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Sheet Number: N/A	Revision: R001

Title:
2024 DARLINGTON NUCLEAR GROUNDWATER MONITORING PROGRAM RESULTS

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2024 Darlington Nuclear Groundwater Monitoring Program Results

NK38-REP-10140-10038-R001


November 11, 2025


Order Number: N/A


Other Reference Number: N/A


OPG Proprietary


Electronically approved via Asset Suite


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Revision Summary

Revision Number	Date	Comments
R000	July 24, 2025	Initial release
R001	November 11, 2025	A statement regarding the groundwater quality has been added to the findings of the executive summary. Revised Graph 15 in Section 3.2 to present the correct information.

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Land Acknowledgement

The lands and waters on which the Darlington Nuclear Generating Station (DNGS) and the Darlington New Nuclear Project (DNNP) are situated within the traditional and treaty territory of the Williams Treaties First Nations, which includes Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Chippewas of Beausoleil First Nation, Chippewas of Georgina Island First Nation, Chippewas of Rama First Nation, and the Mississaugas of Scugog Island First Nation.

The DNGS and DNNP are within the territory of the Gunshot Treaty and the Williams Treaties of 1923. The Gunshot Treaty Rights were reaffirmed in 2018 in a settlement with Canada and the Province of Ontario.

To acknowledge the treaty and traditional territory is to recognize the rights of the First Nations. It is to recognize the history of the land, predating the establishment of the earliest European colonies. It is also to acknowledge the significance for the Indigenous peoples who lived and continue to live upon it, to acknowledge the people whose practices and spiritualities are tied to the land and water and continue to develop in relation to the territory and its other inhabitants today.



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Executive Summary

Darlington Nuclear, comprised of the Darlington Nuclear Generating Station (DNGS) and the Darlington New Nuclear Project (DNNP), has a mature and robust groundwater monitoring program in place to address the following primary objectives:

- Objective 1: Monitor changes to on-site groundwater quality to ensure timely detection of inadvertent releases to groundwater;
- Objective 2: Ensure that there are no adverse off-site impacts from DNGS groundwater;
- Objective 3: Monitor groundwater flow conditions and groundwater quality during site preparation at the DNNP; and
- Objective 4: Confirm predominant on-site groundwater flow characteristics at the DNGS.

The findings in 2024 with respect to the above objectives are:

- Objective 1: Groundwater data collected from the system structures and components indicate tritium, petroleum hydrocarbon (PHC) fractions 1 to 4 (F1 to F4), benzene, toluene, ethylbenzene and total xylene (BTEX) concentrations are generally consistent with historical results.
- Objective 2: Tritium, PHC and BTEX concentrations within the upgradient and downgradient site perimeter wells are generally within historical ranges. No off-site effects of tritium in groundwater are observed.
- Objective 3: Groundwater flow conditions in Q2 and Q4 2024 at the DNNP are consistent with historical interpretations. Groundwater quality is consistent with historical results.
- Objective 4: The predominant groundwater flow patterns remain unchanged in 2024 from the recent years' interpretations.

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1.0 INTRODUCTION

The Ontario Power Generation (OPG) Darlington Nuclear (DN) site (the Site) is comprised of the Darlington Nuclear Generating Station (DNGS) and the Darlington New Nuclear Project (DNNP). The Site has a mature and robust annual groundwater monitoring program in place. The program examines the chemical, radiological, and physical characteristics of the groundwater beneath the Site.

The following four primary objectives are addressed by specific objectives detailed in the CSA N288.7-compliant (CSA Group, 2015) Groundwater Protection and Monitoring Program (GWPMP) (Ecometrix, 2023b):

- Objective 1: Monitor changes to on-site groundwater quality to ensure timely detection of inadvertent releases to groundwater of:
 - Tritium concentrations in groundwater near systems, structures and components (SSCs).
 - Petroleum Hydrocarbons (PHCs) Fractions 1 to 4 (F1 to F4) in groundwater near SSCs.
- Objective 2: Ensure that there are no adverse off-Site impacts from DNGS groundwater:
 - Tritium and PHC concentrations in groundwater in perimeter wells – monitor tritium and PHCs in perimeter wells to establish concentrations at the Site boundaries and to confirm no adverse off-site impacts.
- Objective 3: Monitor groundwater flow conditions and groundwater quality during site preparation at the DNNP such as:
 - Hydraulic Head Measurements – provide head measurements in selected monitoring wells to confirm the groundwater flow conditions across the DNNP.
 - Monitor PHC concentrations in groundwater and indicator parameters to understand changes in groundwater quality.
- Objective 4: Confirm predominant on-site groundwater flow characteristics across the Site via:
 - Hydraulic Head Measurements – provide head measurements in selected monitoring wells to confirm groundwater flow conditions across the Site and to support the interpretation of constituent migration in groundwater.

The groundwater sampling and monitoring program conducted in 2024 followed the DNGS Sampling and Analysis Plan (SAP) for 2024 (OPG, 2024a), the DNNP SAP for 2024 (OPG, 2024b) as well as the Geological and Hydrogeological Environment Methodology Report for Site Preparation of DNNP (Ecometrix, 2024). This report presents groundwater data collected at the Site between January 1 and December 31, 2024.

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1.1 Summary of Hydrogeological Characteristics at the Site

Historical assessments of the Site identified 6 hydrostratigraphic units (HUs). Of the 6 HUs, 3 main groundwater flow systems have been identified for the Site:

- Shallow overburden groundwater system:
 - Within the DNGS Protected Area, referred to as HU PA, comprised primarily of fill materials;
 - Outside the Protected Area, referred to as HU 1;
- Deep overburden groundwater system (HU 2, and HU 3 and HU4 when present)); and
- Shallow bedrock groundwater system (HU 5).

HU 3 and HU 4 are not always observed, and where they are observed, they are generally thin and grouped with HU 2 into the deep overburden groundwater system. The deep overburden groundwater system (HU 2) likely represents aquifer conditions (SENES, 2009). In addition, more permeable conditions representing aquifers are thought to be present in the fill materials (HU 1) and upper bedrock surface (HU 5) which is weathered and fractured.

2.0 2024 PROGRAM DESIGN

The groundwater monitoring program design is detailed in the GWPMP (Ecometrix, 2023a) along with the Geological and Hydrogeological Environment Methodology Report for Site Preparation (Ecometrix, 2024), both of which comprise a CSA N288.7 compliant program. The CSA N288.7 compliant 2024 SAPs were developed to meet the relevant components of the objectives listed above.

Groundwater quality results are provided in Appendix A. Refer to Section 6.0 of this report for details on the sampling nomenclature used in the groundwater program.

2.1 Objective 1 Methodology

The methodology for the objective to monitor changes to on-Site groundwater quality for the timely detection of inadvertent releases to groundwater is described in this section.

2.1.1 Tritium Concentrations in Groundwater Near SSCs

In 2024, as per the DNGS SAP, groundwater samples were collected from 16 monitoring wells near the vicinity of the Powerhouse, the Heavy Water Management Building (HWMB), Tritium Removal Facility (TRF) and Active Liquid Waste (ALW) collection and treatment system. Figure 1 shows the locations that were monitored.

Additionally, as per the DNGS SAP, groundwater samples were collected from 3 monitoring wells near the building effluent lagoon. Figure 2 shows the locations that were monitored.

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The 2024 DNGS SAP specified the sampling locations and frequency (e.g., quarterly, annually) of sampling tritium concentrations in groundwater at each location.

Water levels were measured in each monitoring well prior to the collection of samples by OPG technicians. Following measurement of the water level and prior to sample collection, each monitoring well was purged to remove standing water or sampled using a low flow methodology so that the groundwater collected had a quality representative of subsurface conditions. Collected samples were analyzed for tritium concentrations by Bureau Veritas Laboratories.

The groundwater data generated from the sampling program was subsequently analyzed to either support previous conclusions, identify changes in groundwater quality (trends) including improvements, or demonstrate no significant change. Sample results of tritium concentrations in groundwater for Objective 1 are presented in Table A-1 and Table A-2 (Appendix A).

2.1.2 PHC concentrations in Groundwater Near SSCs

In 2024, as per the DNGS SAP, groundwater samples were collected from 9 monitoring wells near the Emergency Power Supply (EPS) Fuel Management system, Standby Generators (SGs) and Auxiliary Steam Heating Facility (ASHF). Figure 3 shows the locations that were monitored. The 2024 DNGS SAP specified the sampling locations and frequency (e.g., quarterly, annually) of sampling for PHCs and benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations in groundwater at each location.

The methodology for groundwater collection was the same as described for tritium. Collected samples were analyzed for PHC and BTEX concentrations by Bureau Veritas Laboratories.

Sample results of groundwater PHC and BTEX concentrations for Objective 1 are presented in Table A-3 (Appendix A).

2.2 Objective 2 Methodology

The methodology for Objective 2 to assess for adverse off-Site impacts from DNGS groundwater is described in this section.

The 2024 DNGS SAP included the sampling of 6 monitoring wells at the Site boundary to assess the potential for adverse off-Site impacts from DNGS groundwater as well as 23 upgradient groundwater quality near the Site boundary. Boundary wells are located across the Site in directions upgradient or cross-gradient to the SSCs and provide a spatial distribution of background groundwater quality conditions. Wells downgradient to the SSCs are also monitored to assess off-Site impacts on groundwater quality. Figure 4 shows the locations of the upgradient perimeter wells, and Figure 5 shows the locations of the downgradient perimeter wells. Analytical results for monitoring wells sampled at the upgradient perimeter monitoring wells are presented in Table A-4 (Appendix A), and analytical results for monitoring wells sampled at downgradient monitoring wells are presented in Table A-5a and Table A-5b (Appendix A).

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The methodology for groundwater collection, analysis, and data evaluation in the perimeter wells was the same as described for Objective 1.

2.3 Objective 3 Methodology

The methodology to monitor groundwater flow conditions and groundwater quality during site preparation at the DNNP is described in this section.

The 2024 SAP included collecting water level measurements and sampling groundwater from 25 monitoring wells to interpret groundwater flow directions and groundwater quality. Groundwater samples were analyzed for PHC, BTEX, and indicator parameters: sodium (Na^+), calcium (Ca^{2+}), magnesium (Mg^{2+}), potassium (K^+), bicarbonate (HCO_3^-), carbonate (CO_3^{2-}), chloride (Cl^-), sulphate (SO_4^{2-}), dissolved iron (Fe^{2+}) and general parameters: pH, electrical conductivity (EC) and total dissolved solids (TDS). The locations monitored for Objective 3 are shown in Figure 6. The analytical results are provided in Table A-6 (Appendix A).

Additionally, the 2024 DNNP SAP was revised to include that water levels collected from pressure transducers on a semi-annual basis be reviewed to provide insight into the influence of grade changes and dewatering activities on the groundwater inputs to Darlington Creek. Pressure transducers were installed in 10 monitoring wells during Q3 2024 and the data from these pressure transducers were used to develop hydrographs, which are provided in Appendix B.

2.4 Objective 4 Methodology

The methodology for the objective to assess the predominant on-site groundwater flow characteristics across the Site is described in this section.

Detailed interpretation of groundwater flow conditions beneath the DNGS was first carried out in 2010 and is summarized in the GWMP. The GWMP requires a set of water levels to be collected annually from groundwater monitoring wells at the Site over a short period of time (days). The intent of the program is to assess potential changes to groundwater flow conditions, which are the basis for interpreting the migration of constituents in groundwater. In the second quarter (Q2) of 2024, water level readings were collected from monitoring well locations across the site between May 6 and 8, 2024. The data were used to calculate the groundwater elevation at each monitoring well. The resulting groundwater elevations and the average daily mean Lake Ontario water levels collected between May 6 and May 8, 2024 by the International Joint Commission (IJC, 2024) were used to generate groundwater elevation contours, from which groundwater flow directions are inferred.

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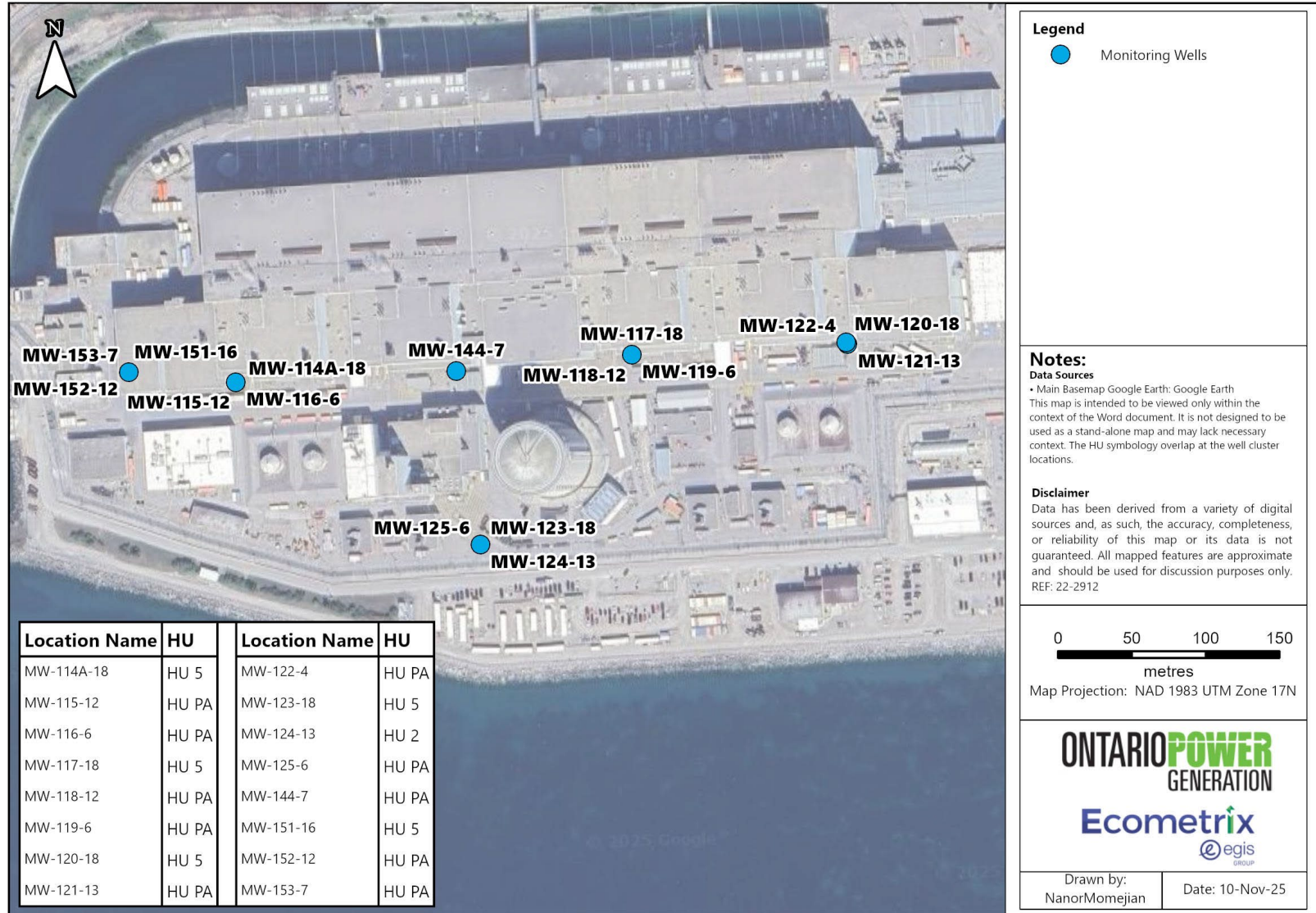


Figure 1: 2024 Groundwater Monitoring Locations for Tritium near HWMB, TRF, ALW Collection system, ALW Treatment system

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Figure 2: 2024 Groundwater Monitoring Locations for Tritium near Building Effluent Lagoons

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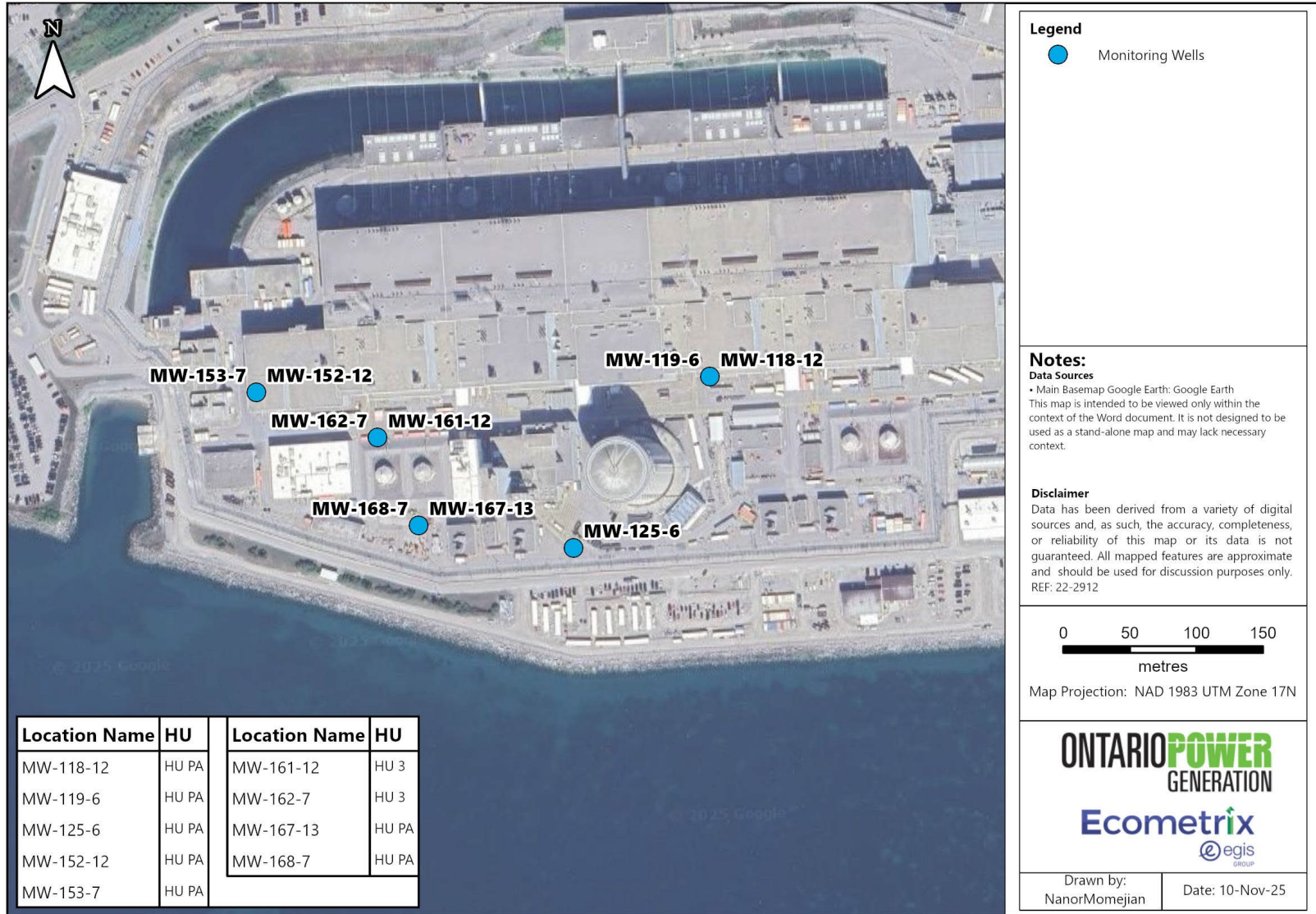


Figure 3: 2024 Groundwater Monitoring Locations for PHCs near the EPS Fuel Management System, SGs, and ASHF

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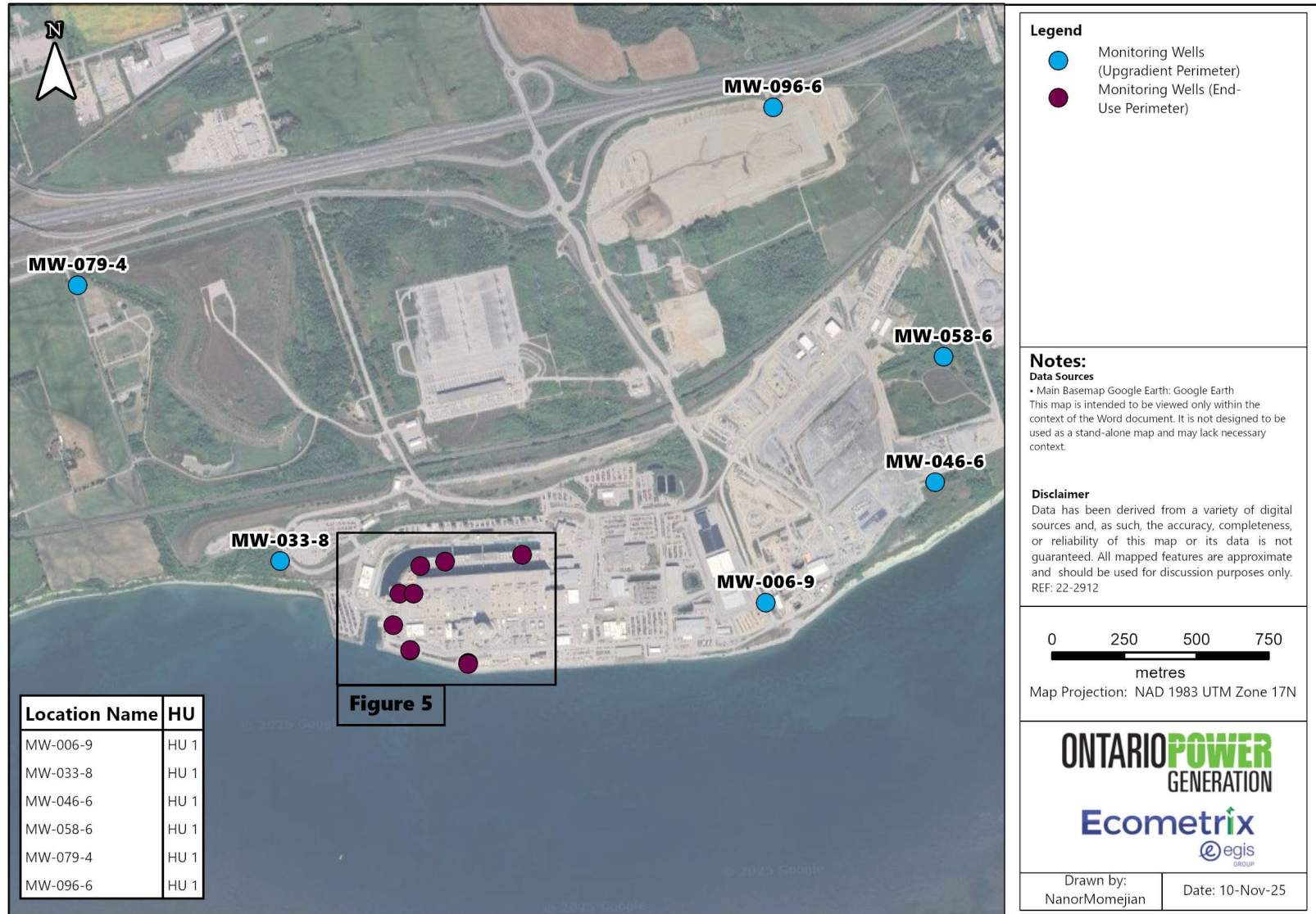


