | 14-Oct-2024 09:42 | 14-Oct-2024 10:40 | 14-Oct-2024 11:58 |
| | | | | | EN2413597-016 | EN2413597-017 | EN2413597-018 | EN2413597-019 | EN2413597-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | 7.80 | 7.83 | 7.48 | 7.42 | 7.59 |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | 3610 | 2610 | 876 | 970 | 919 |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | 2110 | 1520 | 605 | 614 | 599 |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | 756 | 419 | 392 | 404 | 438 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | 756 | 419 | 392 | 404 | 438 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | 496 | 307 | 71 | 74 | 67 |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | 473 | 434 | 38 | 59 | 33 |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | 26 | 25 | 53 | 68 | 46 |
| Magnesium | 7439-95-4 | 1 | mg/L | | 19 | 21 | 26 | 38 | 30 |
| Sodium | 7440-23-5 | 1 | mg/L | | 770 | 515 | 129 | 118 | 147 |
| Potassium | 7440-09-7 | 1 | mg/L | | <1 | <1 | <1 | <1 | 1 |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | | <0.01 | 0.01 | <0.01 | <0.01 | <0.01 |
| Antimony | 7440-36-0 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | | 0.004 | 0.003 | <0.001 | <0.001 | <0.001 |
| Barium | 7440-39-3 | 0.001 | mg/L | | 0.060 | 0.091 | 0.044 | 0.052 | 0.053 |
| 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 | <0.001 | <0.001 |
| Cobalt | 7440-48-4 | 0.001 | mg/L | | <0.001 | 0.002 | <0.001 | <0.001 | <0.001 |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | SB05 TH9NZDD9-17 | SB06 TH9NZDD9-18 | SB07 TH9NZDD9-19 | SB08 TH9NZDD9-20 | SB09 TH9NZDD9-21 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 14-Oct-2024 12:25 | 14-Oct-2024 12:48 | 14-Oct-2024 09:42 | 14-Oct-2024 10:40 | 14-Oct-2024 11:58 |
| | | | | | EN2413597-016 | EN2413597-017 | EN2413597-018 | EN2413597-019 | EN2413597-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| **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 | | **0.273** | **0.493** | <0.001 | **0.002** | **0.443** |
| **Molybdenum** | 7439-98-7 | 0.001 | mg/L | | **0.003** | **0.003** | <0.001 | <0.001 | <0.001 |
| **Nickel** | 7440-02-0 | 0.001 | mg/L | | **0.001** | **0.003** | <0.001 | <0.001 | **0.001** |
| **Selenium** | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **Silver** | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Strontium** | 7440-24-6 | 0.001 | mg/L | | **0.672** | **0.784** | **0.703** | **1.08** | **0.938** |
| **Tin** | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Zinc** | 7440-66-6 | 0.005 | mg/L | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| **Boron** | 7440-42-8 | 0.05 | mg/L | | **0.16** | **0.12** | **0.06** | **0.06** | **0.07** |
| **Iron** | 7439-89-6 | 0.05 | mg/L | | <0.05 | **0.14** | <0.05 | <0.05 | <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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **0.14** | **0.15** | **0.02** | **0.01** | **0.08** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | **0.08** | <0.01 | **0.22** | **0.14** | **0.02** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | **0.08** | <0.01 | **0.22** | **0.14** | **0.02** |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| **Filtered Total Phosphorus as P** | ---- | 0.01 | mg/L | | **0.72** | **0.48** | **0.13** | **0.09** | **0.25** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| **Total Phosphorus as P** | ---- | 0.01 | mg/L | | **0.78** | **0.51** | **0.15** | **0.08** | **0.39** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | SB05 TH9NZDD9-17 | SB06 TH9NZDD9-18 | SB07 TH9NZDD9-19 | SB08 TH9NZDD9-20 | SB09 TH9NZDD9-21 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 14-Oct-2024 12:25 | 14-Oct-2024 12:48 | 14-Oct-2024 09:42 | 14-Oct-2024 10:40 | 14-Oct-2024 11:58 |
| Compound | CAS Number | LOR | Unit | | EN2413597-016 | EN2413597-017 | EN2413597-018 | EN2413597-019 | EN2413597-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **38.8** | **27.0** | **10.4** | **11.3** | **11.1** |
| ø Total Cations | ---- | 0.01 | meq/L | | **36.4** | **25.4** | **10.4** | **11.6** | **11.2** |
| ø Ionic Balance | ---- | 0.01 | % | | **3.22** | **3.11** | **0.06** | **1.64** | **0.48** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **9.8** | **9.7** | **10.0** | **10.1** | **10.1** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | SB10 TH9NZDD9-22 | SB11 TH9NZDD9-23 | SB15 TH9NZDD9-24 | TR18 TH9NZDD9-25 | TR26 TH9NZDD9-26 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 14-Oct-2024 12:09 | 14-Oct-2024 13:07 | 14-Oct-2024 13:30 | 15-Oct-2024 14:05 | 15-Oct-2024 13:30 |
| | | | | | EN2413597-021 | EN2413597-022 | EN2413597-023 | EN2413597-024 | EN2413597-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | 7.60 | 7.67 | 7.34 | 6.94 | 7.20 |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | 1900 | 1060 | 995 | 13300 | 6580 |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | 1070 | 651 | 702 | 8880 | 4050 |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | 651 | 478 | 456 | 732 | 1230 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | 651 | 478 | 456 | 732 | 1230 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | 198 | 85 | 98 | 626 | 195 |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | 186 | 35 | 35 | 3890 | 1280 |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | 43 | 34 | 72 | 252 | 146 |
| Magnesium | 7439-95-4 | 1 | mg/L | | 37 | 24 | 44 | 315 | 154 |
| Sodium | 7440-23-5 | 1 | mg/L | | 394 | 202 | 112 | 2310 | 1190 |
| Potassium | 7440-09-7 | 1 | mg/L | | <1 | 1 | <1 | 11 | 10 |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Antimony | 7440-36-0 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Barium | 7440-39-3 | 0.001 | mg/L | | 0.054 | 0.051 | 0.065 | 0.065 | 0.125 |
| 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 | <0.001 | <0.001 |
| Cobalt | 7440-48-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | SB10 TH9NZDD9-22 | SB11 TH9NZDD9-23 | SB15 TH9NZDD9-24 | TR18 TH9NZDD9-25 | TR26 TH9NZDD9-26 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 14-Oct-2024 12:09 | 14-Oct-2024 13:07 | 14-Oct-2024 13:30 | 15-Oct-2024 14:05 | 15-Oct-2024 13:30 |
| | | | | | EN2413597-021 | EN2413597-022 | EN2413597-023 | EN2413597-024 | EN2413597-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| Copper | 7440-50-8 | 0.001 | mg/L | | <0.001 | **0.001** | **0.008** | **0.101** | <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 | | **0.104** | **0.004** | **0.001** | **0.043** | **0.106** |
| Molybdenum | 7439-98-7 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | **0.001** | **0.001** |
| Nickel | 7440-02-0 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | **0.013** | **0.004** |
| Selenium | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Silver | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Strontium | 7440-24-6 | 0.001 | mg/L | | **1.06** | **0.799** | **1.39** | **7.44** | **4.16** |
| Tin | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | 7440-66-6 | 0.005 | mg/L | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Boron | 7440-42-8 | 0.05 | mg/L | | **0.11** | **0.08** | **0.06** | **0.07** | **0.10** |
| Iron | 7439-89-6 | 0.05 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | **0.06** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.04** | **0.02** | **0.01** | **0.03** | **0.02** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.07** | **0.21** | **0.17** | **0.02** | **0.30** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.07** | **0.21** | **0.17** | **0.02** | **0.30** |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Filtered Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.12** | **0.10** | **0.07** | **0.29** | **0.10** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.18** | **0.13** | **0.09** | **0.32** | **0.14** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | SB10 TH9NZDD9-22 | SB11 TH9NZDD9-23 | SB15 TH9NZDD9-24 | TR18 TH9NZDD9-25 | TR26 TH9NZDD9-26 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 14-Oct-2024 12:09 | 14-Oct-2024 13:07 | 14-Oct-2024 13:30 | 15-Oct-2024 14:05 | 15-Oct-2024 13:30 |
| Compound | CAS Number | LOR | Unit | | EN2413597-021 | EN2413597-022 | EN2413597-023 | EN2413597-024 | EN2413597-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **22.4** | **12.3** | **12.1** | **137** | **64.7** |
| ø Total Cations | ---- | 0.01 | meq/L | | **22.3** | **12.5** | **12.1** | **139** | **72.0** |
| ø Ionic Balance | ---- | 0.01 | % | | **0.10** | **0.71** | **0.22** | **0.68** | **5.29** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **9.9** | **10.1** | **10.1** | **10.2** | **9.5** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | TR35 TH9NZDD9-27 | TR7 TH9NZDD9-28 | VKY0035C TH9NZDD9-29 | VKY0036C TH9NZDD9-30 | VKY0042C TH9NZDD9-31 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 14:34 | 15-Oct-2024 13:45 | 18-Oct-2024 11:15 | 18-Oct-2024 10:24 | 18-Oct-2024 10:54 |
| | | | | | EN2413597-026 | EN2413597-027 | EN2413597-028 | EN2413597-029 | EN2413597-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | 6.98 | 6.92 | 7.24 | 7.34 | 6.97 |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | 17200 | 15400 | 3360 | 5930 | 5780 |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | 10800 | 9550 | 1770 | 3310 | 3060 |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | 732 | 771 | 950 | 1360 | 833 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | 732 | 771 | 950 | 1360 | 833 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | 624 | 563 | 68 | 174 | 326 |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | 5130 | 4560 | 523 | 1030 | 1190 |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | 315 | 297 | 49 | 55 | 197 |
| Magnesium | 7439-95-4 | 1 | mg/L | | 519 | 352 | 44 | 42 | 217 |
| Sodium | 7440-23-5 | 1 | mg/L | | 2800 | 2650 | 642 | 1260 | 736 |
| Potassium | 7440-09-7 | 1 | mg/L | | 19 | 14 | 7 | 7 | 21 |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Antimony | 7440-36-0 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | 0.007 | <0.001 |
| Barium | 7440-39-3 | 0.001 | mg/L | | 0.097 | 0.105 | 0.071 | 0.227 | 0.128 |
| Cadmium | 7440-43-9 | 0.0001 | mg/L | | 0.0004 | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Chromium | 7440-47-3 | 0.001 | mg/L | | <0.001 | <0.001 | 0.002 | <0.001 | <0.001 |