Figure 4: 2024 Monitoring Locations for Tritium and PHCs at Upgradient Perimeter

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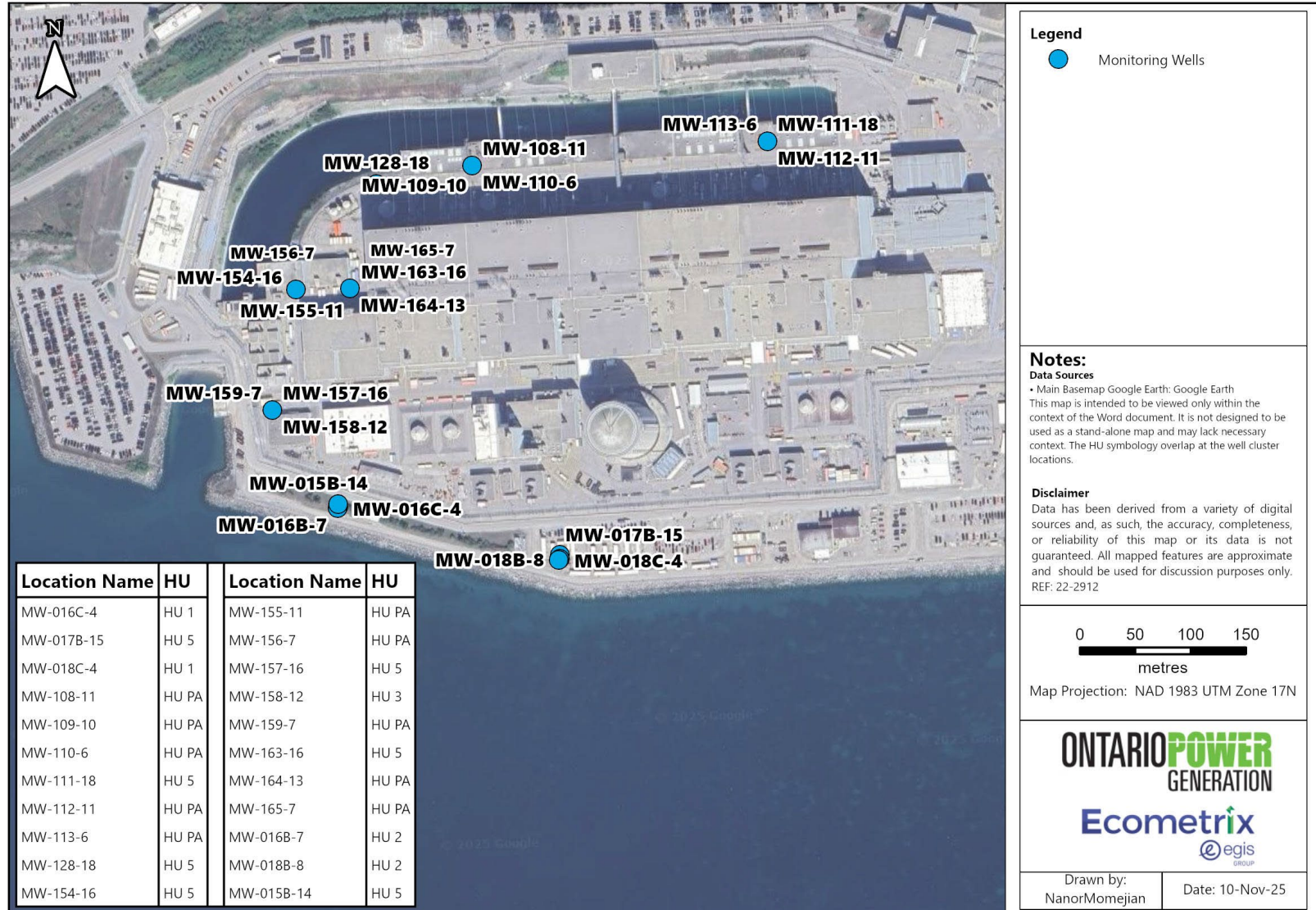


Figure 5: 2024 Groundwater Monitoring Locations for Tritium and PHCs at End-Use Perimeter

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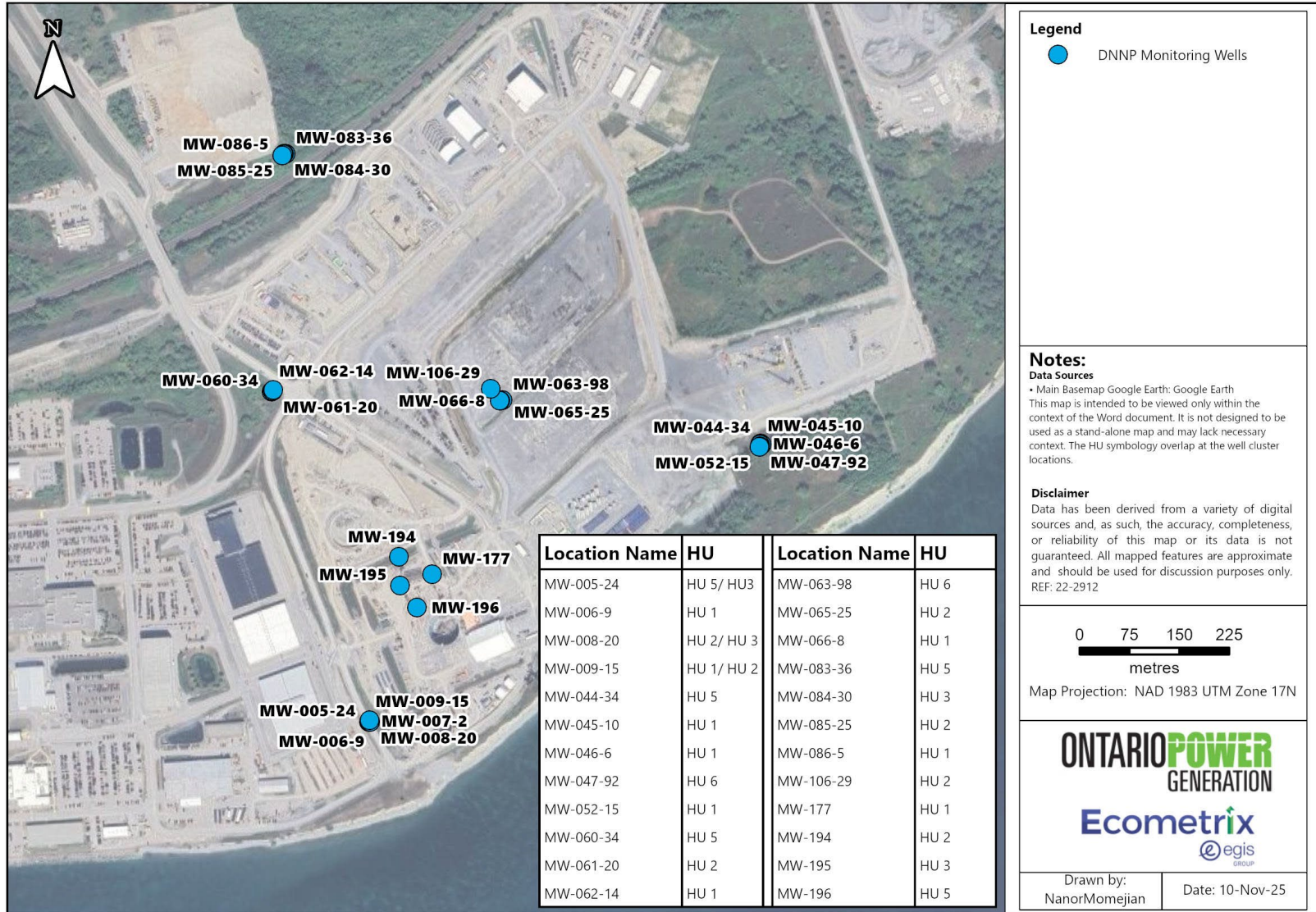


Figure 6: 2024 Groundwater Monitoring Locations at DNNP

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3.0 2024 PROGRAM RESULTS

3.1 Objective 1 Results

The methodology for the objective to monitor changes to on-Site groundwater quality for the timely detection of inadvertent releases to groundwater is described in this section.

3.1.1 Tritium in Groundwater Near SSCs

Within the Protected Area, and to a lesser extent outside of that, tritium concentrations in groundwater will have a background contribution from tritium air emissions associated with DNGS operations. Tritium in air emissions enters groundwater through the infiltration of wet deposition/precipitation. OPG carried out a precipitation sampling program that spanned two years (February 2009 to March 2011) in which tritium was sampled in the collected rainwater at 12 locations within the protected area (CH2M Hill, 2011). Tritium concentrations in precipitation showed variability over time and space based on seasonally variable weather conditions. The maximum concentration measured in precipitation was 1,924 Bq/L (CH2M Hill, 2011). This value represents the expected background tritium concentration in groundwater within the Protected Area.

The groundwater data collected near SSCs indicate that tritium concentrations in groundwater have remained consistent with results for previous years, and are otherwise within the range of expected fluctuations resulting from ongoing operations or represent the expected movement of historical tritium in groundwater.

3.1.1.1 Tritium in Groundwater Near the Powerhouse, HWMF, TRF and ALW Collection and Treatment System

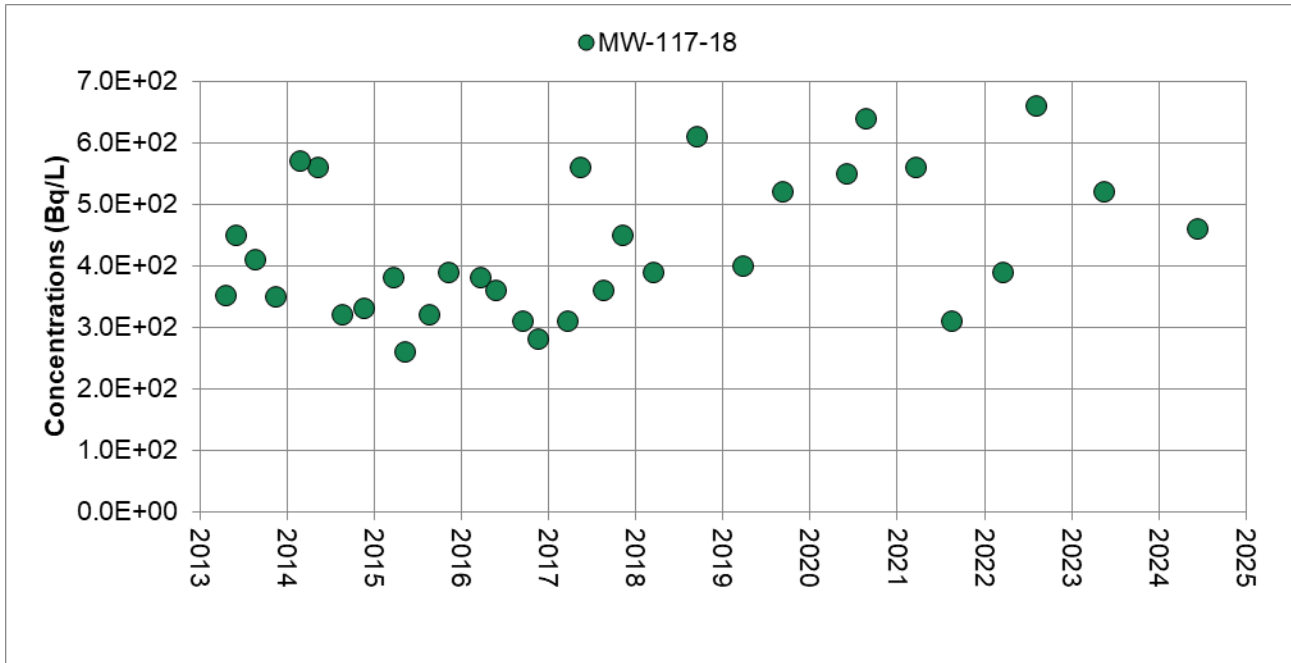
In 2024, 16 monitoring wells were sampled for the analysis of tritium within the vicinity of the Powerhouse, HWMF, TRF and ALW collection and treatment system, located within the Protected Area. Analytical results for all wells sampled are provided in Appendix A and maximum tritium concentrations at each well for HU 1, HU PA, HU 2 and HU 5 in 2024 is presented in Figure 7.

In general, 2024 tritium concentrations in groundwater near the Powerhouse, HWMF, TRF and ALW collection and treatment system remained within historical ranges reflective of routine operations. Graph 1 to Graph 7 display tritium concentrations over time at MW-117-18, MW-118-12, MW-119-6, MW-120-18, MW-121-13, MW-122-4 and MW-123-18.

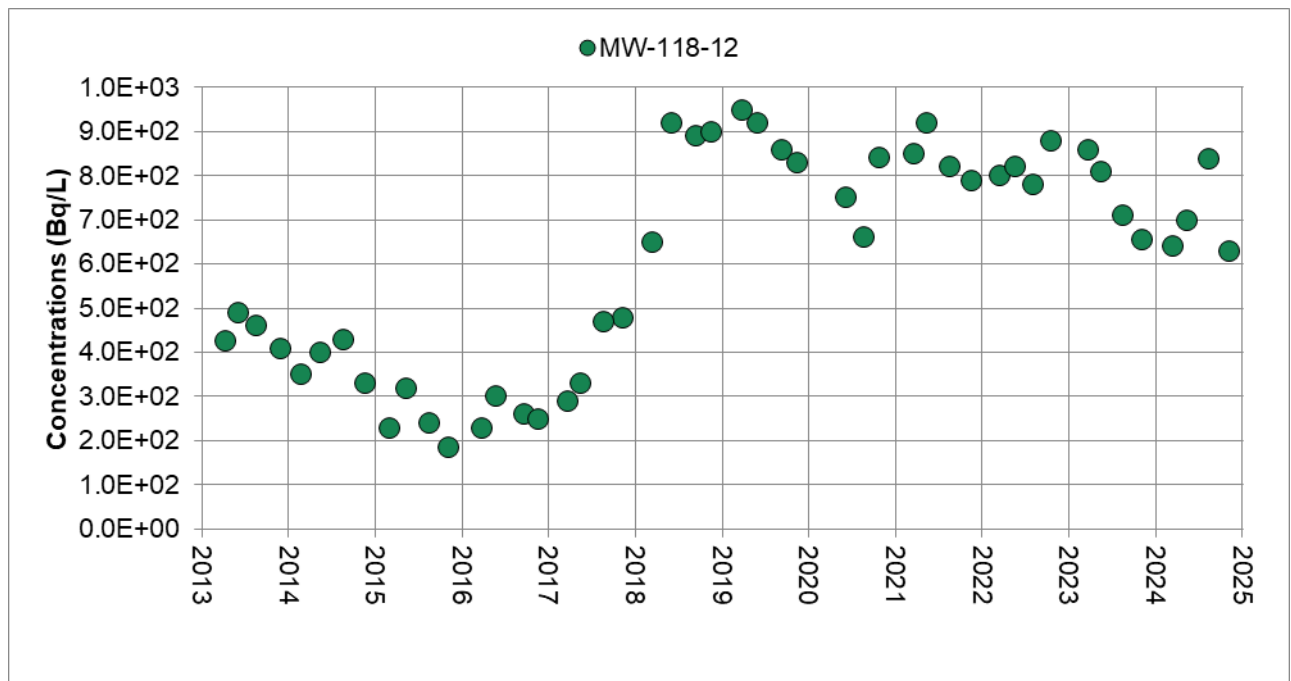
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Graph 1: Tritium Concentrations at MW-117-18

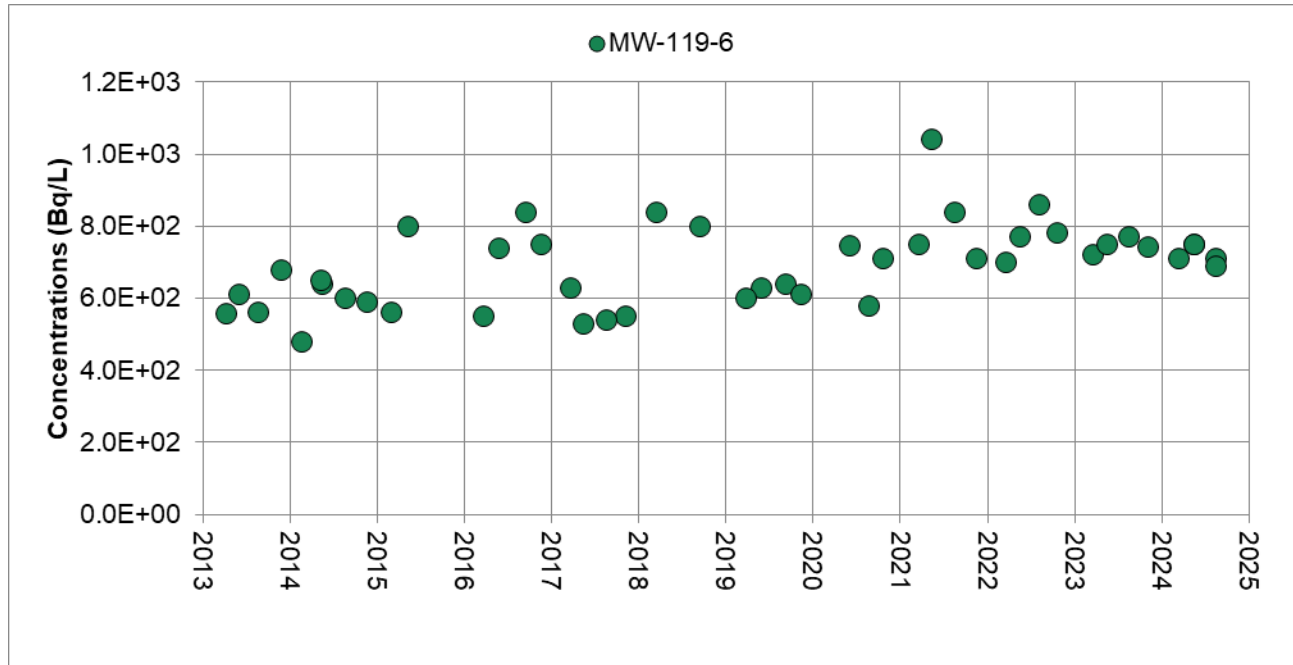


Graph 2: Tritium Concentrations at MW-118-12

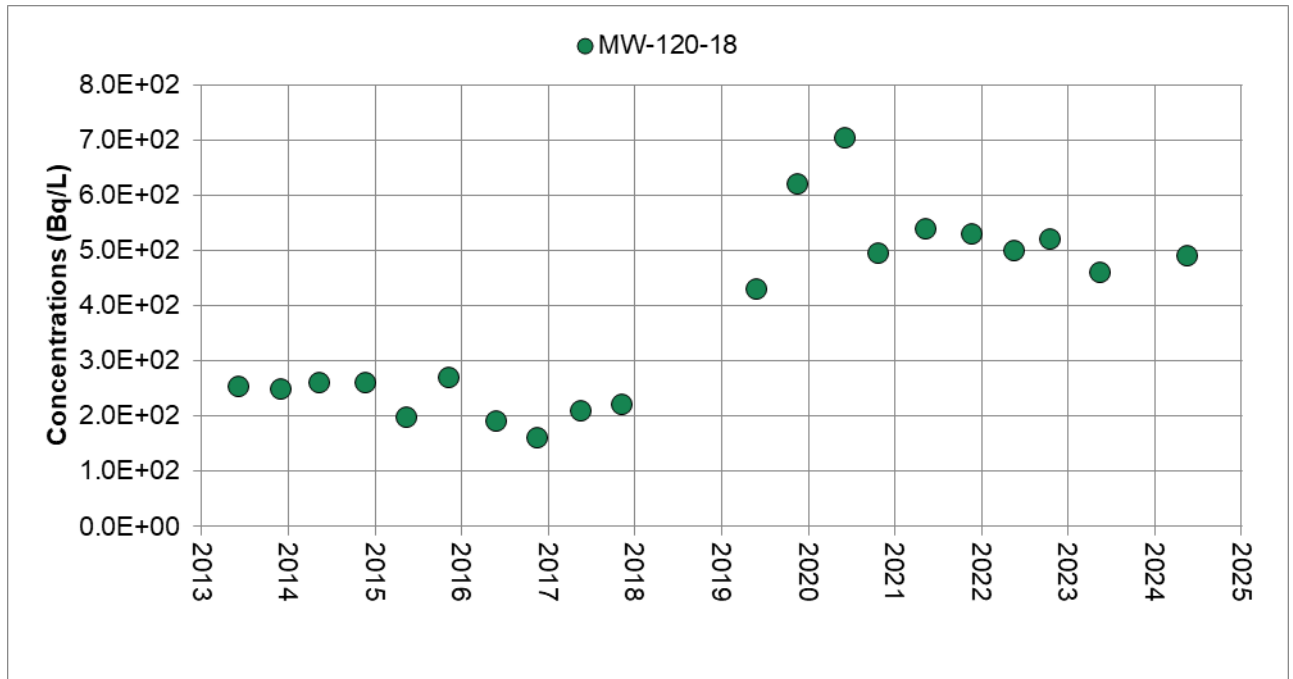
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Graph 3: Tritium Concentrations at MW-119-6

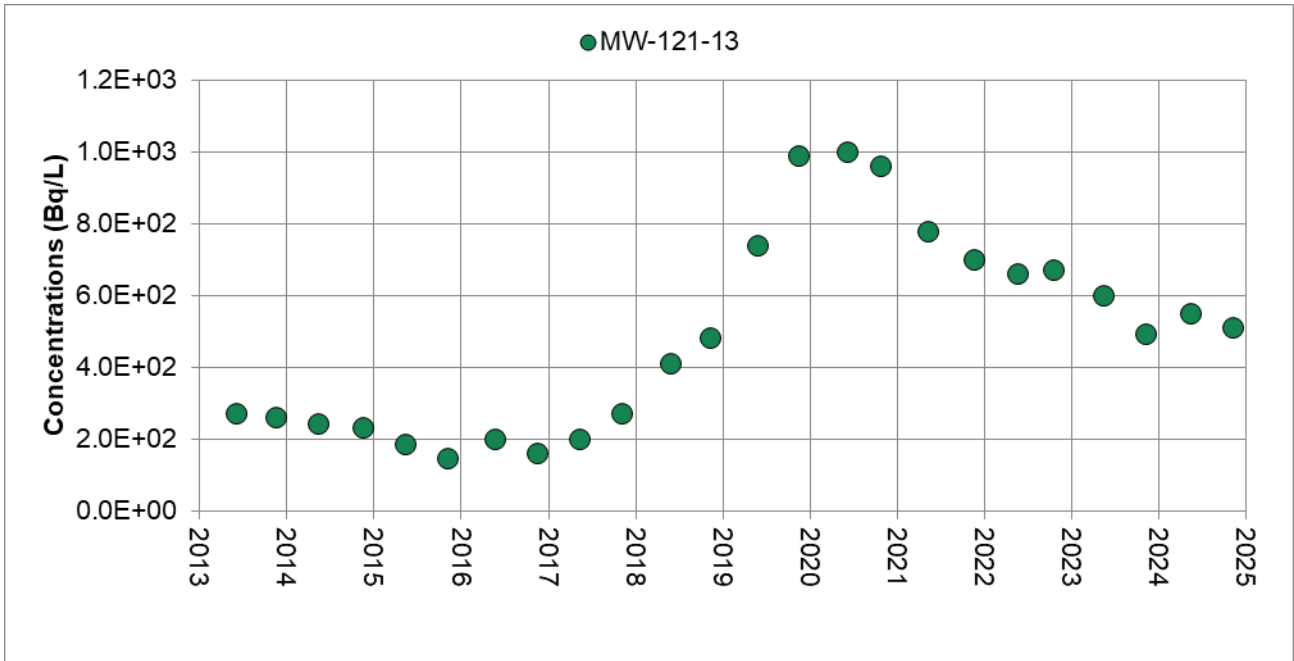


Graph 4: Tritium Concentrations at MW-120-18

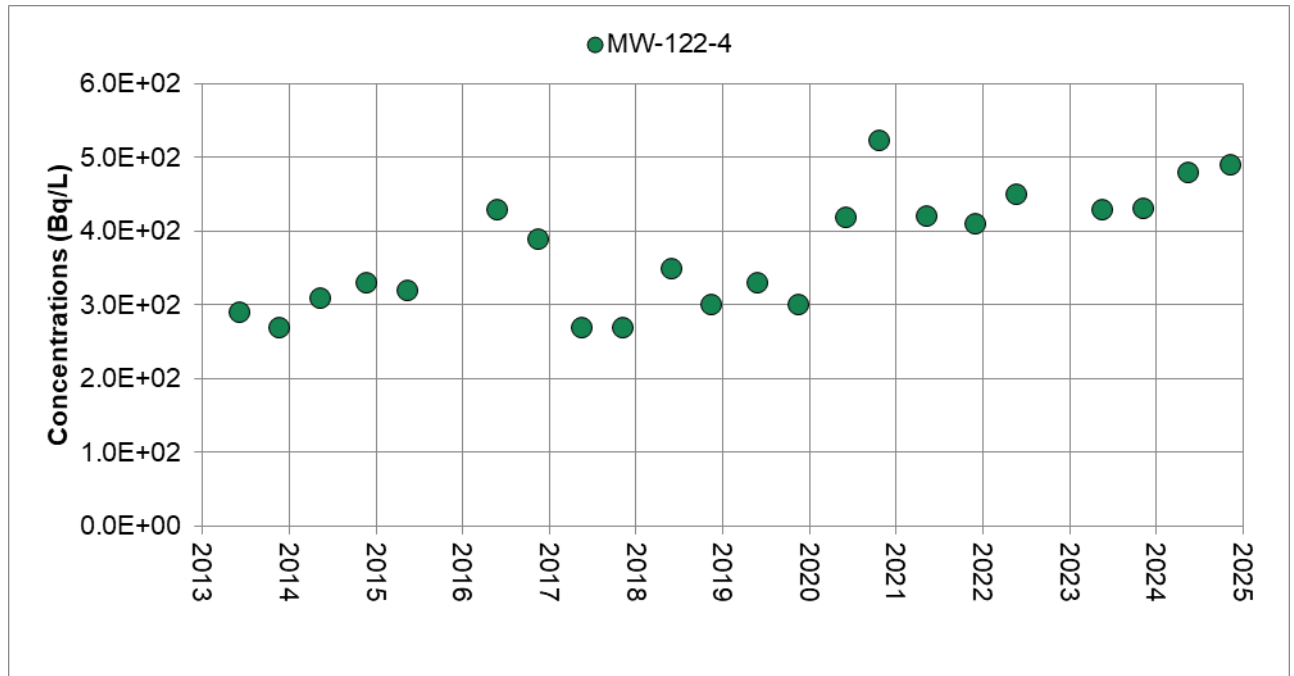
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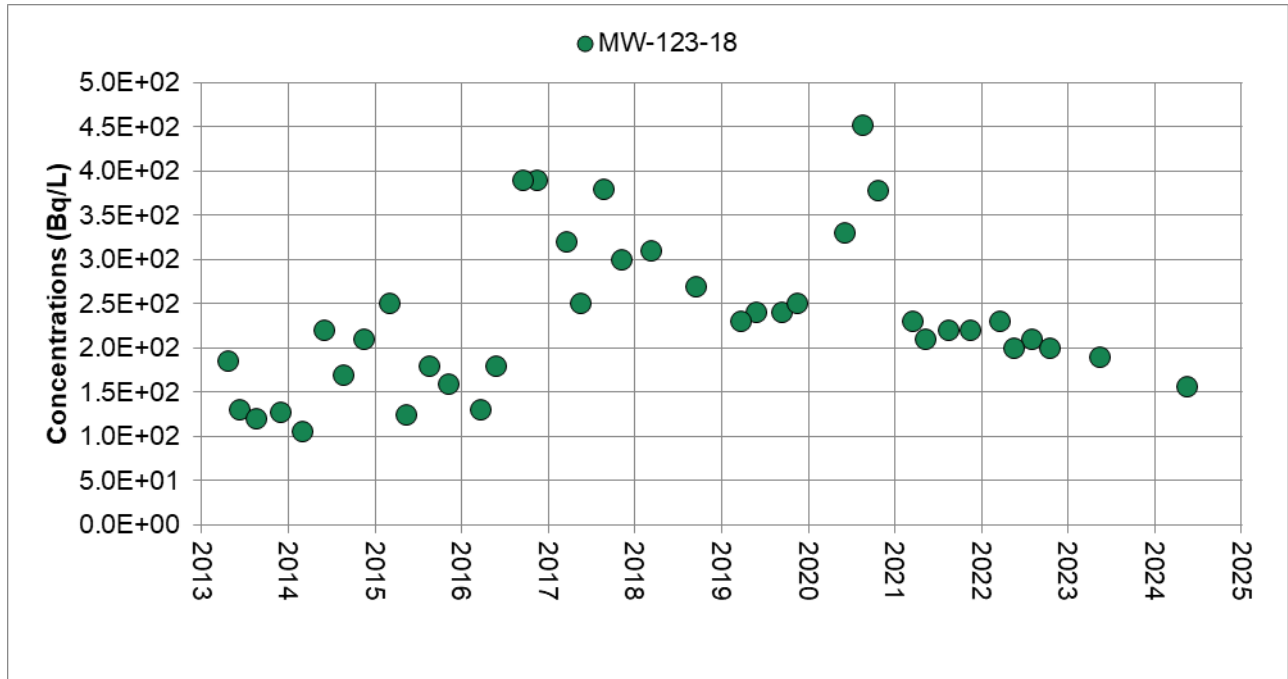
Graph 5: Tritium Concentrations at MW-121-13



Graph 6: Tritium Concentrations at MW-122-4

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Graph 7: Tritium Concentrations at MW-123-18

3.1.1.2 Building Effluent Lagoon

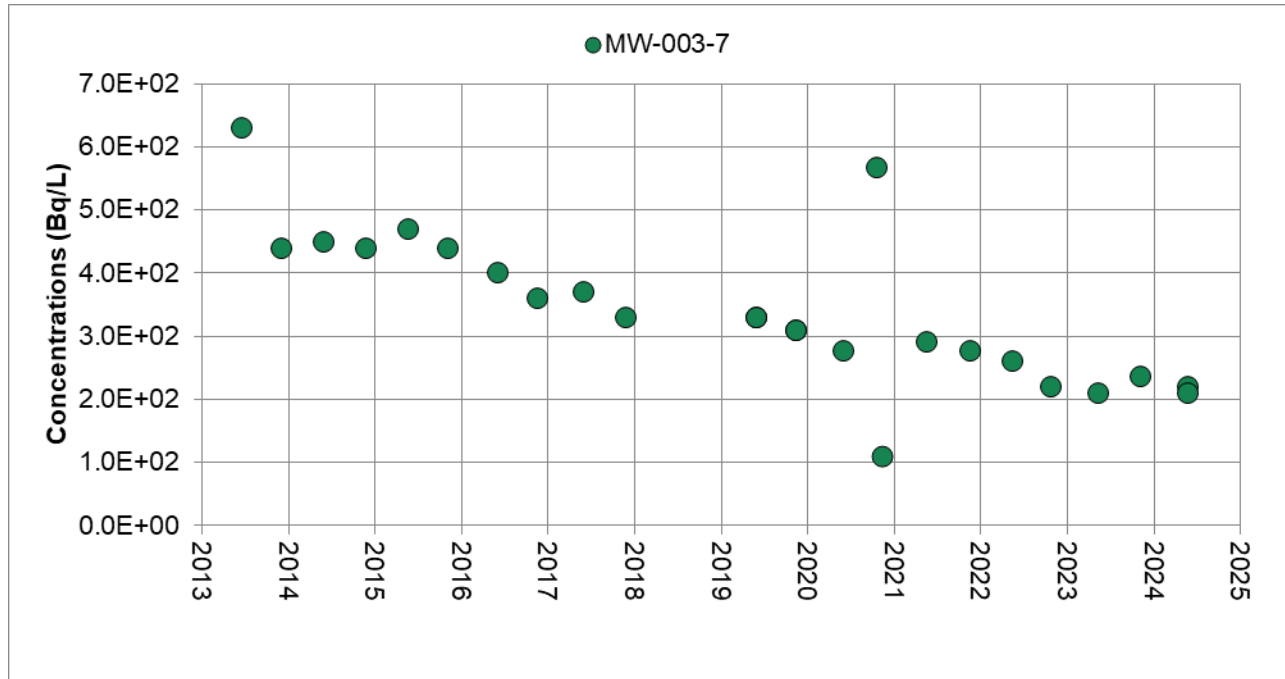
Analytical results for wells sampled within the vicinity of the building effluent lagoon are provided in Table A-2 (Appendix A) and maximum tritium concentrations are summarized in Figure 8.

The presence of tritium at MW-003-7 and MW-025-8 (HU 1/2) is mainly attributed to a past identified leak from the building effluent lagoon in 2012. The lagoon liner was replaced, and groundwater quality monitoring results indicate that tritium concentrations have been declining since. Groundwater monitoring at MW-004-6, located upgradient of the building effluent lagoons, is included to establish background groundwater quality within the vicinity of the building effluent lagoons. The 2024 tritium concentration in groundwater is 350 Bq/L at this well, and the concentrations at MW-003-7 and MW-025-8 are below this value. Graph 8 and Graph 9 display tritium concentrations over time at MW-003-7 and MW-025-8.

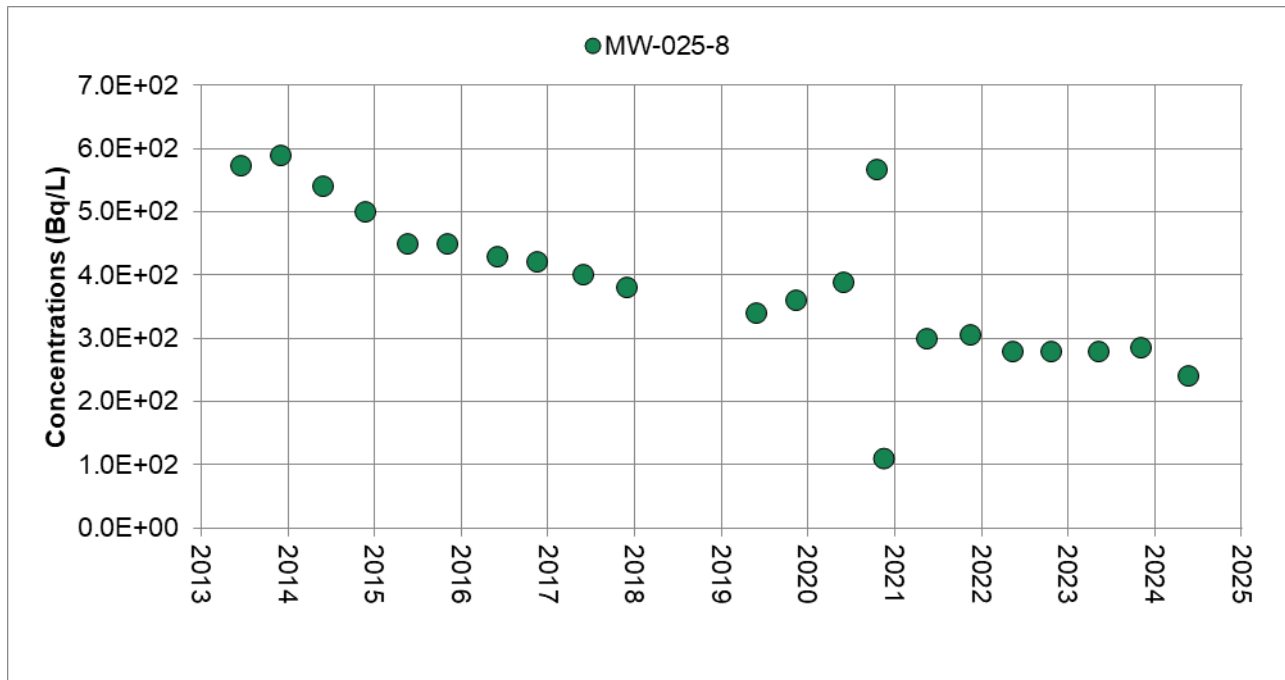
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Graph 8: Tritium Concentrations at MW-003-7



Graph 9: Tritium Concentrations at MW-025-8

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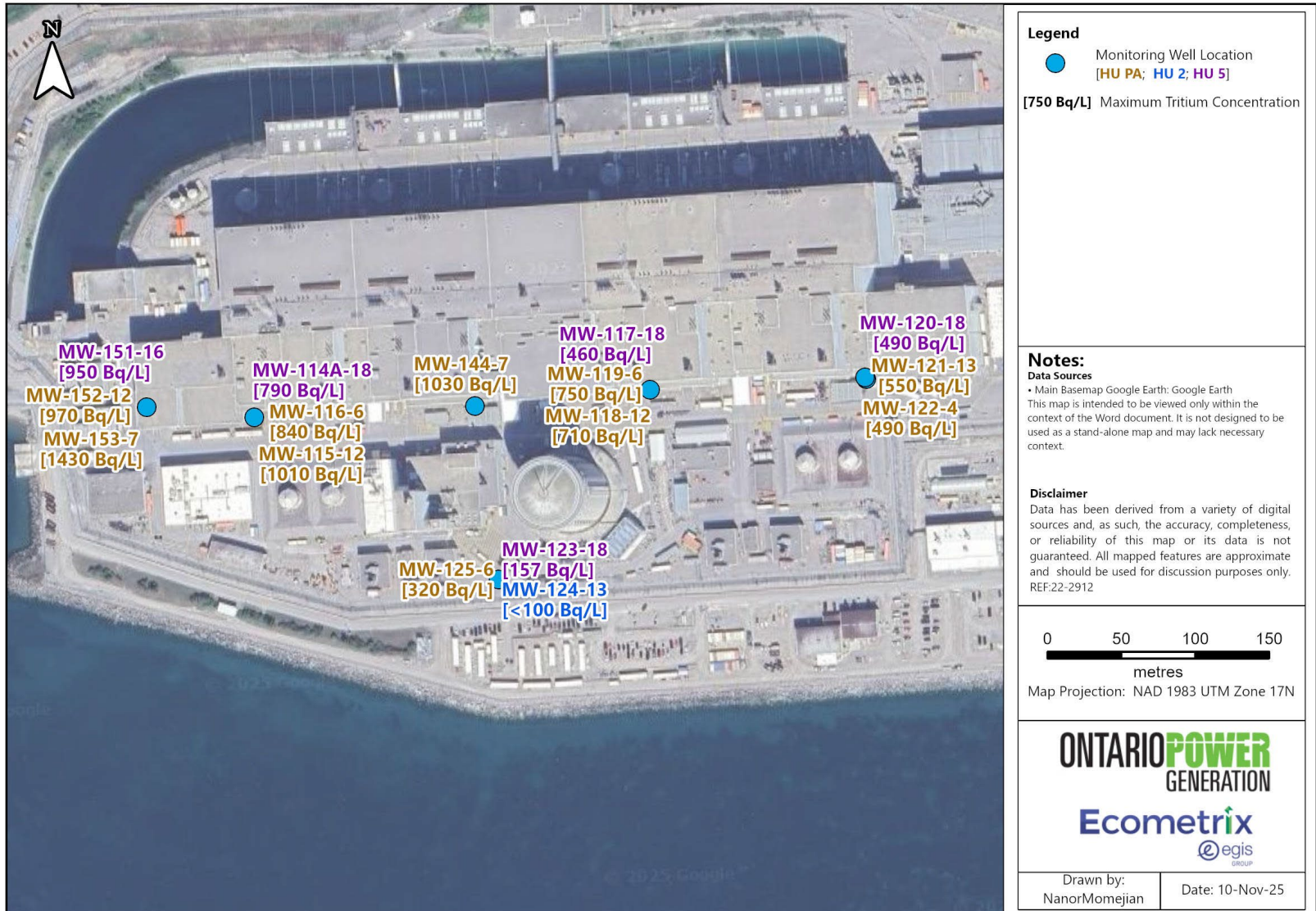


Figure 7: 2024 Maximum Tritium Concentrations in Groundwater at the Protected Area

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Figure 8: 2024 Maximum Tritium Concentrations in Groundwater at the Building Effluent Lagoons

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3.1.2 PHCs in Groundwater Near SSCs

In 2024, groundwater quality monitoring was conducted in the vicinity or downgradient of the EPG, SGs and the ASHF to detect potential fuel oil leaks to groundwater associated with these areas.

Sampling for PHCs and BTEX was conducted at 13 monitoring wells in 2024. The groundwater quality results were non-detect with respect to PHCs and ethylbenzene and most groundwater quality results were non-detect with respect to benzene, toluene and total xylenes. Where detected, concentrations of benzene, toluene and total xylenes were marginally above the detection limit, within the expected range of background concentrations and are 2 or more orders of magnitude below the risk-based evaluation criteria for the Site.

The analytical results for PHCs and BTEX are presented in Table A-3 (Appendix A).