| Cobalt | 7440-48-4 | 0.001 | mg/L | | 0.010 | 0.004 | <0.001 | <0.001 | <0.001 |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | TR35 TH9NZDD9-27 | TR7 TH9NZDD9-28 | VKY0035C TH9NZDD9-29 | VKY0036C TH9NZDD9-30 | VKY0042C TH9NZDD9-31 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 14:34 | 15-Oct-2024 13:45 | 18-Oct-2024 11:15 | 18-Oct-2024 10:24 | 18-Oct-2024 10:54 |
| | | | | | EN2413597-026 | EN2413597-027 | EN2413597-028 | EN2413597-029 | EN2413597-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| Copper | 7440-50-8 | 0.001 | mg/L | | **8.23** | **1.59** | <0.001 | <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 | | **1.44** | **0.278** | **0.320** | **0.157** | **0.213** |
| Molybdenum | 7439-98-7 | 0.001 | mg/L | | **0.010** | **0.002** | **0.007** | **0.003** | <0.001 |
| Nickel | 7440-02-0 | 0.001 | mg/L | | **0.308** | **0.045** | **0.003** | **0.004** | **0.003** |
| Selenium | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Silver | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Strontium | 7440-24-6 | 0.001 | mg/L | | **8.87** | **10.5** | **0.878** | **0.963** | **3.95** |
| Tin | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | 7440-66-6 | 0.005 | mg/L | | **0.017** | <0.005 | <0.005 | <0.005 | <0.005 |
| Boron | 7440-42-8 | 0.05 | mg/L | | **0.09** | **0.07** | <0.05 | **0.09** | **0.06** |
| Iron | 7439-89-6 | 0.05 | mg/L | | **0.10** | **0.26** | **0.86** | **1.12** | **0.76** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.09** | **0.06** | **0.96** | **1.10** | **0.67** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | **0.02** | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Filtered Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.07** | **0.16** | **0.15** | **0.57** | **0.02** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.10** | **0.18** | **0.20** | **0.58** | **0.04** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | TR35 TH9NZDD9-27 | TR7 TH9NZDD9-28 | VKY0035C TH9NZDD9-29 | VKY0036C TH9NZDD9-30 | VKY0042C TH9NZDD9-31 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 14:34 | 15-Oct-2024 13:45 | 18-Oct-2024 11:15 | 18-Oct-2024 10:24 | 18-Oct-2024 10:54 |
| Compound | CAS Number | LOR | Unit | | EN2413597-026 | EN2413597-027 | EN2413597-028 | EN2413597-029 | EN2413597-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **172** | **156** | **35.1** | **59.8** | **57.0** |
| ø Total Cations | ---- | 0.01 | meq/L | | **181** | **159** | **34.2** | **61.2** | **60.2** |
| ø Ionic Balance | ---- | 0.01 | % | | **2.37** | **1.16** | **1.41** | **1.10** | **2.76** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **10.1** | **9.8** | **9.6** | **9.6** | **10.0** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | VKY034C TH9NZDD9-32 | VKY043C TH9NZDD9-33 | VNW223/P-3 TH9NZDD9-34 | VNW390 TH9NZDD9-35 | VNW394 TH9NZDD9-36 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 12:02 | 15-Oct-2024 14:20 | 18-Oct-2024 08:32 | 15-Oct-2024 10:09 | 15-Oct-2024 09:07 |
| | | | | | EN2413597-031 | EN2413597-032 | EN2413597-033 | EN2413597-034 | EN2413597-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| **pH Value** | ---- | 0.01 | pH Unit | | **7.40** | **7.95** | **7.38** | **6.96** | **7.08** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| **Electrical Conductivity @ 25°C** | ---- | 1 | µS/cm | | **4120** | **3160** | **5230** | **2380** | **5540** |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| **Total Dissolved Solids @180°C** | ---- | 10 | mg/L | | **2710** | **1970** | **2860** | **1380** | **3130** |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| **Hydroxide Alkalinity as CaCO3** | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Carbonate Alkalinity as CaCO3** | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Bicarbonate Alkalinity as CaCO3** | 71-52-3 | 1 | mg/L | | **1440** | **1160** | **1030** | **605** | **379** |
| **Total Alkalinity as CaCO3** | ---- | 1 | mg/L | | **1440** | **1160** | **1030** | **605** | **379** |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| **Sulfate as SO4 - Turbidimetric** | 14808-79-8 | 1 | mg/L | | **90** | <1 | **164** | **104** | **591** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| **Chloride** | 16887-00-6 | 1 | mg/L | | **522** | **389** | **1010** | **405** | **1160** |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| **Calcium** | 7440-70-2 | 1 | mg/L | | **16** | **10** | **114** | **186** | **206** |
| **Magnesium** | 7439-95-4 | 1 | mg/L | | **23** | **3** | **116** | **45** | **84** |
| **Sodium** | 7440-23-5 | 1 | mg/L | | **954** | **741** | **907** | **277** | **912** |
| **Potassium** | 7440-09-7 | 1 | mg/L | | **7** | **5** | **15** | **11** | **7** |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | **0.02** |
| **Antimony** | 7440-36-0 | 0.001 | mg/L | | **0.002** | <0.001 | **0.001** | <0.001 | <0.001 |
| **Arsenic** | 7440-38-2 | 0.001 | mg/L | | **0.001** | <0.001 | <0.001 | **0.003** | **0.005** |
| **Barium** | 7440-39-3 | 0.001 | mg/L | | **0.172** | **0.295** | **0.103** | **0.138** | **0.066** |
| **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 | <0.001 | <0.001 |
| **Cobalt** | 7440-48-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | **0.002** | **0.002** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | VKY034C TH9NZDD9-32 | VKY043C TH9NZDD9-33 | VNW223/P-3 TH9NZDD9-34 | VNW390 TH9NZDD9-35 | VNW394 TH9NZDD9-36 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 12:02 | 15-Oct-2024 14:20 | 18-Oct-2024 08:32 | 15-Oct-2024 10:09 | 15-Oct-2024 09:07 |
| Compound | CAS Number | LOR | Unit | | EN2413597-031 | EN2413597-032 | EN2413597-033 | EN2413597-034 | EN2413597-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| Copper | 7440-50-8 | 0.001 | mg/L | | <0.001 | **0.002** | **0.011** | <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 | | <0.001 | **0.004** | **0.013** | **0.321** | **0.332** |
| Molybdenum | 7439-98-7 | 0.001 | mg/L | | **0.005** | <0.001 | <0.001 | **0.002** | **0.002** |
| Nickel | 7440-02-0 | 0.001 | mg/L | | **0.006** | <0.001 | **0.003** | **0.016** | **0.014** |
| Selenium | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Silver | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Strontium | 7440-24-6 | 0.001 | mg/L | | **0.448** | **0.396** | **2.23** | **1.93** | **2.90** |
| Tin | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | 7440-66-6 | 0.005 | mg/L | | **0.023** | **0.006** | **0.023** | **0.008** | **0.007** |
| Boron | 7440-42-8 | 0.05 | mg/L | | **0.06** | **0.07** | **0.07** | **0.12** | **0.07** |
| Iron | 7439-89-6 | 0.05 | mg/L | | <0.05 | **0.08** | <0.05 | **2.60** | **0.86** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.79** | **0.41** | **0.40** | **0.44** | **0.08** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | **0.01** | <0.01 | **0.11** | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | **0.02** | **4.82** | **0.05** | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.01** | **0.02** | **4.93** | **0.05** | <0.01 |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Filtered Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.59** | **0.09** | **0.26** | **0.19** | **0.32** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **1.20** | **0.08** | **0.34** | **0.21** | **0.40** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | VKY034C TH9NZDD9-32 | VKY043C TH9NZDD9-33 | VNW223/P-3 TH9NZDD9-34 | VNW390 TH9NZDD9-35 | VNW394 TH9NZDD9-36 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 12:02 | 15-Oct-2024 14:20 | 18-Oct-2024 08:32 | 15-Oct-2024 10:09 | 15-Oct-2024 09:07 |
| Compound | CAS Number | LOR | Unit | | EN2413597-031 | EN2413597-032 | EN2413597-033 | EN2413597-034 | EN2413597-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **45.4** | **34.2** | **52.5** | **25.7** | **52.6** |
| ø Total Cations | ---- | 0.01 | meq/L | | **44.4** | **33.1** | **55.1** | **25.3** | **57.0** |
| ø Ionic Balance | ---- | 0.01 | % | | **1.12** | **1.55** | **2.40** | **0.71** | **4.05** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **9.2** | **9.8** | **9.7** | **9.8** | **9.7** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Sample ID | VNW392 TH9NZDD9-37 | VNW393 TH9NZDD9-38 | VNW391 TH9NZDD9-39 | VNW395 TH9NZDD9-40 | WR1 TH9NZDD9-41 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 15-Oct-2024 11:04 | 15-Oct-2024 09:45 | 15-Oct-2024 10:45 | 15-Oct-2024 10:30 | 18-Oct-2024 13:58 |
| Compound | CAS Number | LOR | Unit | EN2413597-036 | EN2413597-037 | EN2413597-038 | EN2413597-039 | EN2413597-040 |
| | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | **6.88** | **7.31** | **7.23** | **7.69** | **6.80** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | **3560** | **3140** | **2420** | **1770** | **25800** |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | **2070** | **1720** | **1320** | **1110** | **19300** |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | **636** | **332** | **579** | **444** | **574** |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | **636** | **332** | **579** | **444** | **574** |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | **314** | **202** | **86** | **131** | **1280** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | **650** | **677** | **427** | **291** | **7880** |
| **ED093F: Dissolved Major Cations** | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | **285** | **168** | **182** | **54** | **1110** |
| Magnesium | 7439-95-4 | 1 | mg/L | **91** | **36** | **58** | **32** | **768** |
| Sodium | 7440-23-5 | 1 | mg/L | **350** | **450** | **273** | **331** | **3760** |
| Potassium | 7440-09-7 | 1 | mg/L | **17** | **6** | **12** | **10** | **14** |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Antimony | 7440-36-0 | 0.001 | mg/L | <0.001 | <0.001 | <0.001 | **0.001** | <0.001 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | **0.002** |
| Barium | 7440-39-3 | 0.001 | mg/L | **0.116** | **0.057** | **0.174** | **0.046** | **0.146** |
| Cadmium | 7440-43-9 | 0.0001 | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | **0.0002** |
| Chromium | 7440-47-3 | 0.001 | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | 7440-48-4 | 0.001 | mg/L | **0.003** | <0.001 | <0.001 | <0.001 | <0.001 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | VNW392 TH9NZDD9-37 | VNW393 TH9NZDD9-38 | VNW391 TH9NZDD9-39 | VNW395 TH9NZDD9-40 | WR1 TH9NZDD9-41 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 11:04 | 15-Oct-2024 09:45 | 15-Oct-2024 10:45 | 15-Oct-2024 10:30 | 18-Oct-2024 13:58 |