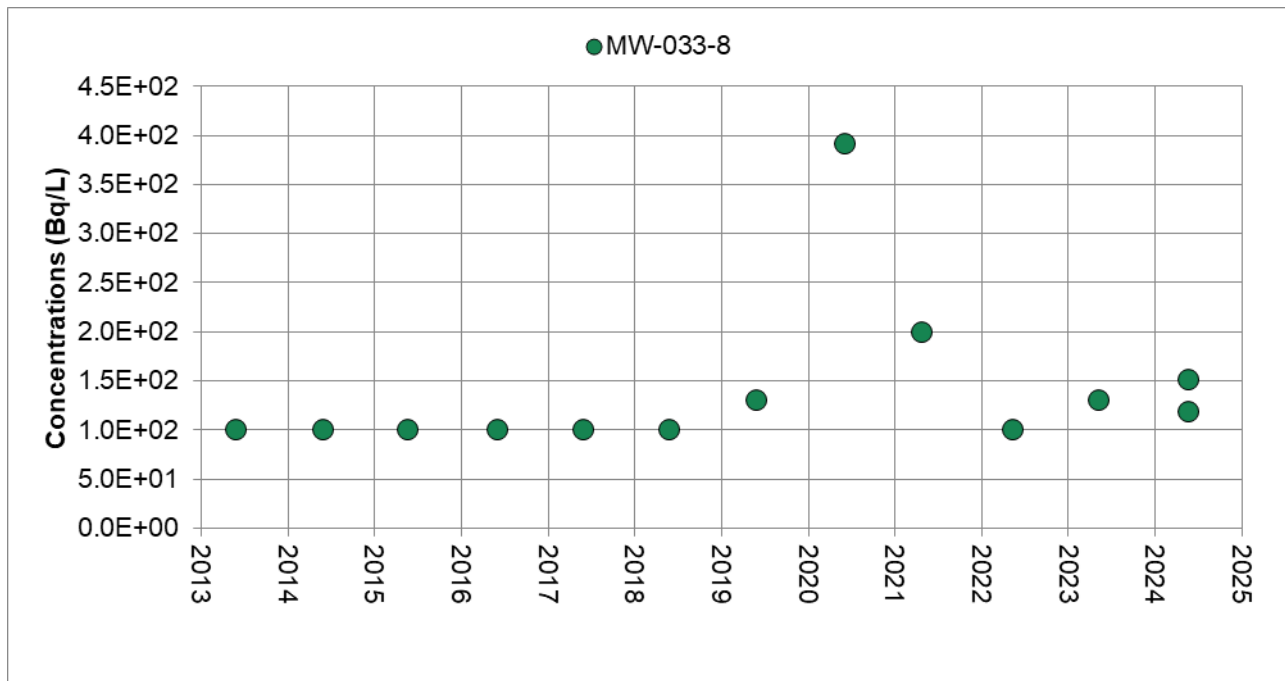
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3.2 Objective 2 Results

In 2024, 22 monitoring wells located at the Site boundary were sampled for tritium. The results are summarized in Table A-5a and Table A-5b (Appendix A) and the maximum tritium concentrations in 2024 are summarized in Figure 9 and Figure 10 for HU 1, HU 2 and HU 5.

The tritium concentrations in monitoring wells upgradient of the SSCs were below detection with the exception of MW-033-8. At MW-033-8, the tritium concentration was marginally above the detection limit at 151 Bq/L, which is consistent with historical concentrations of tritium at this location. The observed concentration of tritium can likely be attributed to atmospheric deposition and is several orders of magnitude below the risk-based criterion (1×10^7 Bq/L) for the Site. Graph 10 displays the tritium concentration at MW-033-8.



Graph 10: Tritium Concentrations at MW-033-8

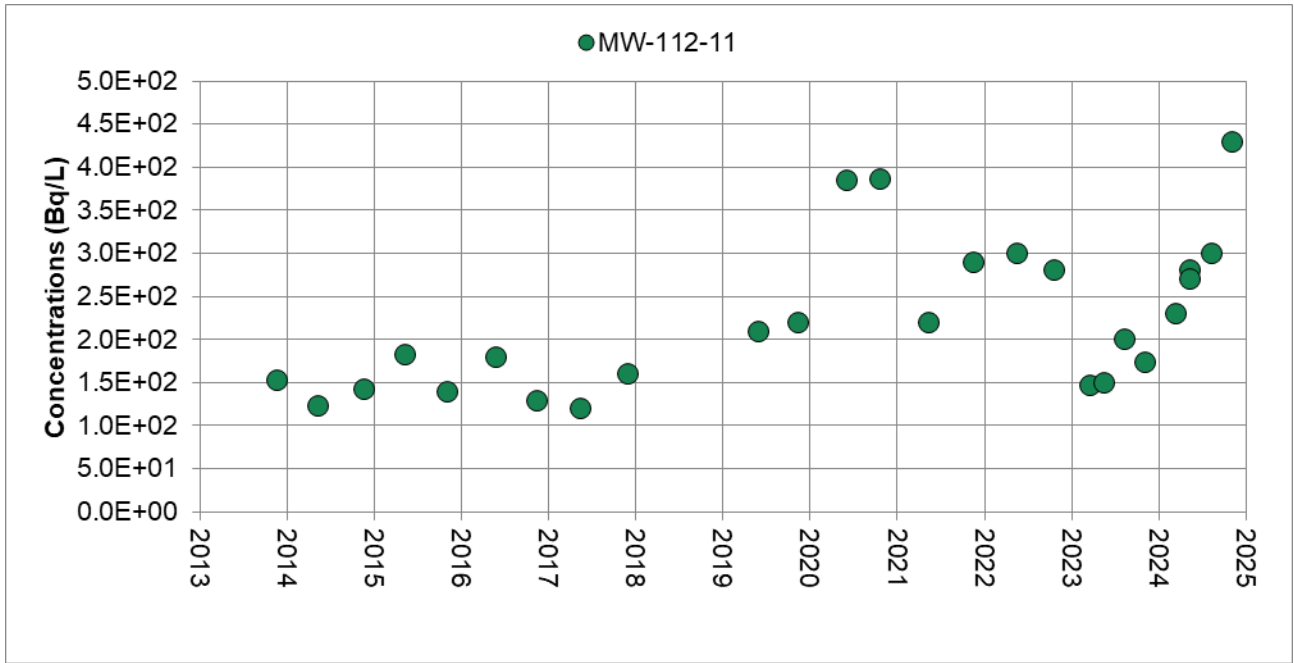
The tritium concentrations in select monitoring wells downgradient of the SSCs are presented in Graph 11 to Graph 13. Mann-Kendall statistical analysis of the concentrations indicates an increasing trend at MW-111-18, MW-112-11, MW-113-6, and MW-156-7, but these concentrations remain lower than the background value for the shallow groundwater system within the Protected Area (1,924 Bq/L). These concentrations do not suggest an increased risk to groundwater end-uses. Monitoring for tritium will continue at these locations.

Monitoring well MW-159-7 recorded tritium concentrations were higher than the background value; however, the concentrations returned to below the background value in Q3 (1,710 Bq/L) and Q4 (1,350 Bq/L) (Graph 14). These concentrations do not suggest an increased risk to groundwater end-uses. Monitoring for tritium will continue at this location.

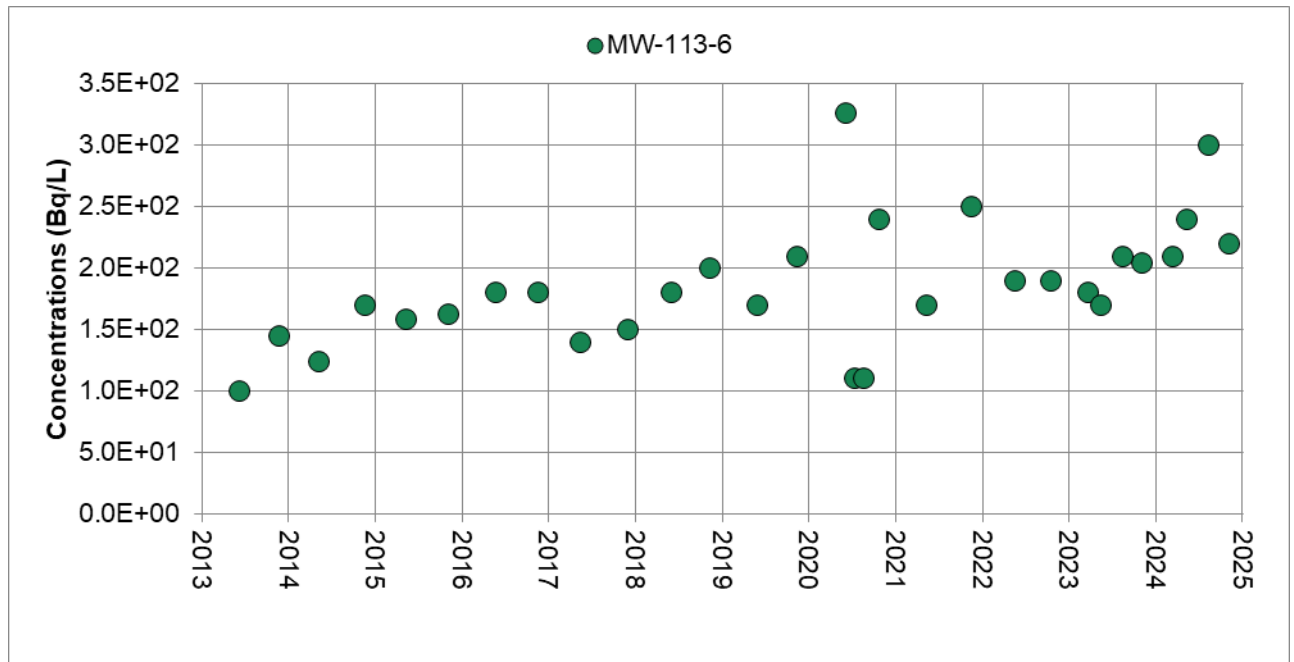
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Graph 11: Tritium Concentrations at MW-112-11

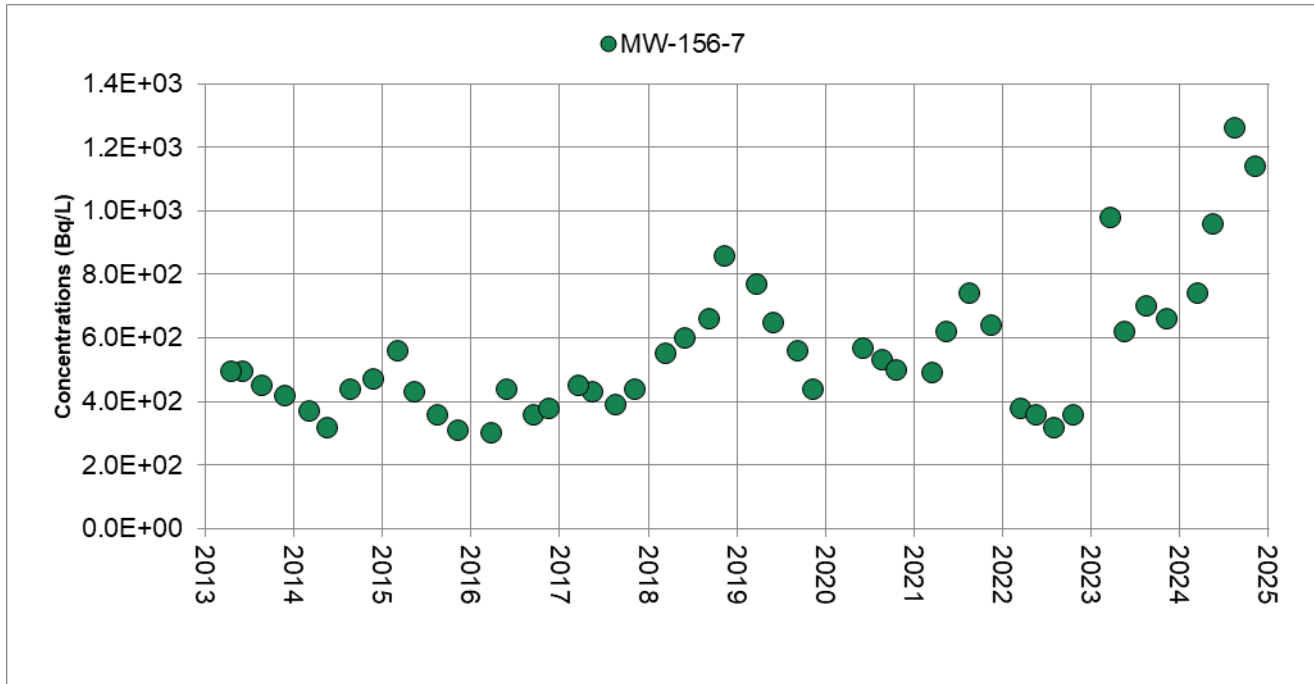


Graph 12: Tritium Concentrations at MW-113-6

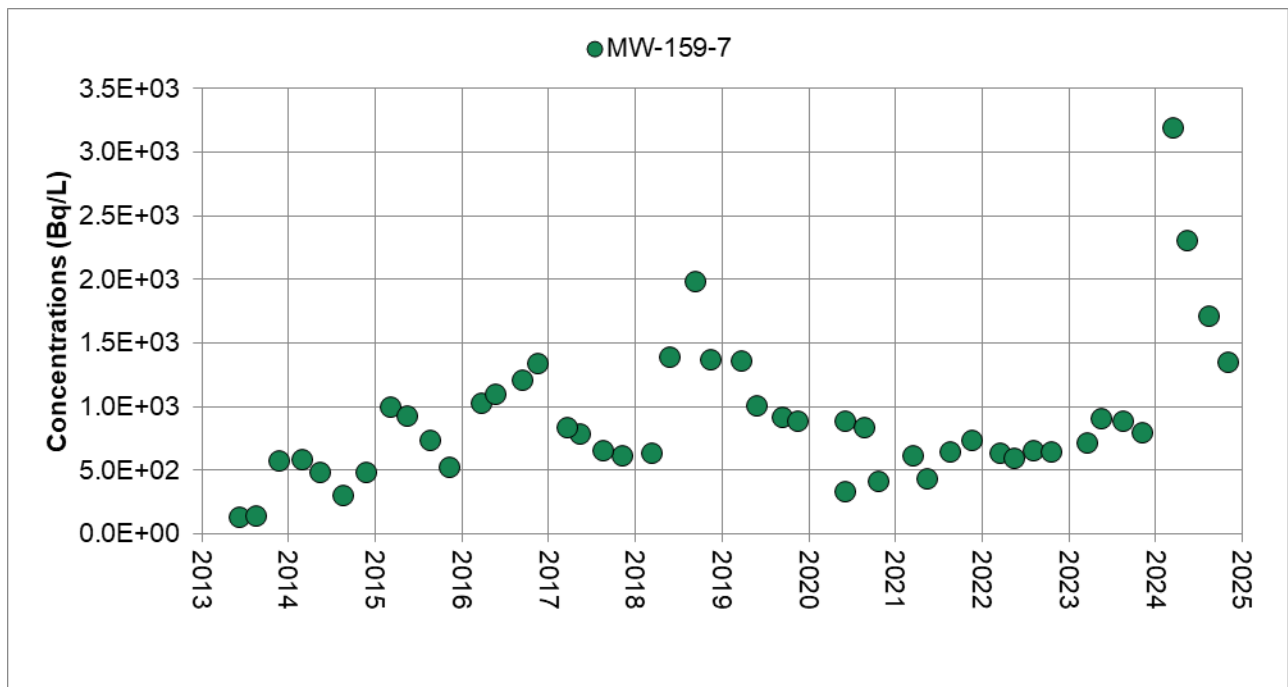
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Graph 13: Tritium Concentrations at MW-156-7



Graph 14: Tritium Concentrations at MW-159-7

Sampling for analysis of PHCs and BTEX was conducted at 9 monitoring wells located downgradient of the SSCs in 2024. The groundwater quality results were non-detect with respect to PHCs and BTEX, with the exception of MW-158-12 (HU 3). The concentration of benzene was marginally above the detection limit but remained well below the risk-based

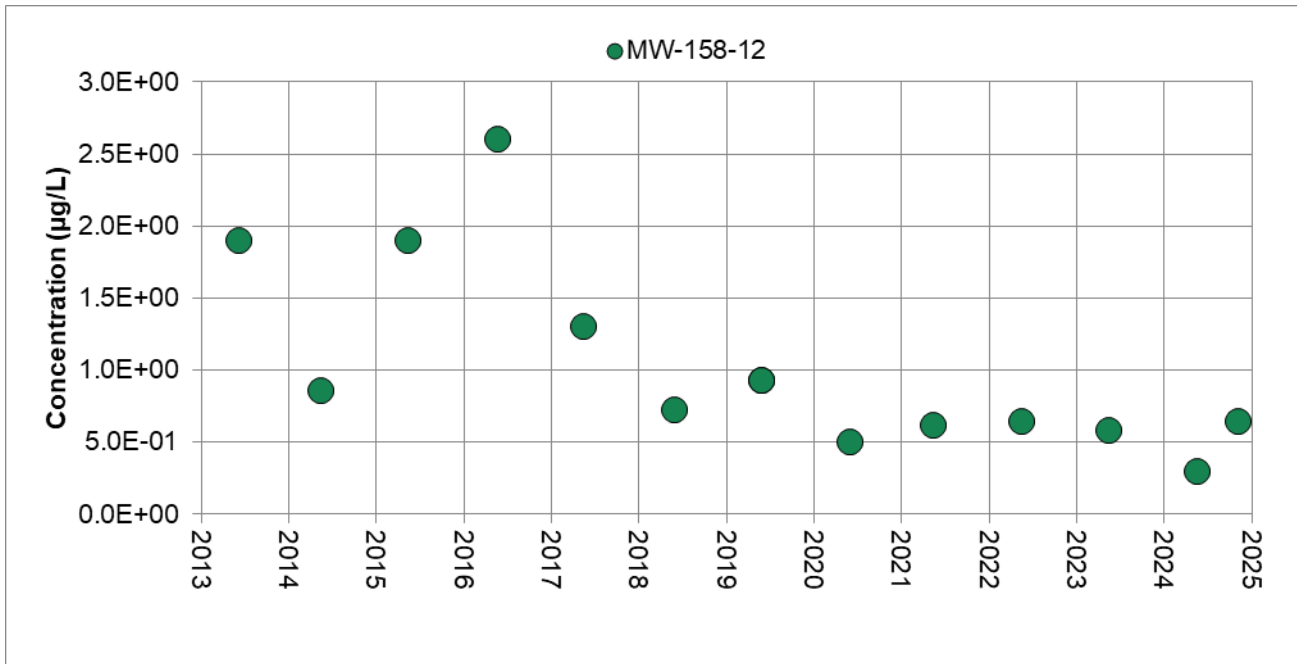
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evaluation criterion, and is consistent with historical concentrations of benzene within this monitoring well. Graph 15 displays the benzene concentrations at MW-158-12.

Overall, low tritium, PHC and BTEX concentrations at site-perimeter locations indicate that the potential for adverse impacts to off-Site groundwater quality from groundwater quality beneath the DNGS is low to negligible.



Graph 15: Benzene Concentrations at MW-158-12

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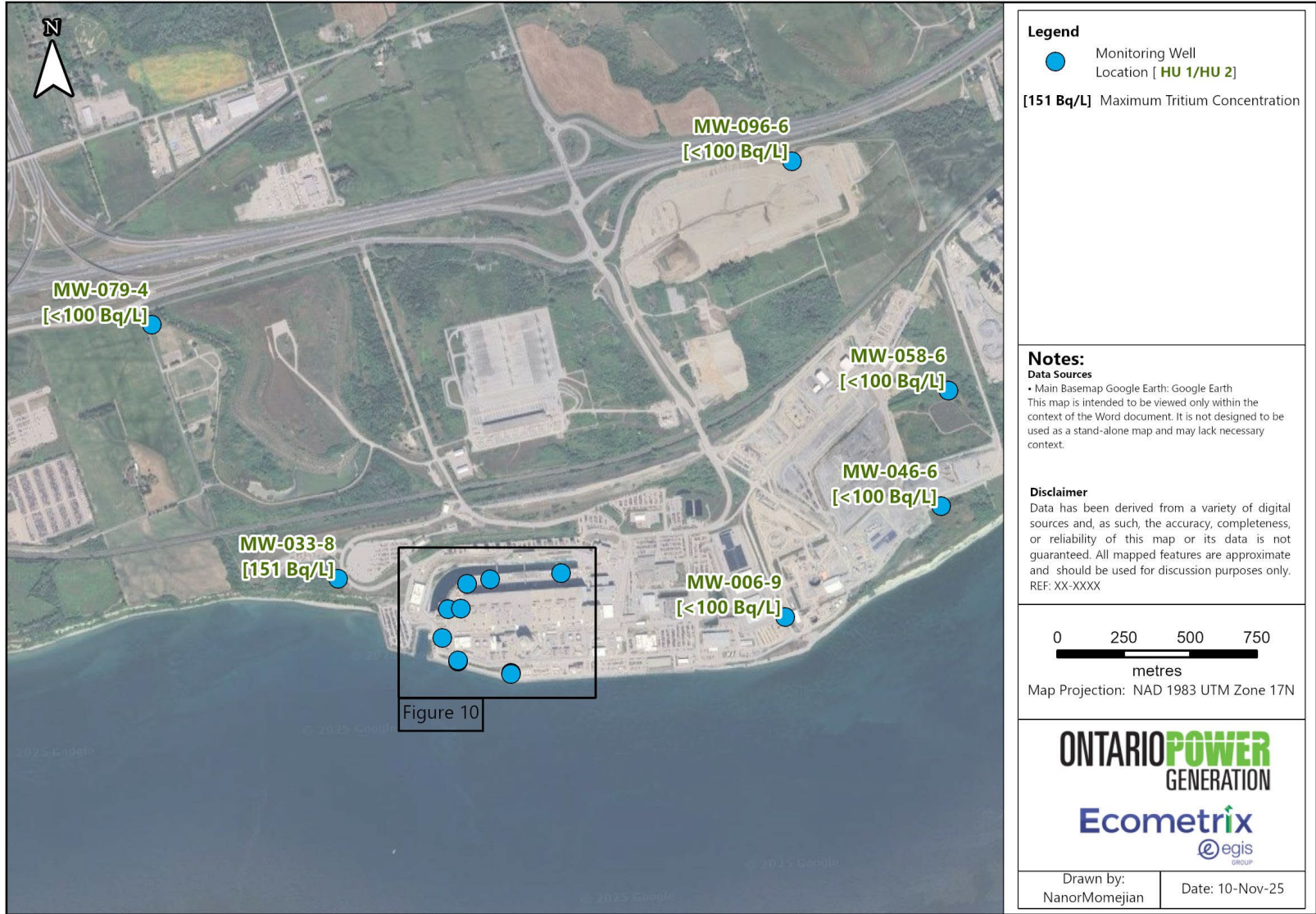


Figure 9: 2024 Maximum Tritium Concentrations in the Perimeter Wells

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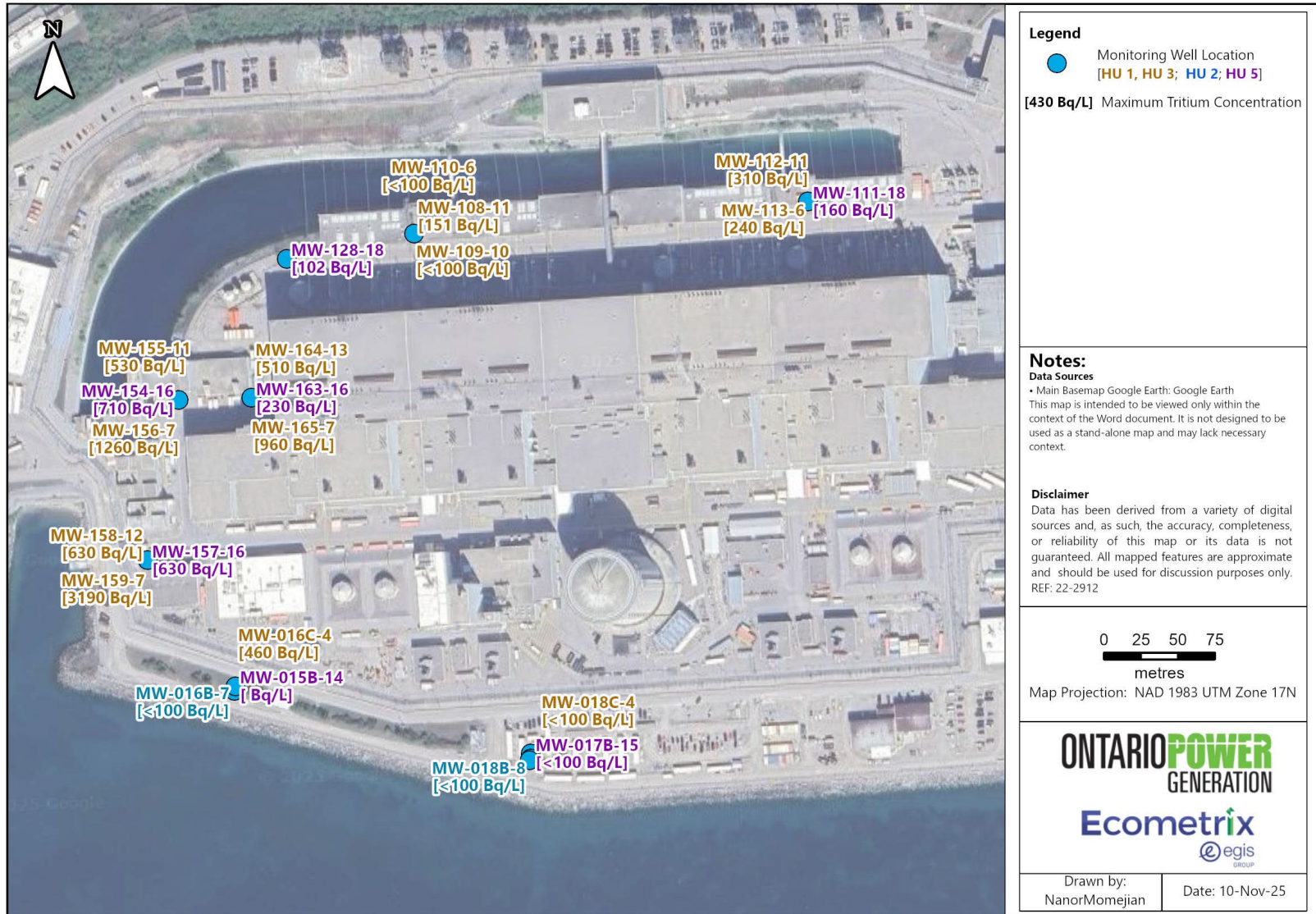


Figure 10: 2024 Maximum Tritium Concentrations in the Protected Area Downgradient Wells

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3.3 Objective 3 Results

The results of the objective to monitor groundwater flow conditions and groundwater quality during site preparation at the DNNP are described in this section.

3.3.1 Groundwater Flow for DNNP

3.3.1.1 Groundwater Contour Plots for DNNP

Groundwater flow directions beneath the DNNP have been included within Site-wide investigations and are verified annually. The hydraulic head contours and interpreted flow directions have not changed significantly over time. The hydraulic head contours are presented by interpreted results based on the measured elevations, and inferred results are extrapolated from the interpreted results as shown in Figure 11 to Figure 16. Meanwhile, the flow directions interpreted for each of the groundwater flow systems between Q2 and Q4 2024 are also shown in Figure 11 to Figure 16. The basis for the inferred groundwater flow directions are hydraulic head measurements collected on May 1, 2024, and October 8, 2024. Average daily lake elevations from May 1, 2024, and October 8, 2024, were used in the HU 1 contour development for Q2 and Q4, respectively. Groundwater contours could not be developed for the intermediate overburden from the Q4 2024 water level measurements as there are insufficient monitoring wells within the central and eastern portions of the DNNP as MW-065-25 and MW-106-29 were decommissioned. However, a review of hydraulic head elevations of the remaining wells installed within HU 2 suggests groundwater flow towards Lake Ontario.

Groundwater flow directions within HU 1, HU 2 and HU 5 are generally south toward Lake Ontario. These groundwater flow conditions are consistent with the historical interpretations of the groundwater flow beneath the DNNP (Ecometrix, 2023b) and between both Q2 and Q4 events in 2024.

3.3.1.2 Hydrographs for DNNP

Hydrographs showing the groundwater elevations calculated from the pressure transducer data measured between September 13 and December 23, 2024, are presented in Appendix B. Available precipitation data from the nearby Oshawa climate station for the same period are also shown in the hydrographs.

Overall, the groundwater elevations remained consistent throughout Q4 2024, with the exception of MW-044-34 and MW-045-10, which demonstrated a steady decline. Periods of slower recovery of the water level following sampling collection were observed in monitoring wells MW-044-34 and MW-045-10. The groundwater elevations decrease slightly following sample collection and recover to pre-sampling elevations after several days.

Based on the groundwater flow interpretations in 2024, there was no adverse impacts to groundwater flow during site preparation activities in 2024.

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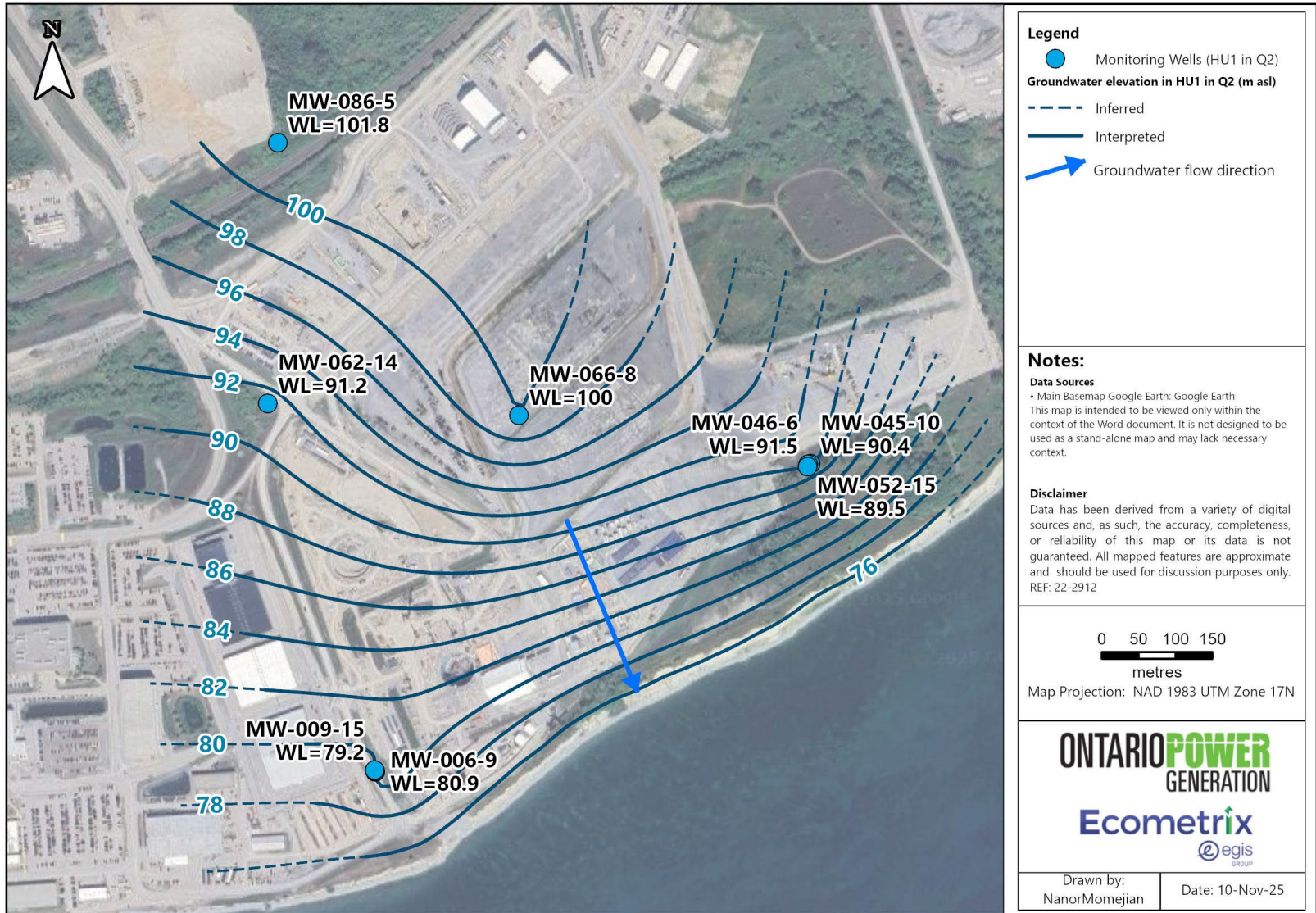


Figure 11: Q2 2024 Water Level Contours – Shallow Overburden (HU1)

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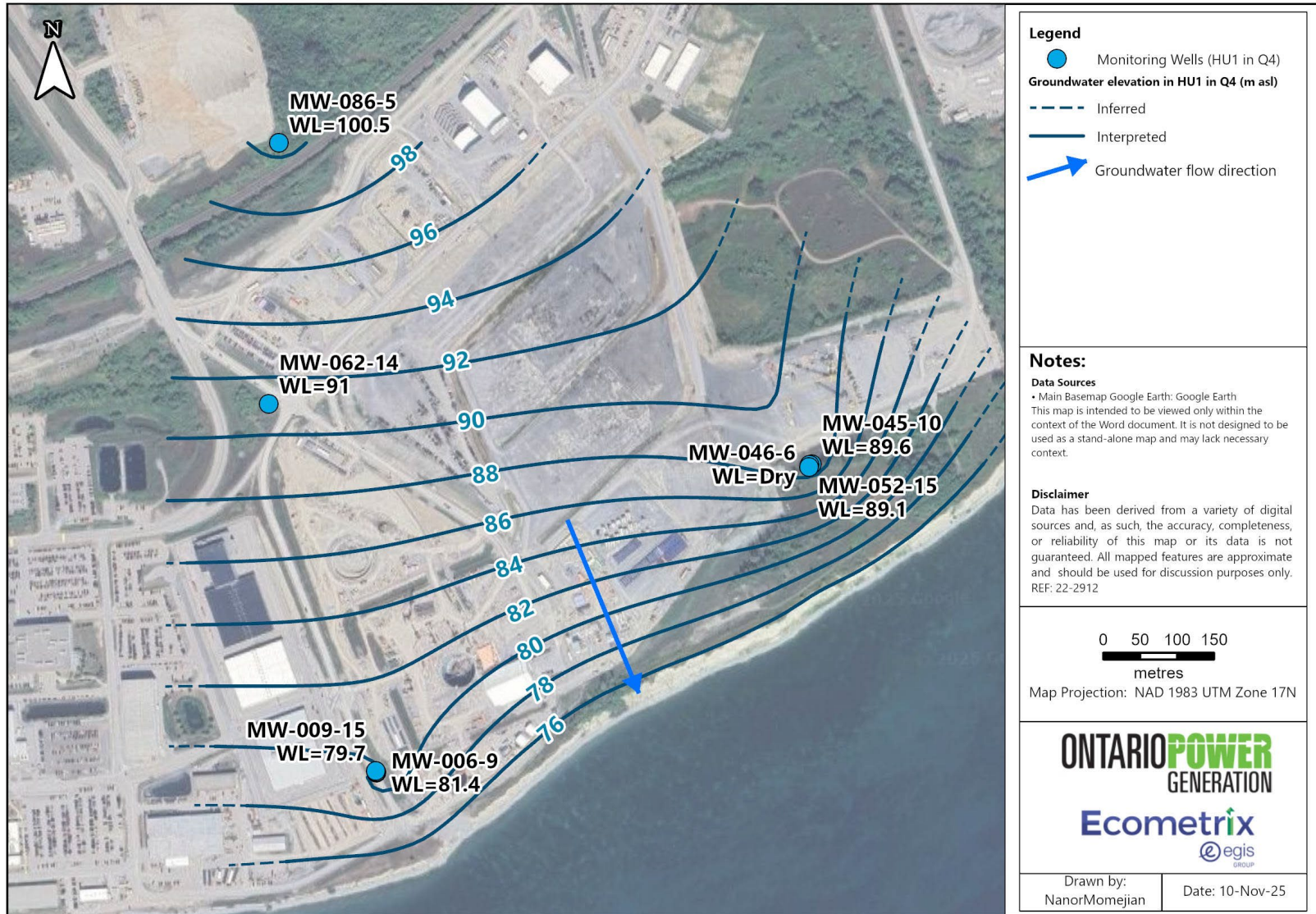


Figure 12: Q4 2024 Water Level Contours – Shallow Overburden (HU1)

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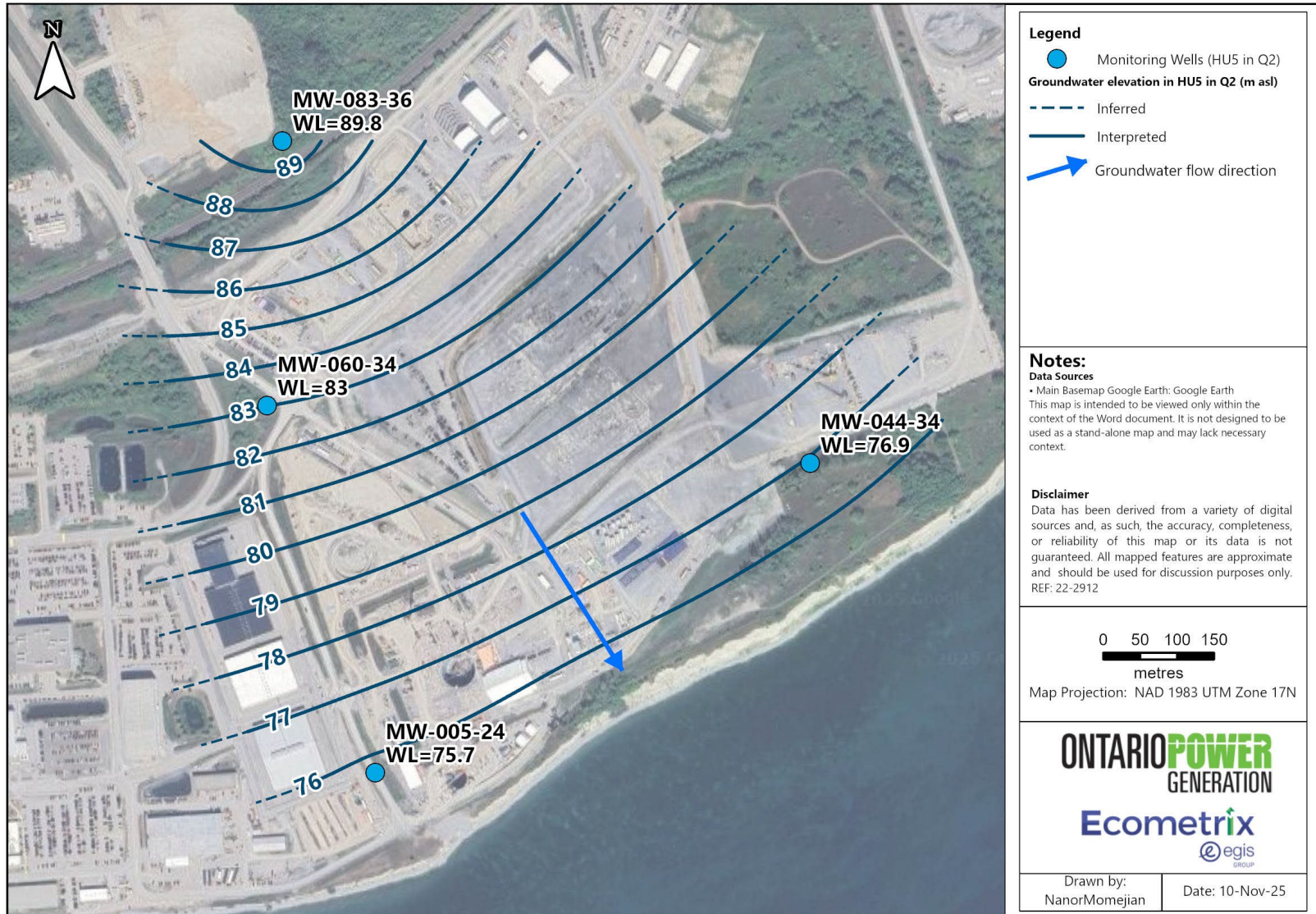


Figure 15: Q2 2024 Water Level Contours – Shallow Overburden (HU 5)

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3.3.2 Groundwater Quality

3.3.2.1 Hydrochemistry for DNNP

In 2024, 23 monitoring wells were sampled for the analysis of indicator parameters ions (Na^+ , Ca^{2+} , Mg^{2+} , K^+ , HCO_3^- , CO_3^{2-} , Cl^- , SO_4^{2-} , and dissolved Fe^{2+}) and general parameters (pH, EC, TDS).

The hydrochemical types for sample results reported during pre-site preparation (PSP) conditions as well as in 2024 from monitoring wells installed in HU 1, HU 2, HU 3 and HU 5 are shown in Figure 17, Figure 18, Figure 19 and Figure 20, respectively. Sample results for PSP conditions are noted with the suffix "PSP".

Groundwater samples from HU 1 and HU 2 were rich in calcium, magnesium, bicarbonate and chloride, and reflected freshwater recharging the overburden aquifers. Available sample results from HU 3 were rich in sodium and bicarbonate. Groundwater samples from HU 5 were rich in sodium and potassium as well as chloride, sulphate, and bicarbonate.

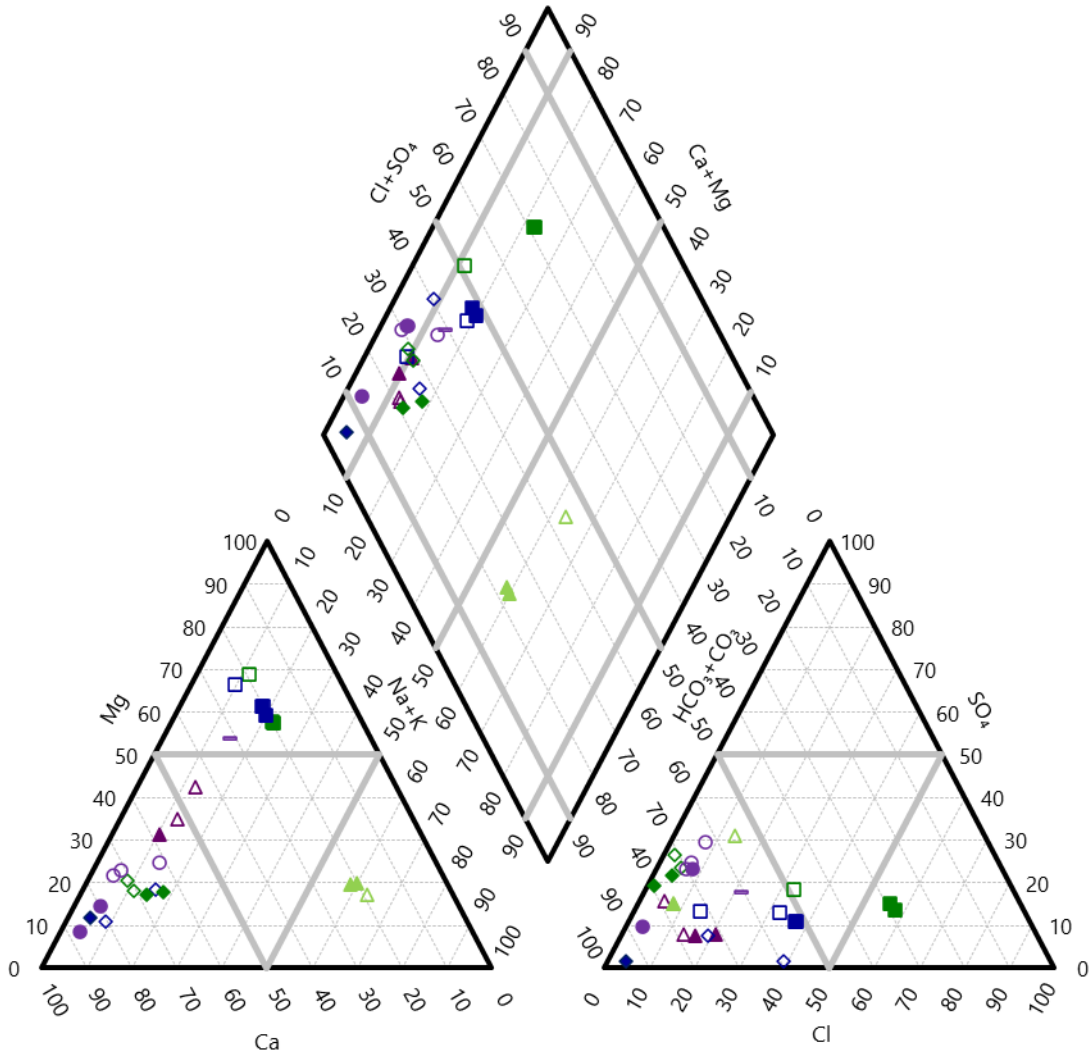
Groundwater hydrochemistry is generally consistent with PSP conditions.