| Compound | CAS Number | LOR | Unit | | EN2413597-036 | EN2413597-037 | EN2413597-038 | EN2413597-039 | EN2413597-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| Copper | 7440-50-8 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | **0.009** | **0.005** |
| 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 | | **0.275** | **0.193** | **0.266** | **0.006** | **0.065** |
| Molybdenum | 7439-98-7 | 0.001 | mg/L | | **0.002** | **0.005** | <0.001 | **0.004** | **0.002** |
| Nickel | 7440-02-0 | 0.001 | mg/L | | **0.008** | **0.010** | **0.004** | **0.347** | **0.024** |
| Selenium | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Silver | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | **0.001** |
| Strontium | 7440-24-6 | 0.001 | mg/L | | **2.73** | **2.24** | **1.78** | **0.512** | **26.7** |
| Tin | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | 7440-66-6 | 0.005 | mg/L | | <0.005 | <0.005 | <0.005 | **0.012** | **0.007** |
| Boron | 7440-42-8 | 0.05 | mg/L | | **0.09** | **0.08** | **0.10** | **0.06** | **0.16** |
| Iron | 7439-89-6 | 0.05 | mg/L | | **1.69** | **0.48** | **2.93** | <0.05 | <0.05 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | **0.0046** |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.38** | **0.47** | **0.29** | **0.05** | **0.11** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | **0.02** | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | **0.02** | **0.05** | **1.57** | **0.12** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | **0.04** | **0.05** | **1.57** | **0.12** |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Filtered Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.09** | **0.04** | **0.05** | **0.33** | **0.26** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.08** | **0.09** | **0.09** | **0.44** | **0.32** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | VNW392 TH9NZDD9-37 | VNW393 TH9NZDD9-38 | VNW391 TH9NZDD9-39 | VNW395 TH9NZDD9-40 | WR1 TH9NZDD9-41 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 15-Oct-2024 11:04 | 15-Oct-2024 09:45 | 15-Oct-2024 10:45 | 15-Oct-2024 10:30 | 18-Oct-2024 13:58 |
| Compound | CAS Number | LOR | Unit | | EN2413597-036 | EN2413597-037 | EN2413597-038 | EN2413597-039 | EN2413597-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **37.6** | **29.9** | **25.4** | **19.8** | **260** |
| ø Total Cations | ---- | 0.01 | meq/L | | **37.4** | **31.1** | **26.0** | **20.0** | **282** |
| ø Ionic Balance | ---- | 0.01 | % | | **0.28** | **1.86** | **1.23** | **0.44** | **4.07** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | **7** | **6** |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **9.9** | **9.9** | **9.8** | **9.6** | **9.9** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | WR2 TH9NZDD9-42 | GW-10 TH9NZDD9-44 | GW-15 TH9NZDD9-45 | GW971614 TH9NZDD9-46 | Barlow TH9NZDD9-47 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 14:40 | 22-Oct-2024 11:45 | 22-Oct-2024 13:30 | 22-Oct-2024 09:40 | 22-Oct-2024 10:15 |
| | | | | | EN2413597-041 | EN2413597-042 | EN2413597-043 | EN2413597-044 | EN2413597-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | | **6.57** | **7.90** | **9.10** | **6.98** | **7.04** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | | **26000** | **1440** | **634** | **601** | **2580** |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| Total Dissolved Solids @180°C | ---- | 10 | mg/L | | **21400** | **1080** | **403** | **361** | **1550** |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | | <1 | <1 | **29** | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | | **535** | **725** | **260** | **264** | **402** |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | | **535** | **725** | **289** | **264** | **402** |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | | **1670** | **7** | **28** | **32** | **425** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | | **8100** | **49** | **23** | **32** | **372** |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | | **1170** | **31** | **7** | **51** | **207** |
| Magnesium | 7439-95-4 | 1 | mg/L | | **659** | **32** | **4** | **27** | **77** |
| Sodium | 7440-23-5 | 1 | mg/L | | **3940** | **326** | **156** | **48** | **250** |
| Potassium | 7440-09-7 | 1 | mg/L | | **17** | **32** | **4** | **1** | **3** |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | | <0.01 | **0.02** | <0.01 | <0.01 | <0.01 |
| Antimony | 7440-36-0 | 0.001 | mg/L | | <0.001 | **0.004** | <0.001 | <0.001 | <0.001 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | | **0.001** | **0.002** | <0.001 | <0.001 | <0.001 |
| Barium | 7440-39-3 | 0.001 | mg/L | | **0.152** | **0.070** | **0.018** | **0.019** | **0.048** |
| 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 | <0.001 | <0.001 |
| Cobalt | 7440-48-4 | 0.001 | mg/L | | **0.018** | <0.001 | <0.001 | <0.001 | **0.001** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | WR2 TH9NZDD9-42 | GW-10 TH9NZDD9-44 | GW-15 TH9NZDD9-45 | GW971614 TH9NZDD9-46 | Barlow TH9NZDD9-47 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 18-Oct-2024 14:40 | 22-Oct-2024 11:45 | 22-Oct-2024 13:30 | 22-Oct-2024 09:40 | 22-Oct-2024 10:15 |
| Compound | CAS Number | LOR | Unit | | EN2413597-041 | EN2413597-042 | EN2413597-043 | EN2413597-044 | EN2413597-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| Copper | 7440-50-8 | 0.001 | mg/L | | <0.001 | **0.114** | **0.002** | **0.001** | **0.006** |
| 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 | | **1.73** | **0.033** | **0.011** | **0.002** | **0.024** |
| Molybdenum | 7439-98-7 | 0.001 | mg/L | | **0.008** | **0.002** | **0.004** | <0.001 | <0.001 |
| Nickel | 7440-02-0 | 0.001 | mg/L | | **0.087** | **0.005** | <0.001 | <0.001 | **0.039** |
| Selenium | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Silver | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Strontium | 7440-24-6 | 0.001 | mg/L | | **26.2** | **0.734** | **0.244** | **0.604** | **1.90** |
| Tin | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | 7440-66-6 | 0.005 | mg/L | | **0.009** | **0.072** | **0.011** | <0.005 | <0.005 |
| Boron | 7440-42-8 | 0.05 | mg/L | | **0.11** | **0.11** | <0.05 | <0.05 | **0.06** |
| Iron | 7439-89-6 | 0.05 | mg/L | | **0.93** | **0.06** | <0.05 | <0.05 | **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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.32** | **0.06** | **0.04** | <0.01 | **0.03** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | **0.04** | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.01** | **6.10** | **0.04** | **0.22** | **1.72** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.01** | **6.14** | **0.04** | **0.22** | **1.72** |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Filtered Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.45** | **0.31** | **0.18** | **0.06** | **0.13** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.46** | **0.28** | **0.19** | **0.07** | **0.12** |
| **EN055: Ionic Balance** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Sample ID | WR2 TH9NZDD9-42 | GW-10 TH9NZDD9-44 | GW-15 TH9NZDD9-45 | GW971614 TH9NZDD9-46 | Barlow TH9NZDD9-47 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 18-Oct-2024 14:40 | 22-Oct-2024 11:45 | 22-Oct-2024 13:30 | 22-Oct-2024 09:40 | 22-Oct-2024 10:15 |
| Compound | CAS Number | LOR | Unit | EN2413597-041 | EN2413597-042 | EN2413597-043 | EN2413597-044 | EN2413597-045 |
| | | | | Result | Result | Result | Result | Result |
| **EN055: Ionic Balance - Continued** | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | **274** | **16.0** | **7.00** | **6.84** | **27.4** |
| ø Total Cations | ---- | 0.01 | meq/L | **284** | **19.2** | **7.57** | **6.88** | **27.6** |
| ø Ionic Balance | ---- | 0.01 | % | **1.88** | **9.00** | **3.84** | **0.27** | **0.44** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | **9.3** | **9.5** | **9.6** | **9.8** | **9.5** |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | VKY GW Duplicate 1 TH9NZDD9-49 | VKY GW Duplicate 2 TH9NZDD9-50 | VKY-GW-Blank TH9NZDD9-51 | VKY GW Lab Split Dup 1 TH9NZDD9-52 | VKY GW Lab Split Dup 2 TH9NZDD9-53 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 21-Oct-2024 09:40 | 22-Oct-2024 11:45 | 21-Oct-2024 07:30 | 21-Oct-2024 10:30 | 22-Oct-2024 11:45 |
| | | | | | EN2413597-046 | EN2413597-047 | EN2413597-048 | EN2413597-049 | EN2413597-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| **pH Value** | ---- | 0.01 | pH Unit | | **6.37** | **7.85** | **7.24** | **7.18** | **7.88** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| **Electrical Conductivity @ 25°C** | ---- | 1 | µS/cm | | **945** | **1430** | <1 | **4050** | **1450** |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| **Total Dissolved Solids @180°C** | ---- | 10 | mg/L | | **601** | **1060** | <10 | **2070** | **1190** |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| **Hydroxide Alkalinity as CaCO3** | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Carbonate Alkalinity as CaCO3** | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Bicarbonate Alkalinity as CaCO3** | 71-52-3 | 1 | mg/L | | **20** | **724** | <1 | **548** | **735** |
| **Total Alkalinity as CaCO3** | ---- | 1 | mg/L | | **20** | **724** | <1 | **548** | **735** |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| **Sulfate as SO4 - Turbidimetric** | 14808-79-8 | 1 | mg/L | | **27** | **9** | <1 | **445** | **7** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| **Chloride** | 16887-00-6 | 1 | mg/L | | **286** | **50** | <1 | **729** | **50** |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| **Calcium** | 7440-70-2 | 1 | mg/L | | **48** | **32** | <1 | **193** | **31** |
| **Magnesium** | 7439-95-4 | 1 | mg/L | | **18** | **27** | <1 | **88** | **26** |
| **Sodium** | 7440-23-5 | 1 | mg/L | | **108** | **307** | **3** | **564** | **306** |
| **Potassium** | 7440-09-7 | 1 | mg/L | | **13** | **32** | <1 | **3** | **31** |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **Antimony** | 7440-36-0 | 0.001 | mg/L | | <0.001 | **0.004** | <0.001 | <0.001 | **0.004** |
| **Arsenic** | 7440-38-2 | 0.001 | mg/L | | <0.001 | **0.002** | <0.001 | <0.001 | **0.001** |
| **Barium** | 7440-39-3 | 0.001 | mg/L | | **0.021** | **0.070** | <0.001 | **0.041** | **0.069** |
| **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 | <0.001 | <0.001 |

## Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

| Compound | CAS Number | LOR | Unit | Sample ID | VKY GW Duplicate 1 TH9NZDD9-49 | VKY GW Duplicate 2 TH9NZDD9-50 | VKY-GW-Blank TH9NZDD9-51 | VKY GW Lab Split Dup 1 TH9NZDD9-52 | VKY GW Lab Split Dup 2 TH9NZDD9-53 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 21-Oct-2024 09:40 | 22-Oct-2024 11:45 | 21-Oct-2024 07:30 | 21-Oct-2024 10:30 | 22-Oct-2024 11:45 |
| | | | | | EN2413597-046 | EN2413597-047 | EN2413597-048 | EN2413597-049 | EN2413597-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020F: Dissolved Metals by ICP-MS - Continued** | | | | | | | | | |
| **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 | **0.113** | <0.001 | <0.001 | **0.114** |
| **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 | | **2.11** | **0.024** | <0.001 | **0.015** | **0.024** |
| **Molybdenum** | 7439-98-7 | 0.001 | mg/L | | <0.001 | **0.002** | <0.001 | <0.001 | **0.001** |
| **Nickel** | 7440-02-0 | 0.001 | mg/L | | <0.001 | **0.004** | <0.001 | **0.004** | **0.004** |
| **Selenium** | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **Silver** | 7440-22-4 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Strontium** | 7440-24-6 | 0.001 | mg/L | | **1.14** | **0.741** | **0.015** | **2.51** | **0.742** |
| **Tin** | 7440-31-5 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Zinc** | 7440-66-6 | 0.005 | mg/L | | <0.005 | **0.081** | <0.005 | **0.099** | **0.082** |
| **Boron** | 7440-42-8 | 0.05 | mg/L | | <0.05 | **0.11** | <0.05 | <0.05 | **0.11** |
| **Iron** | 7439-89-6 | 0.05 | mg/L | | **38.0** | **0.06** | <0.05 | <0.05 | **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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **1.23** | **0.06** | <0.01 | **0.09** | **0.08** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | | <0.01 | **0.04** | <0.01 | <0.01 | **0.03** |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | **0.05** | **6.10** | <0.01 | **0.70** | **6.07** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | **0.05** | **6.14** | <0.01 | **0.70** | **6.10** |
| **EK067FG: Filtered Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| **Filtered Total Phosphorus as P** | ---- | 0.01 | mg/L | | **0.04** | **0.30** | **0.02** | **0.08** | **0.32** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | VKY GW Duplicate 1 TH9NZDD9-49 | VKY GW Duplicate 2 TH9NZDD9-50 | VKY-GW-Blank TH9NZDD9-51 | VKY GW Lab Split Dup 1 TH9NZDD9-52 | VKY GW Lab Split Dup 2 TH9NZDD9-53 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 21-Oct-2024 09:40 | 22-Oct-2024 11:45 | 21-Oct-2024 07:30 | 21-Oct-2024 10:30 | 22-Oct-2024 11:45 |
| Compound | CAS Number | LOR | Unit | | EN2413597-046 | EN2413597-047 | EN2413597-048 | EN2413597-049 | EN2413597-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EK067G: Total Phosphorus as P by Discrete Analyser - Continued** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.04** | **0.31** | **0.02** | **0.08** | **0.42** |
| **EN055: Ionic Balance** | | | | | | | | | |
| ø Total Anions | ---- | 0.01 | meq/L | | **9.03** | **16.1** | <0.01 | **40.8** | **16.2** |
| ø Total Cations | ---- | 0.01 | meq/L | | **8.91** | **18.0** | **0.13** | **41.5** | **17.8** |
| ø Ionic Balance | ---- | 0.01 | % | | **0.68** | **5.66** | **----** | **0.86** | **4.55** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| Oil & Grease | ---- | 5 | mg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP025: Oxygen - Dissolved (DO)** | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.1 | mg/L | | **8.9** | **9.5** | **10.2** | **9.8** | **9.7** |

## Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EG020F: Dissolved Metals by ICP-MS
(WATER) EP025: Oxygen - Dissolved (DO)
(WATER) EG035F: Dissolved Mercury by FIMS
(WATER) EK067FG: Filtered Total Phosphorus as P by Discrete Analyser
(WATER) ED093F: Dissolved Major Cations
(WATER) EN055: Ionic Balance
(WATER) ED045G: Chloride by Discrete Analyser
(WATER) ED041G: Sulfate (Turbidimetric) as SO4 2- by DA
(WATER) ED037P: Alkalinity by PC Titrator
(WATER) EK055G: Ammonia as N by Discrete Analyser
(WATER) EA010P: Conductivity by PC Titrator
(WATER) EA015: Total Dissolved Solids dried at 180 ± 5 °C
(WATER) EP020: Oil and Grease (O&G)
(WATER) EK057G: Nitrite as N by Discrete Analyser
(WATER) EK058G: Nitrate as N by Discrete Analyser
(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser
(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

# Appendix D Quality Trigger Level Anlaysis

## Vickery Extension Project Groundwater Monitoring Report

### Quarterly Review August 2024 – October 2024

**Whitehaven Coal Ltd**

SLR Project No.: 640.031099.00001

23 December 2024

**Table D-1: pH (Field) Trigger Level Review**

| Bore | Trigger Level | | Oct/Nov-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
|---|---|---|---|---|---|---|---|
| GW01 | 6.90 | 8.30 | 7.33 | 7.20 | 7.14 | 7.2 | 7.16 |
| GW02 | 7.20 | 8.60 | 7.59 | 7.79 | 7.14 | 7.23 | 7.42 |
| GW03 | 6.10 | 8.10 | 7.19 | 7.16 | 7.05 | 7.36 | 7.22 |
| GW-10 | 6.70 | 8.40 | no data | no data | no data | no data | 7.57 |
| GW-11 | 7.00 | 9.30 | 7.36 | 6.93 | 6.55 | 6.09 | 7.17 |
| GW-13 | 6.70 | 8.40 | no data | no data | no data | no data | 7.35 |
| GW-14 | 6.90 | 8.30 | no data | no data | no data | no data | 6.95 |
| GW-15 | 6.90 | 8.30 | no data | no data | no data | no data | 8.97 |
| GW-2 | 6.90 | 8.30 | no data | no data | 6.85 | no data | 6.84 |
| GW-4 | 6.70 | 8.40 | no data | no data | no data | no data | 7.92 |
| GW-6 | 6.70 | 8.40 | no data | no data | no data | no data | 7.73 |
| GW-7 | 7.70 | 8.50 | 8.89 | 8.82 | 8.79 | 8.67 | 8.3 |
| GW-8 | 6.70 | 8.40 | 7.11 | 7.03 | 6.95 | 6.49 | 7.0 |
| GW-9 | 6.60 | 8.20 | 7.94 | 6.68 | 6.81 | 6.76 | 6.68 |
| GW971400 | 6.90 | 8.30 | no data | no data | no data | no data | 6.8 |
| GW971614 | 6.90 | 8.30 | no data | no data | no data | no data | 6.65 |
| MD01 | 6.70 | 8.40 | 11.58 | 11.69 | 10.73 | 9.59 | 8.33 |
| MD02 | 6.70 | 8.40 | 6.84 | 6.78 | 6.59 | 6.57 | 6.72 |
| SB01 | 6.90 | 8.30 | 7.44 | 7.31 | 7.20 | 7.21 | 7.23 |
| SB02 | 6.90 | 8.30 | 7.28 | 7.28 | 7.14 | 7.2 | 7.23 |
| SB04 | 6.90 | 8.30 | 7.29 | 7.43 | 7.27 | 7.12 | 7.21 |
| SB05 | 6.90 | 8.30 | 2.09 | 7.73 | 7.63 | 7.58 | 7.71 |
| SB06 | 6.90 | 8.30 | 7.35 | 7.61 | 7.42 | 7.56 | 7.7 |
| SB07 | 6.90 | 8.30 | 7.35 | 7.47 | 7.28 | 7.22 | 7.58 |
| SB08 | 6.90 | 8.30 | 7.24 | 7.39 | 7.17 | 7.29 | 7.27 |
| SB09 | 6.90 | 8.30 | 3.32 | 7.56 | 7.27 | 7.52 | 7.44 |
| SB10 | 6.90 | 8.30 | 7.43 | 7.47 | 7.28 | 7.5 | 7.38 |
| SB11 | 6.90 | 8.30 | 7.26 | 7.70 | 7.45 | 7.77 | 7.51 |
| SB15 | 6.90 | 8.30 | 7.29 | 7.23 | 7.17 | 7.3 | 7.24 |
| TR18 | 6.70 | 8.40 | 6.58 | 6.85 | 6.69 | 6.64 | 6.79 |
| TR26 | 6.70 | 8.40 | 7.06 | 7.16 | 7.11 | 6.69 | 6.93 |
| TR35 | 6.70 | 8.40 | 6.66 | 6.75 | 6.72 | 6.75 | 6.73 |
| TR7 | 7.40 | 7.80 | 6.53 | 7.05 | 6.71 | 6.82 | 6.63 |