Overall, there have not been any significant shifts in hydrochemical type in the three primary groundwater flow systems at the DNNP since PSP conditions.

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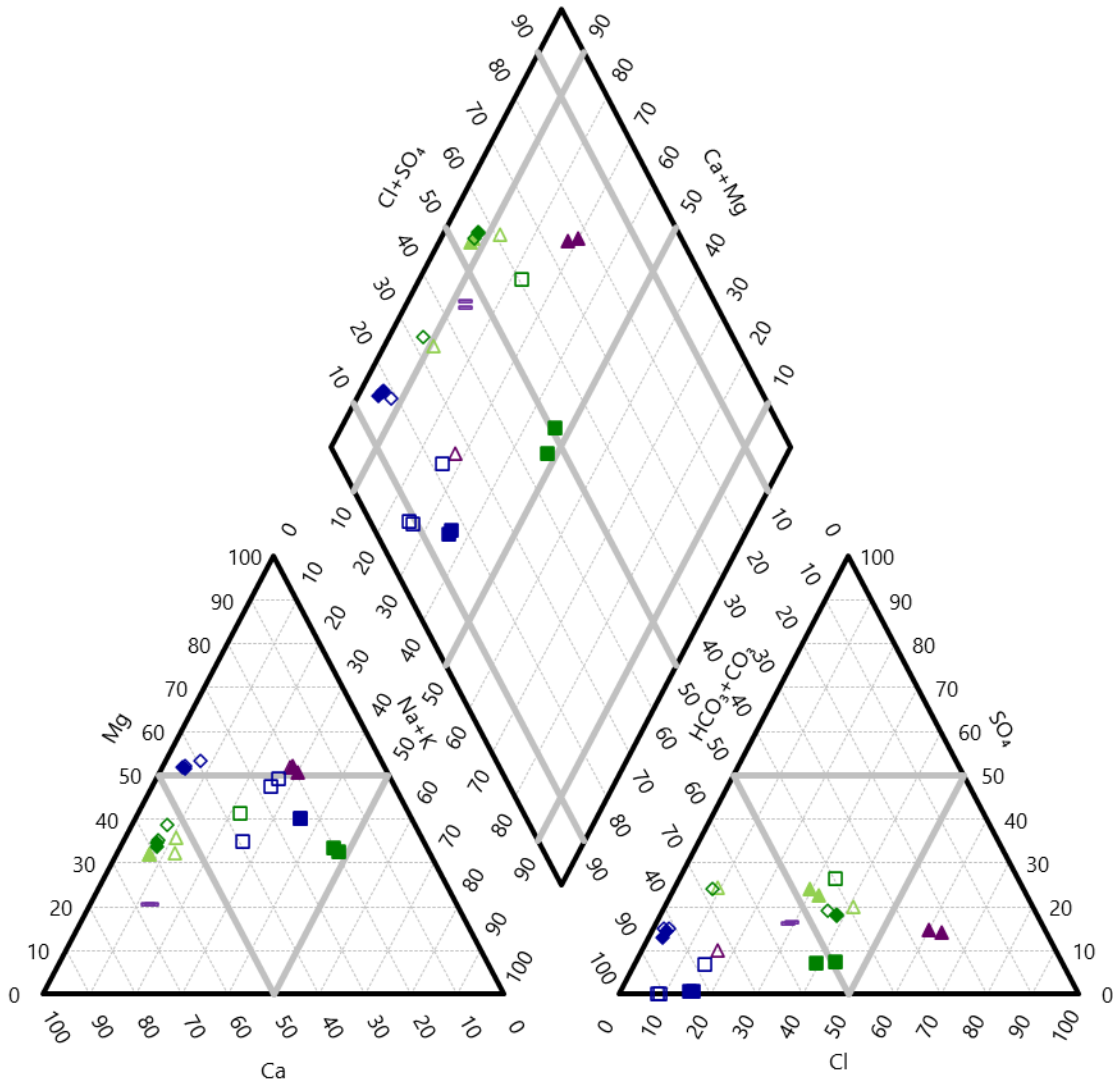
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- ◇ MW-046-6_PSP ▲ MW-052-15_2024 ▲ MW-052-15_PSP ■ MW-062-14_2024 □ MW-062-14_PSP
- ◆ MW-066-8_2024 ◇ MW-066-8_PSP ● MW-086-5_2024 ○ MW-086-5_PSP - MW-177_2024

Figure 17: Piper Diagram – Available Sample Results from HU 1 Wells in DNNP

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- MW-008-20_2024 □ MW-008-20_PSP ▲ MW-009-15_2024 △ MW-009-15_PSP ◆ MW-061-20_2024
- ◇ MW-061-20_PSP ▲ MW-065-25_2024 △ MW-065-25_PSP ■ MW-085-25_2024 □ MW-085-25_PSP
- ◆ MW-106-29_2024 ◇ MW-106-29_PSP - MW-194_2024

Figure 18: Piper Diagram – Available Sample Results from HU 2 Wells in DNNP

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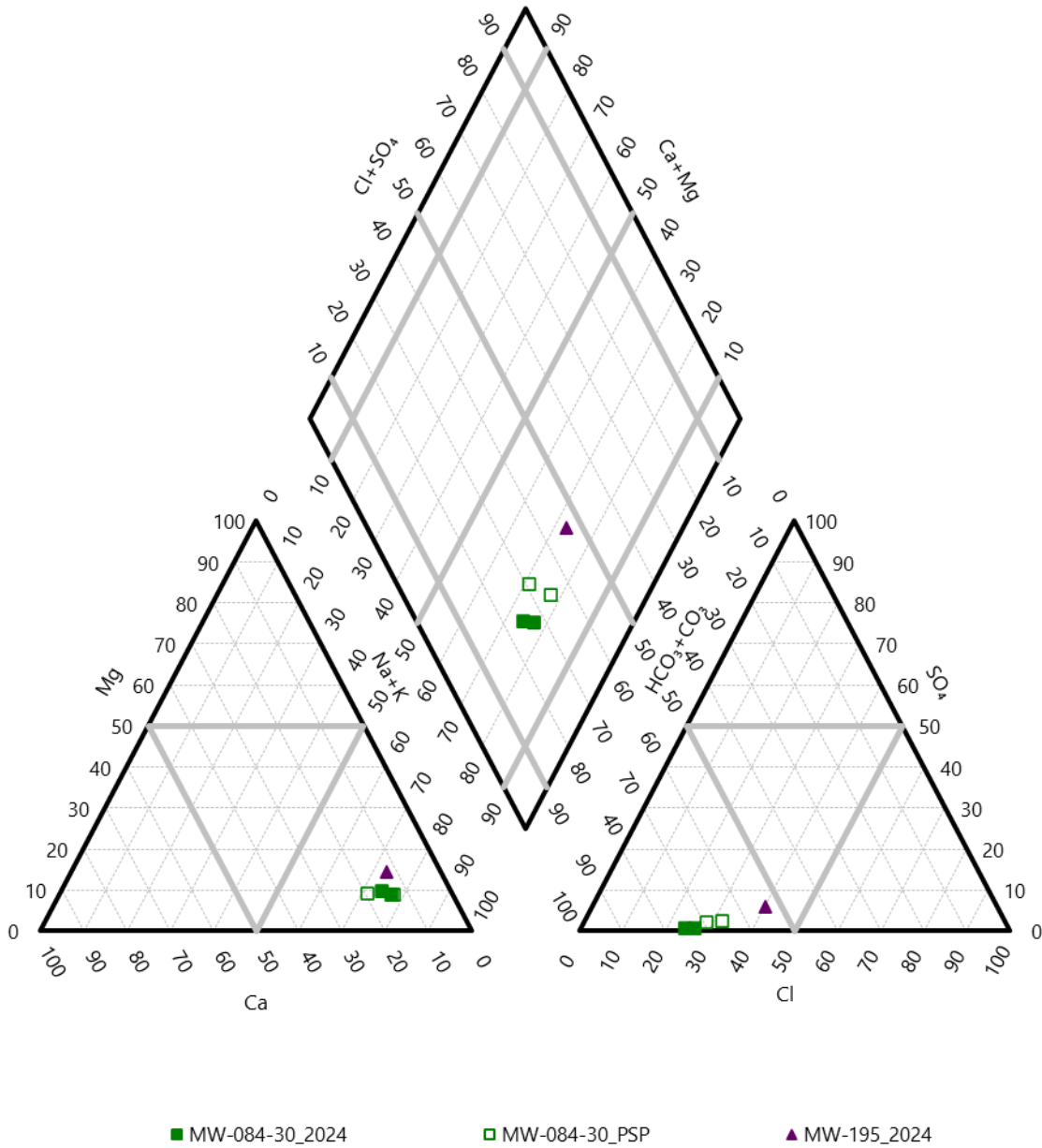


Figure 19: Piper Diagram – Available Sample Results from HU 3 Wells in DNNP

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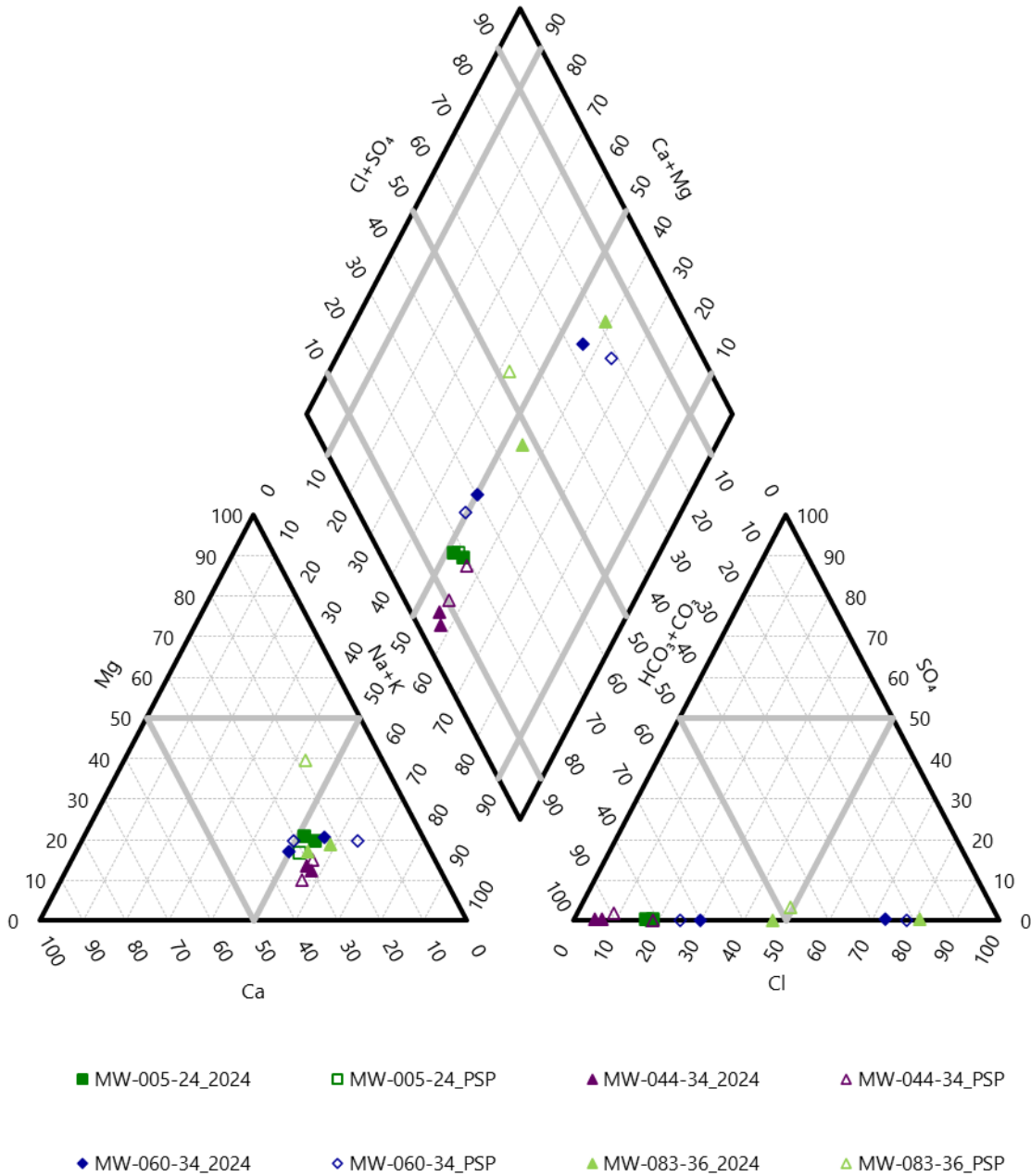


Figure 20: Piper Diagram – Available Sample Results from HU 5 Wells in DNNP

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3.3.2.2 PHCs and BTEX

Sample results for PHCs F1 to F4 and BTEX compounds were reviewed for 2024. In general, sample results generally remained at or below detection limits.

Groundwater evaluation criteria have been established for PHCs F1 to F4 and BTEX compounds and provided by the DN GWPMP. All sample results from 2024 met the evaluation criteria.

3.4 Objective 4 Results

The results of the objective to confirm predominant on-site groundwater flow characteristics across the Site are described in this section.

The predominant groundwater flow patterns in 2024 remain consistent with the historical interpretations of groundwater flow conditions, as shown in Figure 21, and are summarized as follows:

- In general, groundwater in HU 1 flows from north to south and is inferred to discharge to Lake Ontario.
- The northeastern portion of the Site has a component of groundwater flow directed to the east, and then southeast towards Lake Ontario and is interpreted to be influenced by the dewatering activities at the St. Mary's Cement property bounding the east of the Site.
- General flow in the interglacial deposits (HU 2) and the shallow bedrock (HU 5) is similar to that of the water table in the fill/upper till (HU 1) described above.
- Groundwater flow direction is complex within the protected area in HU PA, and HU 5 due to Site infrastructure as detailed below:
 - The powerhouse extends to the bedrock and acts as a barrier to groundwater flow; therefore, groundwater flow at the water table on the north side of the powerhouse may not be connected to or may be poorly connected to groundwater flow at the water table on the south side of the powerhouse.
 - Groundwater on the west side of the powerhouse is interpreted to discharge into the Forebay Channel as the condenser cooling water pumps lower the Forebay Channel water level, creating a hydraulic gradient directed to the Forebay Channel.
 - Based on the groundwater elevations measured in Q2 2024, groundwater flow direction interpretations could be inferred to be that groundwater generally flows west along the south of the powerhouse and north into the Forebay Channel. A component of groundwater flow is also directed south to Lake Ontario.

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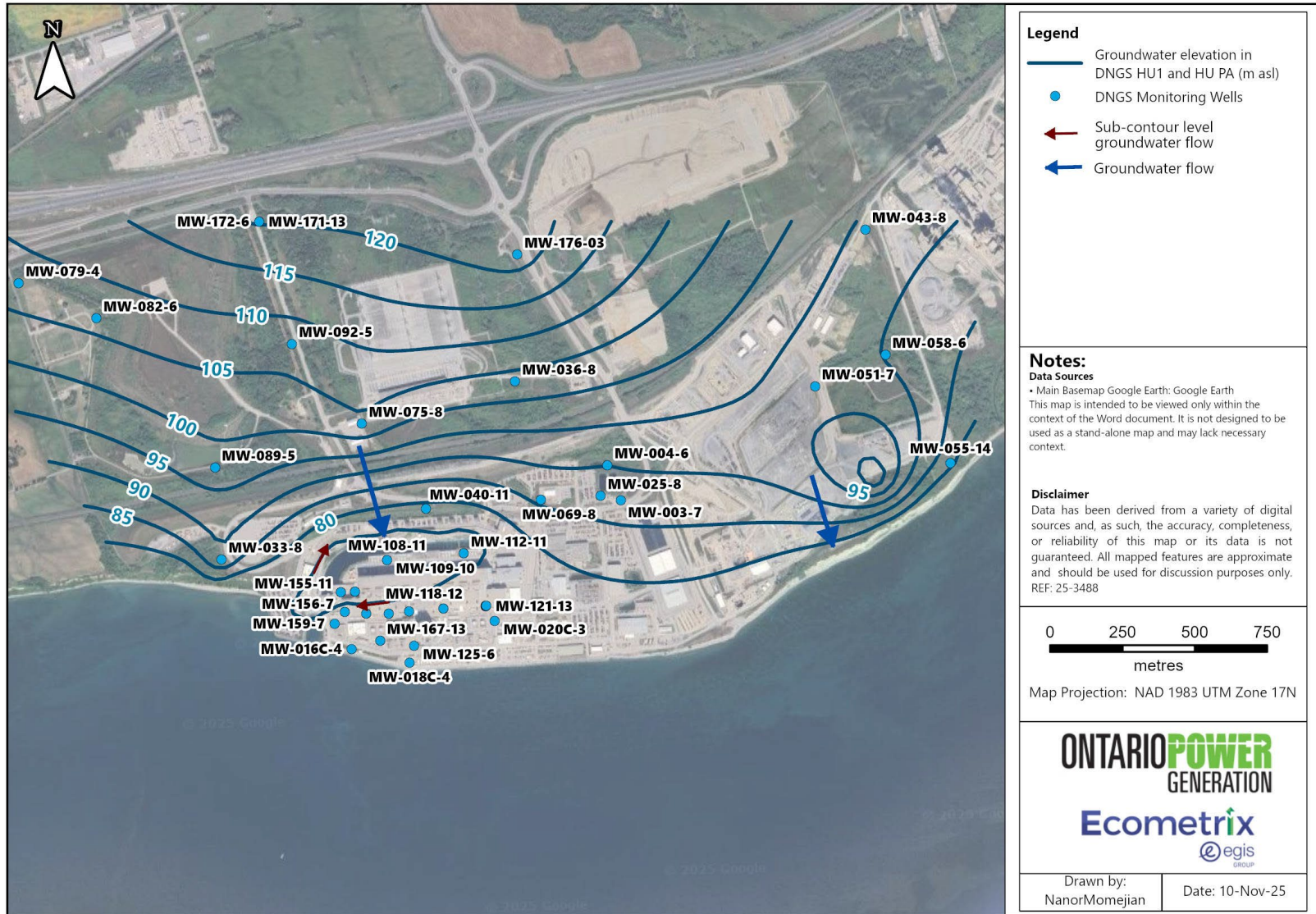


Figure 21: 2024 Inferred Shallow Groundwater (HU 1 and HU PA) Flow Direction

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4.0 2024 PROGRAM QUALITY ASSURANCE/QUALITY CONTROL

The Quality Assurance and Quality Control (QA/QC) for the groundwater monitoring program encompasses all activities associated with the field sample collection, laboratory analysis and laboratory quality control. The objective is to provide confidence in the interpretation of the groundwater monitoring data through a systematic and documented process.

4.1 Quality Assurance Program for Laboratories

Bureau Veritas is accredited with International Standards Organization 17025 by the Standards Council of Canada for environmental tests. The methodology for analysis including detection limits for many conventional parameters in groundwater is governed by criteria established in the Ministry of Environment, Conservation and Parks' (MECP) "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" (MECP, 2021). Bureau Veritas has a Quality Assurance Department, which routinely monitors procedures and processes by way of compliance audits, quality system audits and method audits to ensure compliance with accreditation and regulatory requirements. Bureau Veritas is also accredited by the Standards Council of Canada for radiological tests, including analysis of tritium concentrations in water.

4.2 Quality Control Results

Duplicates, field blanks, and trip blanks were collected at a prescribed frequency to measure sampling and analytical performance.

In 2024, field duplicate samples were collected from 13 monitoring wells. The analytical results and calculated relative percentage differences (RPD) are presented in Table A-7a (Appendix A). All RPDs calculated were below 20% with the exception of one pairing for carbonate alkalinity (collected at MW-066-8 in Q2 and MW-085-25 in Q4) and dissolved iron (MW-106-29 in Q3). In general, the duplicate samples were deemed of acceptable quality, demonstrating that the field techniques and the analytical methods employed by the laboratories were reproducible and reliable.

Field blanks and trip blanks were part of the quality program where PHCs and BTEX were measured. All field blank results were non-detect for those parameters. Therefore, no significant contamination of samples by those parameters occurred during the sample collection process. Similarly, PHCs and BTEX were at non-detect levels in the trip blank samples analyzed indicating that there was no contamination of the samples by those parameters during handling and transportation.

The QA/QC calculations and results discussed above are presented in Table A-7a and Table A-7b (Appendix A).

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5.0 SUPPLEMENTARY STUDIES AND AUDITS

5.1 PHCs and BTEX in Perimeter Wells

The Oily Water Collection System (OWCS) collects water containing oil from various locations across the Site, including the Turbine Auxiliary Bay (TAB) transformer locations that include the Main Output Transformer, System Service Transformer, Distribution Transformer and Lube Oil Tank. A supplementary study was conducted in 2024 on groundwater downgradient of the OWCS to ensure there is no risk to the environment from the operations of the OWCS.

Samples were collected from 7 perimeter wells located downgradient of the OWCS, and submitted for PHC and BTEX analyses. The analytical results are provided in Table A-6b (Appendix A). The concentrations of PHCs and BTEX were below the detection limits from the monitoring wells within the HU PA. Detectable concentrations of BTEX and PHC F1 were observed in HU 5 at MW-111-18 and MW-128-18. The concentrations observed within HU 5 are consistent with the naturally occurring concentrations associated with the petroliferous bedrock and not from the OWCS. No additional migration of water containing oil associate with the historical corroded pipe at the OWCS is anticipated; therefore, no future groundwater sampling is required.

5.2 Dissolved Methane At DNNP

Some monitoring wells that intersect the petroliferous bedrock at the Site are expected to accumulate naturally formed methane gas within the well headspace. During the groundwater monitoring events conducted for the DNNP, measured concentrations of methane vapour within the well headspaces exceeded the 10% lower explosive limit (LEL) threshold at MW-005-24 (during Q2 and Q4), MW-044-34 (during Q2) and MW-009-15 (during Q4). Monitoring wells MW-005-24 and MW-044-34 are installed within the upper bedrock, similar to MW-060-34, which has been known to contain methane within the well headspace. MW-009-15 is cross-completed between the interglacial deposit (HU 2) and upper till (HU 1), indicating that elevated methane concentrations are observed in the headspace of wells installed in shallower HUs.

To gain insight into the increases in methane vapour concentrations groundwater samples were collected and analyzed for dissolved methane from the wells with well headspaces exceeding the threshold of 10% LEL in Q2 and Q4. Samples were also collected from a reference well (MW-106-29 in Q2 and MW-061-20 in Q4) that has no significant methane concentration increase during each sampling event. A sample was intentionally not collected from MW-060-34 in Q2, since concentrations of methane within the well headspace are historically known to exceed 10% of the LEL. However, during the sampling event for Q4 2024, a sample was collected and analyzed for dissolved methane from this well for the first time in 2024 for comparison with the wells where methane concentrations are elevated.

The analytical results for the groundwater samples submitted for dissolved methane are provided in Table 1. Dissolved methane concentrations appear to be elevated by approximately one to two orders of magnitude in MW-005-24, MW-009-15, MW-044-34 and MW-060-34 compared to the reference locations of MW-061-20 and MW-106-29, where low concentrations of methane vapour were observed.

There are currently no provincial or federal groundwater quality guidelines for dissolved methane. Historically, a dissolved methane guideline of 3 L/m³ was listed as an aesthetic Ontario drinking water quality objective (Ontario Ministry of Environment, 2003). Groundwater on Site is largely expected to discharge into Lake Ontario and is then expected to dissipate into the atmosphere once it is discharged into a surface water body.

Table 1: Dissolved Methane Analytical Results

Well ID	Dissolved Methane (L/m ³)	Laboratory Calculated Dissolved Methane (mg/L)
Q2 2024 Results		
MW-005-24	23	15
MW-044-34	18	12
MW-106-29 (reference location)	0.039	0.026
Q4 2024 Results		
MW-005-24	33	22
MW-009-15	6.5	4.3
MW-060-34	15	9.7
MW-061-20 (reference location)	0.18	0.12

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6.0 NOMENCLATURE OF SAMPLING LOCATIONS

Sampling Location Type	Identifier	Explanation of Nomenclature
Monitoring Well (MW)	MWXXX-YY	XXX represents a unique identifier YY represents the depth of the monitoring well in metres

7.0 ACRONYMS

ALW	Active Liquid Waste
ASHF	Auxiliary Steam Heating Facility
Bq/L	Becquerel per Litre
BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
DN	Darlington Nuclear
DNGS	Darlington Nuclear Generating Station
DNNP	Darlington New Nuclear Project
EC	Electrical Conductivity
EPS	Emergency Power Service
F1 to F4	Fractions 1 to 4
GWPMP	Groundwater Protection and Monitoring Program
HU	Hydrostratigraphic Unit
HWMB	Heavy Water Management Building
IJC	International Joint Commission
ISO	International Standards Organization
LEL	Lower Explosive Limit
L/m ³	Litre per cubic metre
m	metre
m asl	metre above sea level
MECP	Ministry of Environment, Conservation and Parks
mg/L	milligram per Litre
MW	Monitoring Well
OPG	Ontario Power Generation Inc.
PA	Protected Area
PHC	Petroleum Hydrocarbon
PSP	Pre-Site Preparation
Q#	Quarters of the Year
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percentage Difference
SAP	Sampling and Analysis Plan
SG	Standby Generator
SSC	Systems, Structures and Components
TDS	Total Dissolved Solids
TRF	Tritium Removal Facility

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Appendix A: Tables A 1 to A 7

Table A 1: 2024 Powerhouse, ALW collection and treatment system, HWMV and TRF Tritium Results

Sample Location Name	Frequency	Analysis Parameter	HU	Q1 (Bq/L)	Q2 (Bq/L)	Q3 (Bq/L)	Q4 (Bq/L)
MW-114A-18	Annual	Tritium	HU 5	--	790	--	--
MW-115-12	Quarterly	Tritium	HU PA	730	890	1,010	970
MW-116-6	Quarterly	Tritium	HU PA	820	820	840	830
MW-117-18	Annual	Tritium	HU 5	--	460	--	--
MW-118-12	Quarterly	Tritium	HU PA	640	700	710	630
MW-119-6	Quarterly	Tritium	HU PA	710	750	690	640
MW-120-18	Annual	Tritium	HU 5	--	490	--	--
MW-121-13	Semi-Annual	Tritium	HU PA	--	550	--	510
MW-122-4	Semi-Annual	Tritium	HU PA	--	480	--	490
MW-123-18	Annual	Tritium	HU 5	--	157	--	--
MW-124-13	Quarterly	Tritium	HU 2	<100	<100	<100	<100
MW-125-6	Quarterly	Tritium	HU PA	280	320	270	170
MW-144-7	Quarterly	Tritium	HU PA	1,030	890	700	630
MW-151-16	Annual	Tritium	HU 5	--	950	--	--
MW-152-12	Quarterly	Tritium	HU PA	790	970	940	920
MW-153-7	Quarterly	Tritium	HU PA	1,260	1,340	1,430	1,310

Notes:

-- denotes that samples were not required

< denotes that result is below the laboratory method detection limit

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Table A 2: 2024 Building Effluent Lagoon

Sample Location Name	Frequency	Analysis Parameter	HU	Q1 (Bq/L)	Q2 (Bq/L)	Q3 (Bq/L)	Q4 (Bq/L)
MW-003-7	Semi-Annual	Tritium	HU 1/ HU 2	--	210	--	190
MW-004-6	Annual	Tritium	HU 1/ HU 2	--	350	--	--
MW-025-8	Semi-Annual	Tritium	HU 1/ HU 2	--	240	--	270

Notes:

-- denotes that samples were not required

< denotes that result is below the laboratory method detection limit

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Table A 3: 2024 EPS/EPG, SG and AHSF BTEX and Petroleum Hydrocarbon Results

Parameter	MW-118-12	MW-119-6	MW-125-6		MW-152-12		MW-153-7		MW-161-12	MW-162-7
	Q2	Q2	Q2	Q4	Q2	Q4	Q2	Q4	Q2	Q2
HU	HU PA	HU PA	HU PA		HU PA		HU PA		HU 3	HU 3
Benzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
PHC F1 (C6-C10) - BTEX	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (C10-C16 Hydrocarbons)	<100	<100	<100	<90	<100	<90	<100	<90	<100	<100
PHC F3 (C16-C34 Hydrocarbons)	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (C34-C50 Hydrocarbons)	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200

Parameter	MW-167-13		MW-168-7	
	Q2	Q4	Q2	Q4
HU	HU PA		HU PA	
Benzene	0.21	<0.2	<0.2	<0.2
Toluene	0.28	0.39	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	<0.2	<0.2
Total Xylenes	<0.4	<0.4	<0.4	<0.4
PHC F1 (C6-C10) - BTEX	<25	<25	<25	<25
PHC F2 (C10-C16 Hydrocarbons)	<100	<90	<100	<90
PHC F3 (C16-C34 Hydrocarbons)	<200	<200	<200	<200
PHC F4 (C34-C50 Hydrocarbons)	<200	<200	<200	<200

Notes:

Units are in µg/L

-- denotes that samples were not required

< denotes that result is below the laboratory method detection limit

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Table A 4: 2024 Upgradient Perimeter Wells Tritium Results

Sample Location Name	Frequency	Analysis Parameter	HU	Q1 (Bq/L)	Q2 (Bq/L)	Q3 (Bq/L)	Q4 (Bq/L)
MW-006-9	Annual	Tritium	HU 1	--	<100	--	--
MW-033-8	Annual	Tritium	HU 1	--	151	--	--
MW-046-6	Annual	Tritium	HU 5	--	<100	--	--
MW-058-6	Annual	Tritium	HU 1	--	<100	--	--
MW-079-4	Annual	Tritium	HU 1	--	<100	--	--
MW-096-6	Annual	Tritium	HU 1	--	<100	--	--

Notes:

-- denotes that samples were not required

< denotes that result is below the laboratory method detection limit

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Table A 5a: 2024 Downgradient Perimeter Wells Tritium Results

Sample Location Name	Frequency	Analysis Parameter	HU	Q1 (Bq/L)	Q2 (Bq/L)	Q3 (Bq/L)	Q4 (Bq/L)
MW-015B-14	Annual	Tritium	HU 5	--	<100	--	--
MW-016B-7	Annual	Tritium	HU 2	--	<100	--	<100
MW-016C-4	Annual	Tritium	HU 1	--	450	--	430
MW-017B-15	Annual	Tritium	HU 5	--	<100	--	<100
MW-018B-8	Annual	Tritium	HU 2	--	<100	--	<100
MW-018C-4	Annual	Tritium	HU 1	--	<100	--	<100
MW-108-11	Quarterly	Tritium	HU PA	<100	151	<100	<100
MW-109-10	Quarterly	Tritium	HU PA	<100	<100	<100	<100
MW-110-6	Quarterly	Tritium	HU PA	<100	<100	<100	<100
MW-111-18	Annual	Tritium	HU 5	--	160	--	122
MW-112-11	Quarterly	Tritium	HU PA	230	270	300	240
MW-113-6	Quarterly	Tritium	HU PA	210	240	230	220
MW-128-18	Annual	Tritium	HU 5	102	<100	<100	<100
MW-154-16	Annual	Tritium	HU 5	143	710	230	470
MW-155-11	Quarterly	Tritium	HU PA	510	520	520	530
MW-156-7	Quarterly	Tritium	HU PA	740	960	1,260	1,140
MW-157-16	Annual	Tritium	HU 5	570	--	630	--
MW-158-12	Quarterly	Tritium	HU 3	114	117	120	112
MW-159-7	Quarterly	Tritium	HU PA	3,190	2,300	1,710	1,350
MW-163-16	Annual	Tritium	HU 5	<100	230	<100	162
MW-164-13	Quarterly	Tritium	HU PA	280	510	400	350
MW-165-7	Quarterly	Tritium	HU PA	780	820	960	780

Notes:

- NA denotes that sample could not be collected and no result is available
- denotes that samples were not required
- < denotes that result is below the laboratory method detection limit

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Table A5b: 2024 Downgradient Perimeter Wells PHC and BTEX Results

Parameter	Background	Evaluation Criteria	MW-016B-7		MW-016C-4		MW-018B-8		MW-155-11			
			Q2	Q4	Q2	Q4	Q2	Q4	Q1	Q2	Q3	Q4
Benzene	0.5	4,600	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2
Ethylbenzene	0.5	1,800	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2
Toluene	0.8	14,000	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2
Total Xylenes	72	3,300	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.40	<0.4	<0.4	<0.4
PHC F1 (C6-C10) - BTEX	420	420	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (C10-C16 Hydrocarbons)	150	170	<100	<90	<100	<90	<100	<90	<100	<100	<100	<90
PHC F3 (C16-C34 Hydrocarbons)	500	500	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (C34-C50 Hydrocarbons)	500	500	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200

Parameter	Background	Evaluation Criteria	MW-156-7				MW-158-12		MW-159-7			
			Q1	Q2	Q3	Q4	Q2	Q4	Q1	Q2	Q3	Q4
Benzene	0.5	4,600	<0.20	<0.2	<0.2	<0.2	0.30	0.64	<0.20	<0.2	<0.2	<0.2
Ethylbenzene	0.5	1,800	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2
Toluene	0.8	14,000	<0.20	<0.2	<0.2	<0.2	<0.2	0.32	<0.20	<0.2	<0.2	<0.2
Total Xylenes	72	3,300	<0.40	<0.4	<0.4	<0.4	<0.4	<0.4	<0.40	<0.4	<0.4	<0.4
PHC F1 (C6-C10) - BTEX	420	420	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (C10-C16 Hydrocarbons)	150	170	<100	<100	<100	<90	<100	<90	<100	<100	<100	<90
PHC F3 (C16-C34 Hydrocarbons)	500	500	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (C34-C50 Hydrocarbons)	500	500	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200

Parameter	Background	Evaluation Criteria	MW-164-13				MW-165-7				MW-018C-4	
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q2	Q4
Benzene	0.5	4,600	<0.20	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	NA
Ethylbenzene	0.5	1,800	<0.20	<0.2	<0.2	0.51	<0.20	<0.2	<0.2	<0.2	<0.2	NA
Toluene	0.8	14,000	<0.20	<0.2	<0.2	0.90	<0.20	<0.2	<0.2	<0.2	<0.2	NA
Total Xylenes	72	3,300	<0.40	<0.4	<0.4	5.2	<0.40	<0.4	<0.4	<0.4	<0.4	NA
PHC F1 (C6-C10) - BTEX	420	420	<25	<25	<25	37	<25	<25	<25	<25	<25	NA
PHC F2 (C10-C16 Hydrocarbons)	150	170	<100	<100	<100	<90	<100	<100	<100	<90	<100	NA
PHC F3 (C16-C34 Hydrocarbons)	500	500	<200	<200	<200	<200	<200	<200	<200	<200	<200	NA
PHC F4 (C34-C50 Hydrocarbons)	500	500	<200	<200	<200	<200	<200	<200	<200	<200	<200	NA

Notes:

Units are in µg/L

< denotes that result is below the laboratory method detection limit

NA denotes that sample could not be collected and no result is available

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Table A 6: 2024 DNNP Groundwater Indicator Parameter Results

Parameter	Units	MW-005-24		MW-006-9		MW-007-2		MW-008-20	
		09-05-24	11-10-24	09-05-24	11-10-24	09-05-24	11-10-24	09-05-24	11-10-24
<i>Dissolved Metals</i>									
Calcium	µg/L	34,300	29,300	47,400	49,800	NA	NA	20,500	22,700
Iron	µg/L	100	126	38	242	NA	NA	148	113
Magnesium	µg/L	15,600	13,600	82,700	88,200	NA	NA	20,600	22,800
Potassium	µg/L	1,810	1,530	1,740	1,740	NA	NA	1,130	1,020
Sodium	µg/L	72,000	69,600	60,100	65,100	NA	NA	56,500	59,500
<i>General Parameters</i>									
Alkalinity (Total as CaCO ₃)	µg/L	240	250	200	200	NA	NA	140	160
Bicarbonate Alkalinity (as CaCO ₃)	µg/L	240	240	190	200	NA	NA	140	160
Carbonate Alkalinity (as CaCO ₃)	µg/L	2.3	3.2	2.9	1.9	NA	NA	1.2	1.4
Chloride	µg/L	29,000	35,000	220,000	240,000	NA	NA	61,000	84,000
Conductivity	µmho/cm	550	550	1,200	1,300	NA	NA	510	620
pH	Unitless	8.00	8.15	8.20	8.01	NA	NA	7.94	7.98
Sulphate (SO ₄)	mg/L	<1.0	<1.0	80	76	NA	NA	15	19
Total Dissolved Solids	mg/L	290	335	750	1,110	NA	NA	250	320
Benzene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	NA	<0.2	<0.2
Ethylbenzene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	NA	<0.2	<0.2
Toluene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	NA	<0.2	<0.2
Total Xylenes	µg/L	<0.4	<0.4	<0.4	0.42	<0.4	NA	<0.4	<0.4
PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	<25	<25	<25	NA	<25	<25
PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<90	<100	<90	<100	NA	<100	<90
PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	<200	<200	<200	NA	<200	<200
PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	<200	<200	<200	NA	<200	<200

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Parameter	Units	MW-106-29		MW-177	MW-194		MW-195	MW-196
		07-05-24	12-09-24	28-03-24	28-03-24	10-10-24	28-03-24	
<i>Dissolved Metals</i>								
Calcium	µg/L	111,000	109,000	64,500	150,000	140,000	7,160	NA
Iron	µg/L	1,080	955	<25	<25	<25	6	NA
Magnesium	µg/L	39,000	39,800	66,500	28,600	26,300	5,080	NA
Potassium	µg/L	1,980	1,940	1,880	1,510	1,440	1,530	NA
Sodium	µg/L	15,600	15,300	33,100	34,600	29,300	47,300	NA
<i>General Parameters</i>								
Alkalinity (Total as CaCO ₃)	µg/L	210	210	320	310	310	88	NA
Bicarbonate Alkalinity (as CaCO ₃)	µg/L	210	210	310	310	310	81	NA
Carbonate Alkalinity (as CaCO ₃)	µg/L	2.2	2.3	2.7	2.2	2.2	6.4	NA
Chloride	µg/L	110,000	110,000	65,000	93,000	99,000	41,000	NA
Conductivity	µmho/cm	930	900	930	1,000	1,000	300	NA
pH	Unitless	8.05	8.03	8.01	7.89	7.88	8.92	NA
Sulphate (SO ₄)	mg/L	70	71	73	72	76	8.1	NA
Total Dissolved Solids	mg/L	585	825	73	625	790	225	NA
Benzene	µg/L	<0.2	<0.2	NA	<0.2	<0.2	<0.2	NA
Ethylbenzene	µg/L	<0.2	<0.2	NA	<0.2	<0.2	<0.2	NA
Toluene	µg/L	<0.2	<0.2	NA	<0.2	<0.2	0.23	NA
Total Xylenes	µg/L	<0.4	<0.4	NA	<0.4	<0.4	<0.4	NA
PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NA	<25	<25	<25	NA
PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<90	NA	<100	<90	<100	NA
PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NA	<200	<200	<200	NA
PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NA	<200	<200	<200	NA

Notes:

- < denotes that result is below the laboratory method detection limit
- NA denotes that sample could not be collected and no result is available

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Table A 6a: 2024 DNNP Water Level Measurements

Measurement Date	Monitoring Well Name	Top Of Pipe Elevation (masl)	Water Level (mbtor)	Water Level Elevation (masl)	Difference between Q2 and Q4 2024 (m)	HU
09-05-24	MW-005-24	84.524	8.78	75.74	-3.65	HU 5/ HU3
08-10-24		84.524	5.13	79.39		
01-05-24	MW-006-9	84.597	3.69	80.91	-0.48	HU 1
08-10-24		84.597	3.21	81.39		
01-05-24	MW-007-2	84.614	1.15	83.46	0.36	HU 1
08-10-24		84.614	1.51	83.10		
01-05-24	MW-008-20	84.544	5.78	78.77	-0.15	HU 2/ HU 3
08-10-24		84.544	5.62	78.92		
01-05-24	MW-009-15	84.595	5.43	79.17	-0.57	HU 1/ HU 2
08-10-24		84.595	4.87	79.73		
01-05-24	MW-044-34	97.105	20.19	76.91	-0.76	HU 5
08-10-24		97.105	19.43	77.68		
01-05-24	MW-045-10	97.079	6.66	90.42	0.78	HU 1
08-10-24		97.079	7.44	89.64		
01-05-24	MW-046-6	97.097	5.62	91.48	NC	HU 1
08-10-24		97.097	dry	NC		
01-05-24	MW-047-92	97.102	29.299	67.80	-5.18	HU 6
08-10-24		97.102	24.121	72.98		
01-05-24	MW-052-15	97.096	7.59	89.51	0.39	HU 1
08-10-24		97.096	7.98	89.12		
01-05-24	MW-060-34	99.070	16.06	83.01	2.72	HU 5
08-10-24		99.070	18.78	80.29		
01-05-24	MW-061-20	99.124	9.71	89.41	-0.26	HU 2
08-10-24		99.124	9.46	89.67		
01-05-24	MW-062-14	99.210	8.05	91.16	0.18	HU 1
08-10-24		99.210	8.23	90.98		
01-05-24	MW-063-98	102.902	NA, 1.25 m to sediment	NC	NC	HU 6

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Measurement Date	Monitoring Well Name	Top Of Pipe Elevation (masl)	Water Level (mbtor)	Water Level Elevation (masl)	Difference between Q2 and Q4 2024 (m)	HU
01-05-24	MW-065-25	102.793	13.23	89.57	NC	HU 2
01-05-24	MW-066-8	102.717	2.72	100.00	NC	HU 1
01-05-24	MW-106-29	102.223	14.40	87.82	NC	HU 2
01-05-24	MW-083-36	103.279	13.48	89.80	2.90	HU 5
08-10-24		103.279	16.38	86.90		
01-05-24	MW-084-30	103.273	11.46	91.81	-0.61	HU 3
08-10-24		103.273	10.86	92.42		
01-05-24	MW-085-25	103.325	10.38	92.94	0.39	HU 2
08-10-24		103.325	10.77	92.55		
01-05-24	MW-086-5	103.331	1.54	101.79	1.28	HU 1
08-10-24		103.331	2.82	100.52		
25-03-24	MW-177	124.264	2.48	121.78	NC	HU 1
25-03-24	MW-194	124.264	Artesian*	>90.22*	NC	HU 2
08-10-24		124.264	Artesian*	>90.22*	NC	HU 2
25-03-24	MW-195	124.264	7.91	116.36	NC	HU 3
25-03-24	MW-196	124.264	7.71	116.55	NC	HU 5