| Bore | Trigger Level | | Oct/Nov-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
|---|---|---|---|---|---|---|---|
| VKY034C | 6.70 | 8.40 | 7.30 | 6.94 | 7.05 | 7.25 | 7.25 |
| VKY035C | 6.70 | 8.40 | 7.10 | 7.01 | 6.88 | 6.9 | 7.09 |
| VKY036C | 6.70 | 8.40 | 7.08 | 6.79 | 6.80 | 7.19 | 7.21 |
| VKY042C | 6.70 | 8.40 | 6.75 | 6.72 | 6.61 | 6.65 | 6.72 |
| VKY043C | 6.70 | 8.40 | 7.72 | 7.80 | 7.65 | 7.85 | 7.7 |
| VNW223 | 6.90 | 7.40 | 7.25 | no data | no data | no data | 7.17 |
| VNW390 | 6.70 | 8.40 | 6.92 | 7.13 | 6.59 | 6.84 | 6.81 |
| VNW391 | 6.70 | 8.40 | 7.04 | 7.31 | 7.06 | 6.81 | 7.1 |
| VNW392 | 6.70 | 8.40 | 6.74 | 6.74 | 6.66 | 6.51 | 6.74 |
| VNW393 | 6.70 | 8.40 | 7.36 | 7.56 | 7.20 | 7.13 | 7.16 |
| VNW394 | 6.90 | 8.30 | 7.13 | 6.92 | 6.94 | 6.62 | 7.07 |
| VNW395 | 6.90 | 8.30 | 7.47 | 7.77 | 7.77 | 7.61 | 7.56 |
| WR1 | 6.90 | 8.30 | no data | no data | 6.70 | 6.47 | 6.5 |
| WR2 | 6.90 | 8.30 | no data | no data | 6.57 | 6.52 | 6.36 |

Note: Reported as field pH value. Red text shows exceedance of trigger level. Highlight cell shows trigger level 1 as defined by TARP in the GWMP (**Appendix A**).

**Table D-2: EC Trigger Level Review**

| Bore | Trigger Level | Oct/Nov-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
|---|---|---|---|---|---|---|
| GW01 | 10,083 | 1,042 | 1,265 | 1,384 | 1,052 | 738 |
| GW02 | 969 | 731 | 971 | 926 | 1,065 | 1,016 |
| GW03 | 811 | 862 | 888 | 862 | 947 | 1,004 |
| GW-10 | 12,315 | no data | no data | no data | no data | 1,438 |
| GW-11 | 4,912 | 4,360 | 4,340 | 4,520 | 4,760 | 4,760 |
| GW-13 | 12,315 | no data | no data | no data | no data | 1,647 |
| GW-14 | 10,083 | no data | no data | no data | no data | 3,840 |
| GW-15 | 10,083 | no data | no data | no data | no data | 638 |
| GW-2 | 10,083 | no data | no data | 1,218 | no data | 1,226 |
| GW-4 | 12,315 | no data | no data | no data | no data | 2,980 |
| GW-6 | 12,315 | no data | no data | no data | no data | 1,459 |
| GW-7 | 5,378 | 4,300 | 4,490 | 4,560 | 4,710 | 4,470 |
| GW-8 | 12,315 | 4,290 | 3,950 | 4,000 | 4,100 | 3,930 |
| GW-9 | 12,740 | 6,110 | 3,320 | 5,630 | 1,591 | 1,099 |
| GW971400 | 10,083 | no data | no data | no data | no data | 2,458 |
| GW971614 | 10,083 | no data | no data | no data | no data | 651 |
| MD01 | 12,315 | 1,799 | 1,786 | 1,283 | 1,505 | 1,787 |
| MD02 | 12,315 | 1,195 | 1,306 | 1,210 | 1,224 | 1,279 |
| SB01 | 10,083 | 1,541 | 1,716 | 1,698 | 1,756 | 1,869 |
| SB02 | 10,083 | 7,330 | 7,330 | 7,210 | 6,860 | 7,250 |
| SB04 | 10,083 | 2,680 | 3,360 | 1,868 | 2,390 | 2,289 |
| SB05 | 10,083 | 3,740 | 3,690 | 3,680 | 3,490 | 3,790 |
| SB06 | 10,083 | 3,280 | 3,460 | 3,410 | 3,440 | 2,790 |
| SB07 | 10,083 | 770 | 919 | 934 | 978 | 1,042 |
| SB08 | 10,083 | 983 | 1,115 | 1,039 | 1,088 | 388 |
| SB09 | 10,083 | 949 | 1,014 | 973 | 1,013 | 1,130 |
| SB10 | 10,083 | 1,880 | 1,972 | 1,859 | 1,928 | 2,200 |
| SB11 | 10,083 | 1,080 | 1,021 | 1,048 | 461 | 1,266 |
| SB15 | 10,083 | 1,019 | 1,070 | 972 | 1,049 | 1,143 |
| TR18 | 12,315 | 13,400 | 13,640 | 12,730 | 15,350 | 13,820 |
| TR26 | 12,315 | 6,290 | 8,380 | 5,180 | 7,330 | 6,090 |
| TR35 | 12,315 | 15,300 | 17,330 | 16,740 | 17,260 | 16,690 |
| TR7 | 12,970 | 14,800 | 15,390 | 14,410 | 15,380 | 1,484 |

| Bore | Trigger Level | Oct/Nov-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
|---|---|---|---|---|---|---|
| VKY034C | 12,315 | 3,590 | 3,850 | 4,030 | 4,170 | 3,970 |
| VKY035C | 12,315 | 3,110 | 3,340 | 3,230 | 3,290 | 3,330 |
| VKY036C | 12,315 | 5,600 | 5,810 | 5,780 | 5,830 | 6,020 |
| VKY042C | 12,315 | 5,420 | 5,430 | 5,480 | 5,990 | 5,850 |
| VKY043C | 12,315 | 2,990 | 3,410 | 3,410 | 3,290 | 3,050 |
| VNW223 | 10,120 | 5,940 | no data | no data | no data | 5,360 |
| VNW390 | 12,315 | 2,300 | 2,376 | 2,291 | 2,473 | 2,431 |
| VNW391 | 12,315 | 2,530 | 2,471 | 2,352 | 2,458 | 2,424 |
| VNW392 | 12,315 | 3,690 | 3,310 | 3,480 | 3,510 | 3,410 |
| VNW393 | 12,315 | 2,740 | 2,830 | 2,840 | 3,090 | 3,140 |
| VNW394 | 10,083 | 5,520 | 5,410 | 5,400 | 5,620 | 5,420 |
| VNW395 | 10,083 | 463 | 1,395 | 1,681 | 1,832 | 1,834 |
| WR1 | 10,083 | no data | no data | 26,500 | 26,800 | 26,800 |
| WR2 | 10,083 | no data | no data | 25,340 | 26,600 | 26,600 |

Note: Reported as field EC value in µS/cm. Red text shows exceedance of trigger level. Highlight cell shows trigger level 1 as defined by TARP in the GWMP (**Appendix A**).

**Table D-3: Sulfate Trigger Level Review**

| Bore | Trigger Level | Oct/Nov-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
|---|---|---|---|---|---|---|
| GW01 | 365 | 96 | 171 | 132 | 54 | 111 |
| GW02 | 365 | 77 | 74 | 81 | 102 | 79 |
| GW03 | 365 | 52 | 56 | 58 | 46 | 54 |
| GW-10 | 86 | no data | no data | no data | no data | 7 |
| GW-11 | 365 | <1 | 1 | <1 | 1 | <1 |
| GW-13 | 86 | no data | no data | no data | no data | 24 |
| GW-14 | 365 | no data | no data | no data | no data | 435 |
| GW-15 | 365 | no data | no data | no data | no data | 28 |
| GW-2 | 365 | no data | no data | 23 | no data | 26 |
| GW-4 | 86 | no data | no data | no data | no data | 15 |
| GW-6 | 86 | no data | no data | no data | no data | <1 |
| GW-7 | 86 | 364 | 385 | 399 | 380 | 396 |
| GW-8 | 86 | no data | 100 | 109 | 72 | 82 |
| GW-9 | 86 | 102 | 128 | 51 | 25 | 28 |
| GW971400 | 365 | no data | no data | no data | no data | 425 |
| GW971614 | 365 | no data | no data | no data | no data | 32 |
| MD01 | 86 | 22 | 23 | 26 | 36 | 14 |
| MD02 | 86 | 28 | 29 | 28 | 29 | 29 |
| SB01 | 365 | 182 | 183 | 190 | 148 | 193 |
| SB02 | 365 | 1,120 | no data | 1,160 | 741 | 1,110 |
| SB04 | 365 | 284 | 394 | 220 | 195 | 208 |
| SB05 | 365 | 735 | 551 | 520 | 595 | 496 |
| SB06 | 365 | 372 | 362 | 362 | 324 | 307 |
| SB07 | 365 | 74 | 74 | 78 | 66 | 71 |
| SB08 | 365 | 86 | 87 | 88 | 79 | 74 |
| SB09 | 365 | 71 | 63 | 70 | 62 | 67 |
| SB10 | 365 | 190 | 188 | 196 | 168 | 198 |
| SB11 | 365 | 85 | 72 | 93 | 80 | 85 |
| SB15 | 365 | 90 | 79 | 95 | 53 | 98 |
| TR18 | 86 | 702 | 620 | 592 | 622 | 626 |
| TR26 | 86 | 194 | 230 | 180 | 198 | 195 |
| TR35 | 86 | 660 | 651 | 622 | 624 | 624 |
| TR7 | 365 | 508 | 714 | 501 | 518 | 563 |

| Bore | Trigger Level | Oct/Nov-23 | Jan-24 | Apr-24 | Jul-24 | Oct-24 |
|---|---|---|---|---|---|---|
| VKY034C | 86 | 123 | 185 | 116 | 98 | 90 |
| VKY035C | 86 | 87 | 77 | 88 | 73 | 68 |
| VKY036C | 86 | 244 | 294 | 281 | 100 | 174 |
| VKY042C | 86 | 302 | 309 | 312 | 283 | 326 |
| VKY043C | 86 | <1 | <1 | <1 | <1 | <1 |
| VNW223 | 365 | 97 | no data | no data | no data | 164 |
| VNW390 | 86 | 95 | 95 | 106 | 55 | 104 |
| VNW391 | 86 | 88 | 88 | 96 | 52 | 86 |
| VNW392 | 86 | no data | 284 | 296 | 263 | 314 |
| VNW393 | 86 | 179 | 185 | 200 | 165 | 202 |
| VNW394 | 365 | no data | 551 | 560 | 574 | 591 |
| VNW395 | 365 | 14 | 61 | 143 | 91 | 131 |
| WR1 | 365 | no data | no data | 1,320 | 901 | 1,280 |
| WR2 | 365 | no data | no data | 1,540 | 1,120 | 1,670 |

Note: Sulfate as $SO_4$ in mg/L. Red text shows exceedance of trigger level. Highlight cell shows trigger level 1 as defined by TARP in the GWMP (**Appendix A**).

## Table D-4: Metal Trigger Against ANZECC Default Guideline Values

| Bore ID | Date | Aluminium | Antimony | Arsenic | Boron | Cadmium | Chromium | Cobalt | Copper | Lead | Manganese | Mercury | Molybdenum | Nickel | Selenium | Silver | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit** | | **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** | **mg/L** | **mg/L** |
| **DGV** | | 0.055 | 0.009 | 0.013 | 0.94 | 0.0002 | 0.001 | 0.0014 | 0.0014 | 0.0034 | 1.9 | 0.0006 | 0.034 | 0.011 | 0.011 | 0.00005 | 0.008 |
| GW01 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.14 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.967 | <0.0001 | <0.001 | 0.013 | <0.01 | <0.001* | <0.005 |
| GW01 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.063 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| GW01 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.126 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| GW01 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.155 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| GW02 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.1 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | 0.021 | <0.0001 | <0.001 | 0.375 | <0.01 | <0.001* | 0.013 |
| GW02 | Apr-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | 0.007 | <0.001 | 0.026 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| GW02 | Jul-24 | <0.01 | 0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.003 | <0.001 | 0.018 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.006 |
| GW02 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | 0.014 | <0.001 | 0.005 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| GW03 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.09 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.014 | <0.0001 | <0.001 | 0.971 | <0.01 | <0.001* | <0.005 |
| GW03 | Apr-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.01 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| GW03 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.012 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | 0.006 |
| GW03 | Oct-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.043 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | <0.005 |
| GW-10 | Oct-24 | 0.02 | 0.004 | 0.002 | 0.11 | <0.0001 | <0.001 | <0.001 | 0.114 | <0.001 | 0.033 | <0.0001 | 0.002 | 0.005 | <0.01 | <0.001* | 0.072 |
| GW-11 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.13 | <0.0001 | <0.001 | <0.001 | <0.001 | 0.001 | 2.2 | <0.0001 | no data | 0.00075 | <0.01 | <0.001* | 0.0075 |
| GW-11 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | no data | 0.004 | <0.01 | <0.001* | 0.012 |
| GW-11 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.13 | 0.0003 | <0.001 | <0.001 | 0.002 | <0.001 | 1.06 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | 0.043 |
| GW-11 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.14 | <0.0001 | <0.001 | <0.001 | 0.019 | <0.001 | 0.98 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.043 |
| GW-13 | Oct-24 | <0.01 | 0.001 | 0.001 | 0.08 | <0.0001 | <0.001 | 0.001 | 0.006 | <0.001 | 0.161 | <0.0001 | <0.001 | 0.006 | <0.01 | <0.001* | 0.019 |
| GW-14 | Oct-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.026 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.095 |
| GW-15 | Oct-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | 0.011 | <0.0001 | 0.004 | <0.001 | <0.01 | <0.001* | 0.011 |
| GW-2 | Jan-24 | no data | no data | no data | no data | no data | no data | no data | no data | no data | no data | no data | no data | no data | no data | no data | no data |

| Bore ID | Date | Aluminium | Antimony | Arsenic | Boron | Cadmium | Chromium | Cobalt | Copper | Lead | Manganese | Mercury | Molybdenum | Nickel | Selenium | Silver | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GW-2 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| GW-2 | Oct-24 | <0.01 | <0.001 | 0.002 | <0.05 | <0.0001 | 0.003 | <0.001 | 0.003 | <0.001 | 0.005 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.006 |
| GW-4 | Oct-24 | <0.01 | <0.001 | 0.002 | 0.12 | | <0.001 | <0.001 | | <0.001 | 0.009 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.052 |
| GW-6 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.07 | | <0.001 | <0.001 | | <0.001 | 0.017 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.01 |
| GW-7 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.18 | <0.0001 | <0.001 | <0.001 | 0.003 | <0.001 | 0.011 | <0.0001 | 0.002 | 0.002 | <0.01 | <0.001* | <0.005 |
| GW-7 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| GW-7 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.17 | 0.0002 | <0.001 | <0.001 | 0.016 | 0.002 | 0.024 | <0.0001 | 0.001 | 0.005 | <0.01 | <0.001* | 0.018 |
| GW-7 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.18 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.03 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | <0.005 |
| GW-8 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.09 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.092 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | 0.012 |
| GW-8 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| GW-8 | Jul-24 | <0.01 | <0.001 | 0.002 | 0.07 | 0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.089 | <0.0001 | <0.001 | 0.003 | <0.01 | <0.001* | 0.01 |
| GW-8 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.176 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | <0.005 |
| GW-9 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.05 | 0.0001 | <0.001 | 0.00075 | <0.001 | <0.001 | 3.8 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.00825 |
| GW-9 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| GW-9 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.07 | 0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 1.71 | <0.0001 | <0.001 | 0.003 | <0.01 | <0.001* | 0.008 |
| GW-9 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | 2.12 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | <0.005 |
| GW971400 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | 0.001 | 0.006 | <0.001 | 0.024 | <0.0001 | <0.001 | 0.039 | <0.01 | <0.001* | <0.005 |
| GW971614 | Oct-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| MD01 | Jan-24 | 0.58 | 0.001 | <0.001 | 0.04 | <0.0001 | <0.001 | <0.001 | 0.020 | 0.001 | 0.004 | <0.0001 | 0.018 | 0.005 | <0.01 | <0.001* | 0.31 |
| MD01 | Apr-24 | 0.28 | <0.001 | 0.002 | <0.05 | <0.0001 | <0.001 | <0.001 | 0.006 | 0.001 | <0.001 | <0.0001 | 0.019 | 0.006 | <0.01 | <0.001* | 0.213 |
| MD01 | Jul-24 | 0.04 | 0.002 | 0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | 0.002 | 0.003 | 0.013 | <0.0001 | 0.007 | 0.006 | <0.01 | <0.001* | 0.106 |
| MD01 | Oct-24 | 0.02 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.022 | <0.0001 | 0.008 | 0.004 | 0.01 | <0.001* | 0.049 |
| MD02 | Jan-24 | <0.01 | <0.001 | 0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.039 | <0.0001 | 0.001 | 0.036 | <0.01 | <0.001* | <0.005 |
| MD02 | Apr-24 | <0.01 | <0.001 | 0.003 | <0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.051 | <0.0001 | 0.003 | 0.019 | <0.01 | <0.001* | <0.005 |

| Bore ID | Date | Aluminium | Antimony | Arsenic | Boron | Cadmium | Chromium | Cobalt | Copper | Lead | Manganese | Mercury | Molybdenum | Nickel | Selenium | Silver | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MD02 | Jul-24 | <0.01 | <0.001 | 0.002 | 0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | 0.002 | 0.044 | <0.0001 | 0.002 | 0.012 | <0.01 | <0.001* | 0.009 |
| MD02 | Oct-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.044 | <0.0001 | 0.001 | 0.011 | <0.01 | <0.001* | <0.005 |
| SB01 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.11 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.39 | <0.0001 | <0.001 | 0.032 | <0.01 | <0.001* | <0.005 |
| SB01 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | 0.005 | <0.001 | <0.001 | 0.73 | <0.0001 | 0.005 | 0.027 | <0.01 | <0.001* | <0.005 |
| SB01 | Jul-24 | 0.11 | <0.001 | 0.004 | 0.08 | <0.0001 | 0.004 | 0.024 | <0.001 | <0.001 | 1.65 | <0.0001 | <0.001 | 0.011 | <0.01 | <0.001* | 0.01 |
| SB01 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.211 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | 0.011 |
| SB02 | Jan-24 | <0.01 | <0.001 | 0.003 | 0.21 | <0.0001 | 0.003 | 0.002 | <0.001 | <0.001 | 0.735 | <0.0001 | 0.003 | 0.012 | <0.01 | <0.001* | 0.007 |
| SB02 | Apr-24 | <0.01 | <0.001 | 0.001 | 0.07 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.315 | <0.0001 | 0.002 | 0.014 | <0.01 | <0.001* | <0.005 |
| SB02 | Jul-24 | <0.01 | <0.001 | 0.004 | 0.14 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.68 | <0.0001 | 0.003 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB02 | Oct-24 | <0.01 | <0.001 | 0.004 | 0.14 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | 0.696 | <0.0001 | 0.002 | 0.001 | <0.01 | <0.001* | <0.005 |
| SB04 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.16 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.38 | <0.0001 | 0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB04 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.094 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB04 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.09 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.076 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB04 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.061 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB05 | Jan-24 | <0.01 | <0.001 | 0.004 | 0.21 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.233 | <0.0001 | 0.004 | 0.002 | <0.01 | <0.001* | <0.005 |
| SB05 | Apr-24 | <0.01 | <0.001 | 0.004 | 0.13 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.405 | <0.0001 | 0.005 | 0.002 | <0.01 | <0.001* | <0.005 |
| SB05 | Jul-24 | <0.01 | <0.001 | 0.008 | 0.15 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.516 | <0.0001 | 0.003 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB05 | Oct-24 | <0.01 | <0.001 | 0.004 | 0.16 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.273 | <0.0001 | 0.003 | 0.001 | <0.01 | <0.001* | <0.005 |
| SB06 | Jan-24 | 0.02 | <0.001 | 0.003 | 0.19 | <0.0001 | <0.001 | 0.002 | 0.003 | <0.001 | 1.18 | <0.0001 | 0.002 | 0.002 | <0.01 | <0.001* | <0.005 |
| SB06 | Apr-24 | <0.01 | <0.001 | 0.003 | 0.12 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 1.19 | <0.0001 | 0.003 | 0.002 | <0.01 | <0.001* | <0.005 |
| SB06 | Jul-24 | <0.01 | <0.001 | 0.003 | 0.13 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | 0.771 | <0.0001 | 0.002 | <0.001 | <0.01 | <0.001* | 0.006 |
| SB06 | Oct-24 | 0.01 | <0.001 | 0.003 | 0.12 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.493 | <0.0001 | 0.003 | 0.003 | <0.01 | <0.001* | <0.005 |
| SB07 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0001 | <0.001 | 0.07 | <0.01 | <0.001* | <0.005 |
| SB07 | Apr-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |

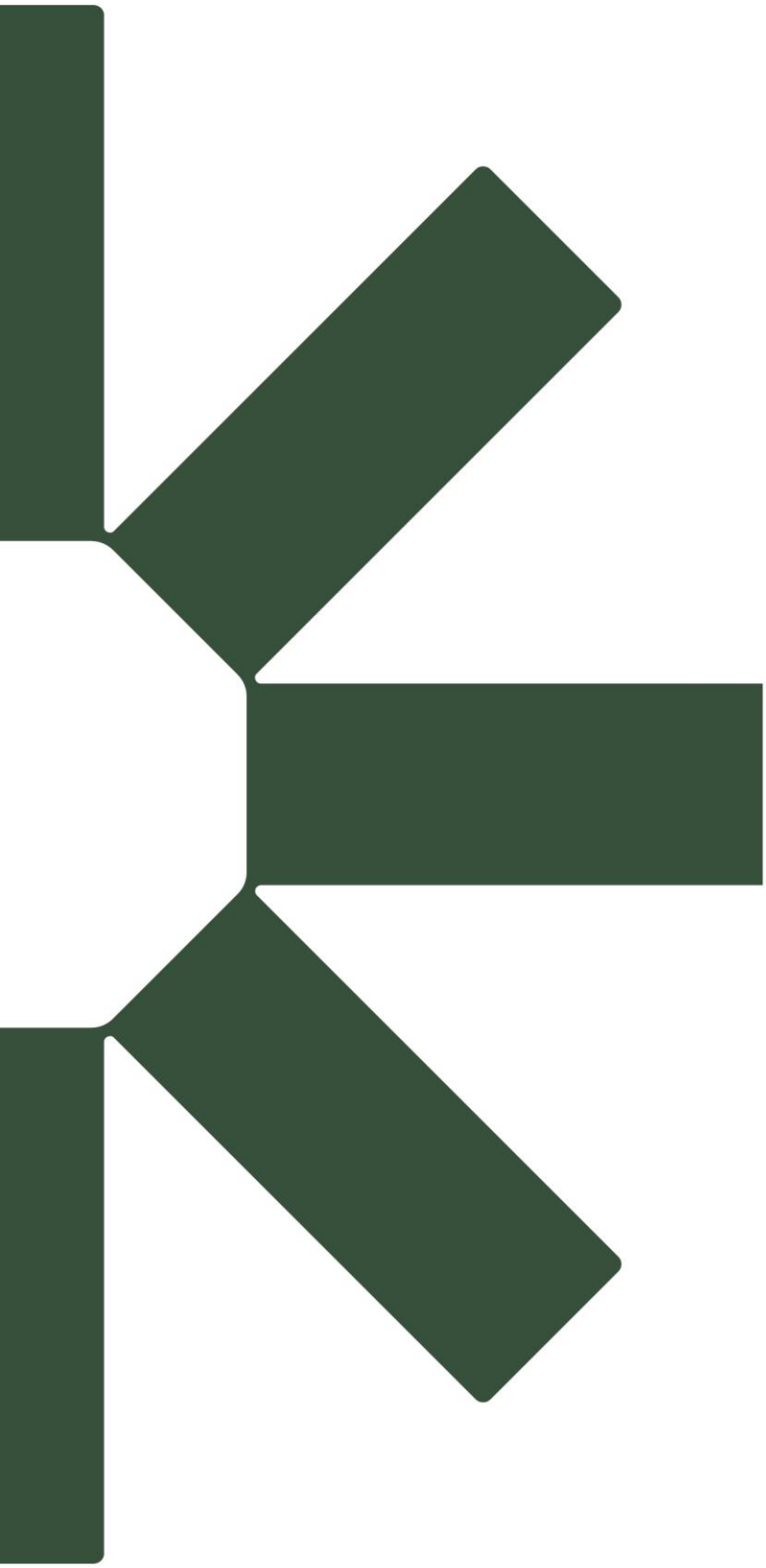
| Bore ID | Date | Aluminium | Antimony | Arsenic | Boron | Cadmium | Chromium | Cobalt | Copper | Lead | Manganese | Mercury | Molybdenum | Nickel | Selenium | Silver | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB07 | Jul-24 | <0.01 | <0.001 | 0.001 | 0.08 | 0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | 0.009 |
| SB07 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | 0.004 | <0.001 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB08 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.1 | <0.0001 | <0.001 | <0.001 | 0.004 | <0.001 | 0.002 | <0.0001 | <0.001 | 0.063 | <0.01 | <0.001* | <0.005 |
| SB08 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | <0.001 | 0.011 | <0.001 | 0.001 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB08 | Jul-24 | <0.01 | <0.001 | 0.001 | 0.09 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB08 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB09 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.11 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.335 | <0.0001 | 0.001 | 0.015 | <0.01 | <0.001* | <0.005 |
| SB09 | Apr-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.306 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.013 |
| SB09 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.466 | <0.0001 | 0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB09 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.443 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | <0.005 |
| SB10 | Jan-24 | <0.01 | <0.001 | 0.001 | 0.16 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.074 | <0.0001 | 0.002 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB10 | Apr-24 | <0.01 | <0.001 | 0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.146 | <0.0001 | 0.002 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB10 | Jul-24 | <0.01 | <0.001 | 0.001 | 0.1 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.024 | <0.0001 | 0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB10 | Oct-24 | <0.01 | <0.001 | 0.001 | 0.11 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.104 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB11 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.13 | <0.0001 | <0.001 | <0.001 | 0.01 | <0.001 | 0.023 | <0.0001 | <0.001 | 0.057 | <0.01 | <0.001* | <0.005 |
| SB11 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | <0.001 | 0.021 | <0.001 | 0.006 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | <0.005 |
| SB11 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.003 | <0.001 | 0.01 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB11 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.004 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB15 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.12 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.008 | <0.0001 | <0.001 | 0.032 | <0.01 | <0.001* | <0.005 |
| SB15 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.004 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.018 |
| SB15 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.02 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| SB15 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | 0.008 | <0.001 | 0.001 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| TR18 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.11 | <0.0001 | <0.001 | <0.001 | 0.07 | <0.001 | 0.042 | <0.0001 | 0.001 | 0.021 | <0.01 | <0.001* | <0.005 |
| TR18 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | <0.001 | 0.032 | <0.001 | 0.023 | <0.0001 | 0.002 | 0.020 | <0.01 | <0.001* | 0.009 |

| Bore ID | Date | Aluminium | Antimony | Arsenic | Boron | Cadmium | Chromium | Cobalt | Copper | Lead | Manganese | Mercury | Molybdenum | Nickel | Selenium | Silver | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TR18 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.08 | 0.0001 | <0.001 | <0.001 | 0.033 | <0.001 | 0.094 | <0.0001 | 0.002 | 0.019 | <0.01 | <0.001* | 0.008 |
| TR18 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | 0.101 | <0.001 | 0.043 | <0.0001 | 0.001 | 0.013 | <0.01 | <0.001* | <0.005 |
| TR26 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.14 | <0.0001 | <0.001 | <0.001 | 0.01 | <0.001 | 0.07 | <0.0001 | 0.002 | 0.014 | <0.01 | <0.001* | <0.005 |
| TR26 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | 0.002 | <0.001 | <0.001 | <0.001 | 0.033 | <0.0001 | 0.005 | 0.017 | <0.01 | <0.001* | 0.012 |
| TR26 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.11 | 0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.053 | <0.0001 | 0.002 | 0.004 | <0.01 | <0.001* | 0.007 |
| TR26 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.1 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.106 | <0.0001 | 0.001 | 0.004 | <0.01 | <0.001* | <0.005 |
| TR35 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.12 | 0.0002 | 0.002 | 0.007 | 1.24 | <0.001 | 1.72 | <0.0001 | 0.011 | 0.713 | <0.01 | <0.001* | 0.015 |
| TR35 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.06 | 0.0004 | 0.002 | 0.010 | 1.730 | <0.001 | 1.76 | <0.0001 | 0.017 | 0.558 | <0.01 | <0.001* | 0.030 |
| TR35 | Jul-24 | <0.01 | <0.001 | 0.001 | 0.08 | 0.0003 | <0.001 | 0.011 | 7.09 | <0.001 | 1.51 | <0.0001 | 0.009 | 0.435 | <0.01 | <0.001* | 0.02 |
| TR35 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.09 | 0.0004 | <0.001 | 0.01 | 8.23 | <0.001 | 1.44 | <0.0001 | 0.01 | 0.308 | <0.01 | <0.001* | 0.017 |
| TR7 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.1 | <0.0001 | <0.001 | 0.008 | 0.863 | <0.001 | 0.637 | <0.0001 | 0.002 | 0.39 | <0.01 | <0.001* | 0.006 |
| TR7 | Apr-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | <0.001 | 0.004 | 0.346 | <0.001 | 0.262 | <0.0001 | 0.002 | 0.118 | <0.01 | <0.001* | 0.006 |
| TR7 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.07 | 0.0001 | <0.001 | 0.008 | 0.471 | <0.001 | 0.526 | <0.0001 | 0.003 | 0.272 | <0.01 | <0.001* | 0.01 |
| TR7 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.07 | 0.0001 | <0.001 | 0.004 | 1.59 | <0.001 | 0.278 | <0.0001 | 0.002 | 0.045 | <0.01 | <0.001* | <0.005 |
| VKY034C | Jan-24 | <0.01 | <0.001 | 0.002 | 0.09 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.102 | <0.0001 | 0.007 | 0.008 | <0.01 | <0.001* | <0.005 |
| VKY034C | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| VKY034C | Jul-24 | <0.01 | <0.001 | 0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.003 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | 0.005 |
| VKY034C | Oct-24 | <0.01 | 0.002 | 0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0001 | 0.005 | 0.006 | <0.01 | <0.001* | 0.023 |
| VKY035C | Jan-24 | <0.01 | <0.001 | 0.001 | 0.07 | <0.0001 | 0.002 | <0.001 | <0.001 | <0.001 | 0.329 | <0.0001 | 0.007 | 0.006 | <0.01 | <0.001* | 0.006 |
| VKY035C | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| VKY035C | Jul-24 | <0.01 | <0.001 | 0.002 | <0.05 | <0.0001 | 0.002 | <0.001 | <0.001 | 0.001 | 0.32 | <0.0001 | 0.008 | 0.005 | <0.01 | <0.001* | 0.008 |
| VKY035C | Oct-24 | <0.01 | <0.001 | <0.001 | <0.05 | <0.0001 | 0.002 | <0.001 | <0.001 | <0.001 | 0.32 | <0.0001 | 0.007 | 0.003 | <0.01 | <0.001* | <0.005 |
| VKY036C | Jan-24 | <0.01 | <0.001 | <0.001 | 0.09 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.013 | <0.0001 | 0.001 | 0.013 | <0.01 | <0.001* | <0.005 |
| VKY036C | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |

| Bore ID | Date | Aluminium | Antimony | Arsenic | Boron | Cadmium | Chromium | Cobalt | Copper | Lead | Manganese | Mercury | Molybdenum | Nickel | Selenium | Silver | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VKY036C | Jul-24 | <0.01 | <0.001 | 0.008 | 0.1 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.153 | <0.0001 | 0.004 | 0.005 | <0.01 | <0.001* | <0.005 |
| VKY036C | Oct-24 | <0.01 | <0.001 | 0.007 | 0.09 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.157 | <0.0001 | 0.003 | 0.004 | <0.01 | <0.001* | <0.005 |
| VKY042C | Jan-24 | <0.01 | <0.001 | <0.001 | 0.1 | 0.0001 | <0.001 | <0.001 | 0.006 | <0.001 | 0.223 | <0.0001 | 0.002 | 0.015 | <0.01 | <0.001* | 0.014 |
| VKY042C | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| VKY042C | Jul-24 | <0.01 | 0.002 | <0.001 | 0.07 | 0.001 | <0.001 | 0.004 | 0.008 | <0.001 | 0.217 | <0.0001 | 0.001 | 0.038 | <0.01 | <0.001* | 0.033 |
| VKY042C | Oct-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.213 | <0.0001 | <0.001 | 0.003 | <0.01 | <0.001* | <0.005 |
| VKY043C | Jan-24 | <0.01 | <0.001 | <0.001 | 0.11 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.005 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| VKY043C | Apr-24 | <0.01 | <0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.004 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | 0.006 |
| VKY043C | Jul-24 | <0.01 | <0.001 | <0.001 | 0.1 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | <0.005 |
| VKY043C | Oct-24 | <0.01 | <0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | 0.004 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.006 |
| VNW223 | Oct-24 | <0.01 | 0.001 | <0.001 | 0.07 | <0.0001 | <0.001 | <0.001 | 0.011 | <0.001 | 0.013 | <0.0001 | <0.001 | 0.003 | <0.01 | <0.001* | 0.023 |
| VNW390 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.14 | <0.0001 | <0.001 | <0.001 | 0.005 | <0.001 | 0.003 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | 0.026 |
| VNW390 | Apr-24 | <0.01 | <0.001 | 0.002 | 0.09 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.239 | <0.0001 | <0.001 | 0.002 | <0.01 | <0.001* | 0.007 |
| VNW390 | Jul-24 | <0.01 | <0.001 | 0.002 | 0.12 | 0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.298 | <0.0001 | 0.005 | 0.036 | <0.01 | <0.001* | <0.005 |
| VNW390 | Oct-24 | <0.01 | <0.001 | 0.003 | 0.12 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.321 | <0.0001 | 0.002 | 0.016 | <0.01 | <0.001* | 0.008 |
| VNW391 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.13 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.006 | <0.0001 | <0.001 | <0.001 | <0.01 | <0.001* | 0.006 |
| VNW391 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.225 | <0.0001 | 0.001 | 0.007 | <0.01 | <0.001* | 0.013 |
| VNW391 | Jul-24 | <0.01 | 0.002 | <0.001 | 0.11 | 0.0003 | <0.001 | <0.001 | <0.001 | 0.002 | 0.246 | <0.0001 | <0.001 | 0.006 | <0.01 | <0.001* | 0.018 |
| VNW391 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.1 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.266 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | <0.005 |
| VNW392 | Jan-24 | <0.01 | <0.001 | 0.001 | 0.12 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.333 | <0.0001 | 0.002 | 0.02 | <0.01 | <0.001* | 0.008 |
| VNW392 | Apr-24 | <0.01 | <0.001 | 0.001 | 0.07 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.315 | <0.0001 | 0.002 | 0.014 | <0.01 | <0.001* | <0.005 |
| VNW392 | Jul-24 | <0.01 | <0.001 | 0.002 | 0.1 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.286 | <0.0001 | 0.002 | 0.01 | <0.01 | <0.001* | 0.007 |
| VNW392 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.09 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.275 | <0.0001 | 0.002 | 0.008 | <0.01 | <0.001* | <0.005 |
| VNW393 | Jan-24 | <0.01 | <0.001 | <0.001 | 0.1 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.092 | <0.0001 | 0.003 | <0.001 | <0.01 | <0.001* | <0.005 |

| Bore ID | Date | Aluminium | Antimony | Arsenic | Boron | Cadmium | Chromium | Cobalt | Copper | Lead | Manganese | Mercury | Molybdenum | Nickel | Selenium | Silver | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VNW393 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.05 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.15 | <0.0001 | 0.005 | 0.005 | <0.01 | <0.001* | <0.005 |
| VNW393 | Jul-24 | <0.01 | <0.001 | 0.001 | 0.09 | 0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.181 | <0.0001 | 0.004 | 0.006 | <0.01 | <0.001* | 0.005 |
| VNW393 | Oct-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.193 | <0.0001 | 0.005 | 0.01 | <0.01 | <0.001* | <0.005 |
| VNW394 | Jan-24 | <0.01 | <0.001 | 0.007 | 0.1 | <0.0001 | <0.001 | 0.011 | <0.001 | <0.001 | 2.12 | <0.0001 | 0.003 | 0.035 | <0.01 | <0.001* | 0.007 |
| VNW394 | Apr-24 | <0.01 | <0.001 | 0.006 | <0.05 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 1.27 | <0.0001 | 0.003 | 0.006 | <0.01 | <0.001* | <0.005 |
| VNW394 | Jul-24 | <0.01 | <0.001 | 0.005 | 0.07 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.982 | <0.0001 | 0.002 | 0.007 | <0.01 | <0.001* | 0.013 |
| VNW394 | Oct-24 | 0.02 | <0.001 | 0.005 | 0.07 | <0.0001 | <0.001 | 0.002 | 0.001 | <0.001 | 0.332 | <0.0001 | 0.002 | 0.014 | <0.01 | <0.001* | 0.007 |
| VNW395 | Jan-24 | <0.01 | <0.001 | 0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | 0.032 | <0.0001 | <0.001 | 0.001 | <0.01 | <0.001* | <0.005 |
| VNW395 | Apr-24 | <0.01 | <0.001 | 0.001 | 0.0575 | <0.0001 | <0.001 | 0.00125 | 0.00625 | <0.001 | 0.125 | <0.0001 | 0.00575 | 0.2285 | <0.01 | <0.001* | 0.007 |
| VNW395 | Jul-24 | <0.01 | <0.001 | 0.001 | 0.06 | <0.0001 | <0.001 | 0.001 | 0.007 | 0.002 | 0.071 | <0.0001 | 0.008 | 0.371 | <0.01 | <0.001* | 0.016 |
| VNW395 | Oct-24 | <0.01 | 0.001 | <0.001 | 0.06 | <0.0001 | <0.001 | <0.001 | 0.009 | <0.001 | 0.006 | <0.0001 | 0.004 | 0.347 | <0.01 | <0.001* | 0.012 |
| WR1 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| WR1 | Jul-24 | <0.01 | <0.001 | 0.001 | 0.15 | 0.0003 | <0.001 | <0.001 | 0.001 | 0.002 | 0.122 | 0.0017 | 0.002 | 0.037 | <0.01 | <0.001* | 0.014 |
| WR1 | Oct-24 | <0.01 | <0.001 | 0.002 | 0.16 | 0.0002 | <0.001 | <0.001 | 0.005 | <0.001 | 0.065 | 0.0046 | 0.002 | 0.024 | <0.01 | 0.001 | 0.007 |
| WR2 | Apr-24 | <0.01 | <0.001 | <0.001 | 0.08 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.224 | <0.0001 | <0.001 | 0.004 | <0.01 | <0.001* | 0.012 |
| WR2 | Jul-24 | <0.01 | <0.001 | <0.001 | 0.09 | 0.0001 | <0.001 | 0.008 | <0.001 | <0.001 | 0.724 | <0.0001 | 0.022 | 0.118 | <0.01 | <0.001* | <0.005 |
| WR2 | Oct-24 | <0.01 | <0.001 | 0.001 | 0.11 | <0.0001 | 0.001 | 0.018 | <0.001 | <0.001 | 1.73 | <0.0001 | 0.008 | 0.087 | <0.01 | <0.001* | 0.009 |

*Limit of reporting value is higher than DGV value. Red text shows exceedance of ANZECC Default Guideline Values.



Making Sustainability Happen