Notes:

NA - water level not encountered

NC - not calculated

* - water level within MW-194 began rising over the top of well riser as soon as the well cap was open, suggesting static hydraulic head is above the top of riser elevation

mbtor – metre below top of riser

masl – metre above sea level

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Table A 6b: 2024 PHCs and BTEX in Perimeter Wells

Parameter	Background	Evaluation Criteria	MW-108-11	MW-109-10	MW-110-6		MW-111-18	MW-112-11	MW-113-6	MW-128-18
	µg/L	µg/L	13-05-24	13-05-24	13-05-24		13-05-24	13-05-24	13-05-24	13-05-24
Benzene	0.5	4,600	<0.2	<0.2	<0.2	<0.2	140	<0.2	<0.2	260
Toluene	0.8	14,000	<0.2	<0.2	<0.2	<0.2	140	<0.2	<0.2	14
Ethylbenzene	0.5	1,800	<0.2	<0.2	<0.2	<0.2	11	<0.2	<0.2	25
o-Xylene	--	--	<0.2	<0.2	<0.2	<0.2	21	<0.2	<0.2	4.4
p+m-Xylene	--	--	<0.4	<0.4	<0.4	<0.4	75	<0.4	<0.4	85
Total Xylenes	72	3,300	<0.4	<0.4	<0.4	<0.4	96	<0.4	<0.4	89
PHC F1 (C6-C10)	420	420	<25	<25	<25	<25	870	<25	<25	970
PHC F1 (C6-C10 less BTEX)	--	--	<25	<25	<25	<25	490	<25	<25	580
PHC F2 (C10-C16)	150	170	<100	<100	<100	<100	<100	<100	<100	<100
PHC F3 (C16-C34)	500	500	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (C34-C50)	500	500	<200	<200	<200	<200	<200	<200	<200	<200

Notes:

- < denotes that result is below the laboratory method detection limit
- denotes blank sample not analyzed for this parameter

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Table A 7a: Quality Control Results, Duplicate Samples and Relative Percent Differences (RPD)

Location	Sample Date	Parameter Analyzed	Units	Sample Values		RPD (%)
				Duplicate	Primary	
MW-005-24	11-Oct-2024	Benzene	µg/L	<0.2	<0.2	NC
		Alkalinity (Total as CaCO ₃)	mg/L	250	250	0.0
		Bicarbonate Alkalinity (calc as CaCO ₃)	mg/L	240	240	0.0
		Calcium	µg/L	29,300	28,800	1.7
		Calculated Methane	mg/L	22	22	0.0
		Carbonate Alkalinity (calc as CaCO ₃)	mg/L	2.9	3.2	9.8
		Chloride	µg/L	35,000	33,000	5.9
		Conductivity	umho/cm	550	550	0.0
		Dissolved Sulphate (SO ₄)	mg/L	<1.0	<1.0	NC
		Ethylbenzene	µg/L	<0.2	<0.2	NC
		PHC F1 (C6-C10)	µg/L	<25	<25	NC
		PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NC
		PHC F2 (C10-C16 Hydrocarbons)	µg/L	<90	<90	NC
		PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NC
		PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NC
		Dissolved iron	µg/L	126	126	0.0
		Magnesium	µg/L	13,600	13,500	0.7
		Methane	L/m ³	34	33	3.0
		o-Terphenyl	%	95	94	1.1
		o-Xylene	µg/L	<0.2	<0.2	NC
		p+m-Xylene	µg/L	<0.4	<0.4	NC
		pH	pH	8.10	8.15	0.6
		Potassium	µg/L	1,530	1,480	3.3
		Sodium	µg/L	68,500	69,600	1.6
Toluene	µg/L	<0.2	<0.2	NC		
Total Dissolved Solids	mg/L	335	335	0.0		
Total Xylenes	µg/L	<0.4	<0.4	NC		
MW-006-9	09-May-2024	Benzene	µg/L	<0.2	<0.2	NC
		Alkalinity (Total as CaCO ₃)	mg/L	190	200	5.1
		Bicarbonate Alkalinity (calc as CaCO ₃)	mg/L	190	190	0.0
		Calcium	µg/L	47,400	47,100	0.6

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Location	Sample Date	Parameter Analyzed	Units	Sample Values		RPD (%)
				Duplicate	Primary	
		Carbonate Alkalinity (calc as CaCO ₃)	mg/L	2.8	2.9	3.5
		Chloride	µg/L	220,000	220,000	0.0
		Conductivity	umho/cm	1,200	1,200	0.0
		Dissolved Sulphate (SO ₄)	mg/L	74	80	7.8
		Ethylbenzene	µg/L	<0.2	<0.2	NC
		PHC F1 (C6-C10)	µg/L	<25	<25	NC
		PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NC
		PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<100	NC
		PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NC
		PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NC
		Dissolved iron	µg/L	36	38	5.4
		Magnesium	µg/L	83,500	82,700	1.0
		o-Terphenyl	%	98	98	0.0
		o-Xylene	µg/L	<0.2	<0.2	NC
		p+m-Xylene	µg/L	<0.4	<0.4	NC
		pH	pH	8.18	8.20	0.2
		Potassium	µg/L	1,730	1,740	0.6
		Sodium	µg/L	60,100	59,200	1.5
		Toluene	µg/L	<0.2	<0.2	NC
		Total Dissolved Solids	mg/L	750	725	3.4
Total Xylenes	µg/L	<0.4	<0.4	NC		
Tritium	µg/L	<100	<100	NC		
MW-045-10	08-May-2024	Benzene	µg/L	<0.2	<0.2	NC
		Alkalinity (Total as CaCO ₃)	mg/L	340	330	3.0
		Bicarbonate Alkalinity (calc as CaCO ₃)	mg/L	330	330	0.0
		Calcium	µg/L	120,000	119,000	0.8
		Carbonate Alkalinity (calc as CaCO ₃)	mg/L	3.0	2.8	6.9
		Chloride	µg/L	55,000	57,000	3.6
		Conductivity	umho/cm	860	860	0.0
		Dissolved Sulphate (SO ₄)	mg/L	29	29	0.0
Ethylbenzene	µg/L	<0.2	<0.2	NC		

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2024 DARLINGTON NUCLEAR GROUNDWATER MONITORING PROGRAM RESULTS

Location	Sample Date	Parameter Analyzed	Units	Sample Values		RPD (%)
				Duplicate	Primary	
		PHC F1 (C6-C10)	µg/L	<25	<25	NC
		PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NC
		PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<100	NC
		PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NC
		PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NC
		Dissolved iron	µg/L	93	91	2.2
		Magnesium	µg/L	40,800	38,700	5.3
		o-Terphenyl	%	92	87	5.6
		o-Xylene	µg/L	<0.2	<0.2	NC
		p+m-Xylene	µg/L	<0.4	<0.4	NC
		pH	pH	7.98	7.95	0.4
		Potassium	µg/L	2,590	2,720	4.9
		Sodium	µg/L	23,500	23,000	2.2
		Toluene	µg/L	<0.2	<0.2	NC
		Total Dissolved Solids	mg/L	580	565	2.6
Total Xylenes	µg/L	<0.4	<0.4	NC		
MW-066-8	07-May-2024	Benzene	µg/L	<0.2	<0.2	NC
		Alkalinity (Total as CaCO ₃)	mg/L	290	270	7.1
		Bicarbonate Alkalinity (calc as CaCO ₃)	mg/L	280	270	3.6
		Calcium	µg/L	99,900	99,100	0.8
		Carbonate Alkalinity (calc as CaCO ₃)	mg/L	15.0	2.7	139.0
		Chloride	µg/L	2,900	3,000	3.4
		Conductivity	µmho/cm	590	620	5.0
		Dissolved Sulphate (SO ₄)	mg/L	52	53	1.9
		Ethylbenzene	µg/L	<0.2	<0.2	NC
		PHC F1 (C6-C10)	µg/L	<25	<25	NC
		PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NC

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Location	Sample Date	Parameter Analyzed	Units	Sample Values		RPD (%)
				Duplicate	Primary	
		PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<100	NC
		PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NC
		PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NC
		Dissolved iron	µg/L	<5	<5	NC
		Magnesium	µg/L	14,800	15,300	3.3
		o-Terphenyl	%	83	86	3.6
		o-Xylene	µg/L	<0.2	<0.2	NC
		p+m-Xylene	µg/L	<0.4	<0.4	NC
		pH	pH	8.77	8.04	8.7
		Potassium	µg/L	843	868	2.9
		Sodium	µg/L	22,800	23,600	3.4
		Toluene	µg/L	<0.2	<0.2	NC
		Total Dissolved Solids	mg/L	375	360	4.1
		Total Xylenes	µg/L	<0.4	<0.4	NC
MW-085-25	09-Oct-2024	Benzene	µg/L	<0.2	<0.2	NC
		Alkalinity (Total as CaCO ₃)	mg/L	150	150	0.0
		Bicarbonate Alkalinity (calc as CaCO ₃)	mg/L	150	150	0.0
		Calcium	µg/L	15,700	15,800	0.6
		Carbonate Alkalinity (calc as CaCO ₃)	mg/L	2.4	1.7	34.1
		Chloride	µg/L	17,000	17,000	0.0
		Conductivity	umho/cm	320	320	0.0
		Dissolved Sulphate (SO ₄)	mg/L	<1.0	<1.0	NC
		Ethylbenzene	µg/L	<0.2	<0.2	NC
		PHC F1 (C6-C10)	µg/L	<25	<25	NC
		PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NC
		PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<100	NC
PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NC		

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Location	Sample Date	Parameter Analyzed	Units	Sample Values		RPD (%)
				Duplicate	Primary	
		PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NC
		Dissolved iron	µg/L	43	43	0.0
		Magnesium	µg/L	16,500	16,100	2.5
		o-Terphenyl	%	93	94	1.1
		o-Xylene	µg/L	<0.2	<0.2	NC
		p+m-Xylene	µg/L	<0.4	<0.4	NC
		pH	pH	8.24	8.09	1.8
		Potassium	µg/L	622	613	1.5
		Sodium	µg/L	27,400	26,500	3.3
		Toluene	µg/L	<0.2	<0.2	NC
		Total Dissolved Solids	mg/L	170	185	8.5
		Total Xylenes	µg/L	<0.4	<0.4	NC
		MW-106-29	12-Sep-2024	Benzene	µg/L	<0.2
Alkalinity (Total as CaCO ₃)	mg/L			210	210	0.0
Bicarbonate Alkalinity (calc as CaCO ₃)	mg/L			210	210	0.0
Calcium	µg/L			108,000	109,000	0.9
Carbonate Alkalinity (calc as CaCO ₃)	mg/L			2.3	1.9	19.0
Chloride	µg/L			110,000	110,000	0.0
Conductivity	umho/cm			900	900	0.0
Dissolved Sulphate (SO ₄)	mg/L			71	71	0.0
Ethylbenzene	µg/L			<0.2	<0.2	NC
PHC F1 (C6-C10)	µg/L			<25	<25	NC
PHC F1 (C6-C10) - BTEX	µg/L			<25	<25	NC
PHC F2 (C10-C16 Hydrocarbons)	µg/L			<90	<90	NC
PHC F3 (C16-C34 Hydrocarbons)	µg/L			<200	<200	NC
PHC F4 (C34-C50 Hydrocarbons)	µg/L			<200	<200	NC
Dissolved iron	µg/L	955	744	24.8		

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Location	Sample Date	Parameter Analyzed	Units	Sample Values		RPD (%)
				Duplicate	Primary	
		Magnesium	µg/L	39,800	39,400	1.0
		o-Terphenyl	%	100	95	5.1
		o-Xylene	µg/L	<0.2	<0.2	NC
		p+m-Xylene	µg/L	<0.4	<0.4	NC
		pH	pH	8.07	7.98	1.1
		Potassium	µg/L	1,930	1,940	0.5
		Sodium	µg/L	15,300	15,000	2.0
		Toluene	µg/L	<0.2	<0.2	NC
		Total Dissolved Solids	mg/L	825	825	0.0
		Total Xylenes	µg/L	<0.4	<0.4	NC
MW-109-10	12-Mar-24	Tritium	Bq/L	<100	<100	NC
MW-112-11	12- Mar-24	Tritium	Bq/L	190	230	19.0
MW-119-6	12- Mar-24	Tritium	Bq/L	730	710	2.8
MW-153-7	13- Mar-24	Tritium	Bq/L	1,270	1,260	0.8
MW-153-7	26- Mar-24	Tritium	Bq/L	1,300	1,270	2.3
MW-155-11	14- Mar-24	Benzene	µg/L	<0.20	<0.20	NC
		Ethylbenzene	µg/L	<0.20	<0.20	NC
		PHC F1 (C6-C10)	µg/L	<25	<25	NC
		PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NC
		PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<100	NC
		PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NC
		PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NC
		o-Xylene	µg/L	<0.20	<0.20	NC
		p+m-Xylene	µg/L	<0.40	<0.40	NC
		Toluene	µg/L	<0.20	<0.20	NC
		Total Xylenes	µg/L	<0.40	<0.40	NC
		Tritium	Bq/L	490	510	4.0

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Location	Sample Date	Parameter Analyzed	Units	Sample Values		RPD (%)
				Duplicate	Primary	
MW-194	28- Mar-2024	Benzene	µg/L	<0.2	<0.2	NC
		Alkalinity (Total as CaCO ₃)	mg/L	310	300	3.3
		Bicarbonate Alkalinity (calc as CaCO ₃)	mg/L	310	300	3.3
		Calcium	µg/L	147,000	150,000	2.0
		Carbonate Alkalinity (calc as CaCO ₃)	mg/L	1.9	2.2	14.6
		Chloride	µg/L	92,000	93,000	1.1
		Conductivity	umho/cm	1,000	1,000	0.0
		Dissolved Sulphate (SO ₄)	mg/L	72	71	1.4
		Ethylbenzene	µg/L	<0.2	<0.2	NC
		PHC F1 (C6-C10)	µg/L	<25	<25	NC
		PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	NC
		PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<100	NC
		PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	NC
		PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	NC
		Dissolved iron	µg/L	<25	<25	NC
		Magnesium	µg/L	28,600	28,300	1.1
		o-Terphenyl	%	97	98	1.0
		o-Xylene	µg/L	<0.2	<0.2	NC
		p+m-Xylene	µg/L	<0.4	<0.4	NC
		pH	pH	7.82	7.89	0.9
		Potassium	µg/L	1,510	1,500	0.7
		Sodium	µg/L	34,600	34,100	1.5
		Toluene	µg/L	<0.2	<0.2	NC
Total Dissolved Solids	mg/L	625	605	3.3		
Total Xylenes	µg/L	<0.4	<0.4	NC		

Note:
 NC denotes that the value is not calculated
 < denotes that result is below the laboratory method detection limit
 0.0 denotes that result is higher than data quality objective

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Table A 7b: Quality Control Results, Trip and Field Blank Sample Results

Sample Type	Parameter	Units	Sample Result		
			Q3	Q4	Q4
Date (DD-MM-YY)			14-08-24	07-11-24	04-11-24
Field Blank	Benzene	µg/L	<0.2	<0.2	<0.2
	Ethylbenzene	µg/L	<0.2	<0.2	<0.2
	Toluene	µg/L	<0.2	<0.2	<0.2
	Total Xylenes	µg/L	<0.4	<0.4	<0.4
	PHC F1 (C6-C10)	µg/L	<25	<25	<25
	PHC F1 (C6-C10) - BTEX	µg/L	<25	<25	<25
	PHC F2 (C10-C16 Hydrocarbons)	µg/L	<100	<90	<90
	PHC F3 (C16-C34 Hydrocarbons)	µg/L	<200	<200	<200
	PHC F4 (C34-C50 Hydrocarbons)	µg/L	<200	<200	<200
	o-Xylene	µg/L	<0.2	<0.2	<0.2
	p+m-Xylene	µg/L	<0.4	<0.4	<0.4
Tritium	Bq/L	<100	<100	<100	

Sample Type	Parameter	Units	Sample Result								
			Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q4	Q4
Date (DD-MM-YY)			16-04-24	17-04-24	17-05-24	23-05-24	21-05-24	17-06-24	20-08-24	08-11-24	08-11-24
Trip Blank	Benzene	µg/L	--	--	<0.2	<0.2	<0.2	--	<0.2	<0.2	<0.2
	Ethylbenzene	µg/L	--	--	<0.2	<0.2	<0.2	--	<0.2	<0.2	<0.2
	Toluene	µg/L	--	--	<0.2	<0.2	<0.2	--	<0.2	<0.2	<0.2
	Total Xylenes	µg/L	--	--	<0.4	<0.4	<0.4	--	<0.4	<0.4	<0.4
	PHC F1 (C6-C10)	µg/L	--	--	<25	<25	<25	--	<25	<25	<25
	PHC F1 (C6-C10) - BTEX	µg/L	--	--	<25	<25	<25	--	<25	<25	<25
	PHC F2 (C10-C16 Hydrocarbons)	µg/L	--	--	<100	<100	<100	--	<100	<90	<90
	PHC F3 (C16-C34 Hydrocarbons)	µg/L	--	--	<200	<200	<200	--	<200	<200	<200
	PHC F4 (C34-C50 Hydrocarbons)	µg/L	--	--	<200	<200	<200	--	<200	<200	<200
	o-Xylene	µg/L	--	--	<0.2	<0.2	<0.2	--	<0.2	<0.2	<0.2
	p+m-Xylene	µg/L	--	--	<0.4	<0.4	<0.4	--	<0.4	<0.4	<0.4
Tritium	Bq/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	

Notes:

- < denotes that result is below the laboratory method detection limit
- denotes blank sample not analyzed for this parameter

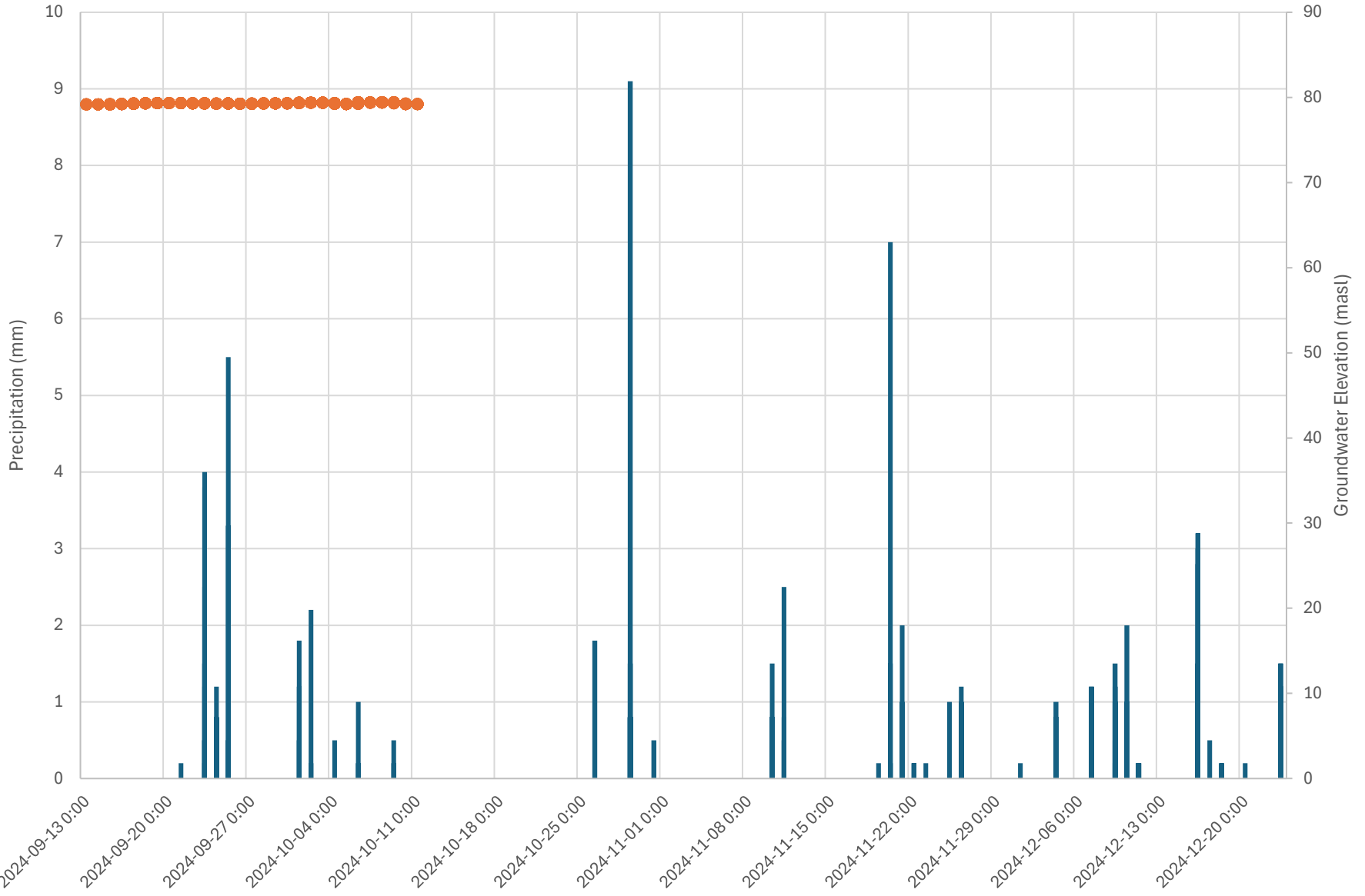
Report

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Appendix B: Hydrographs

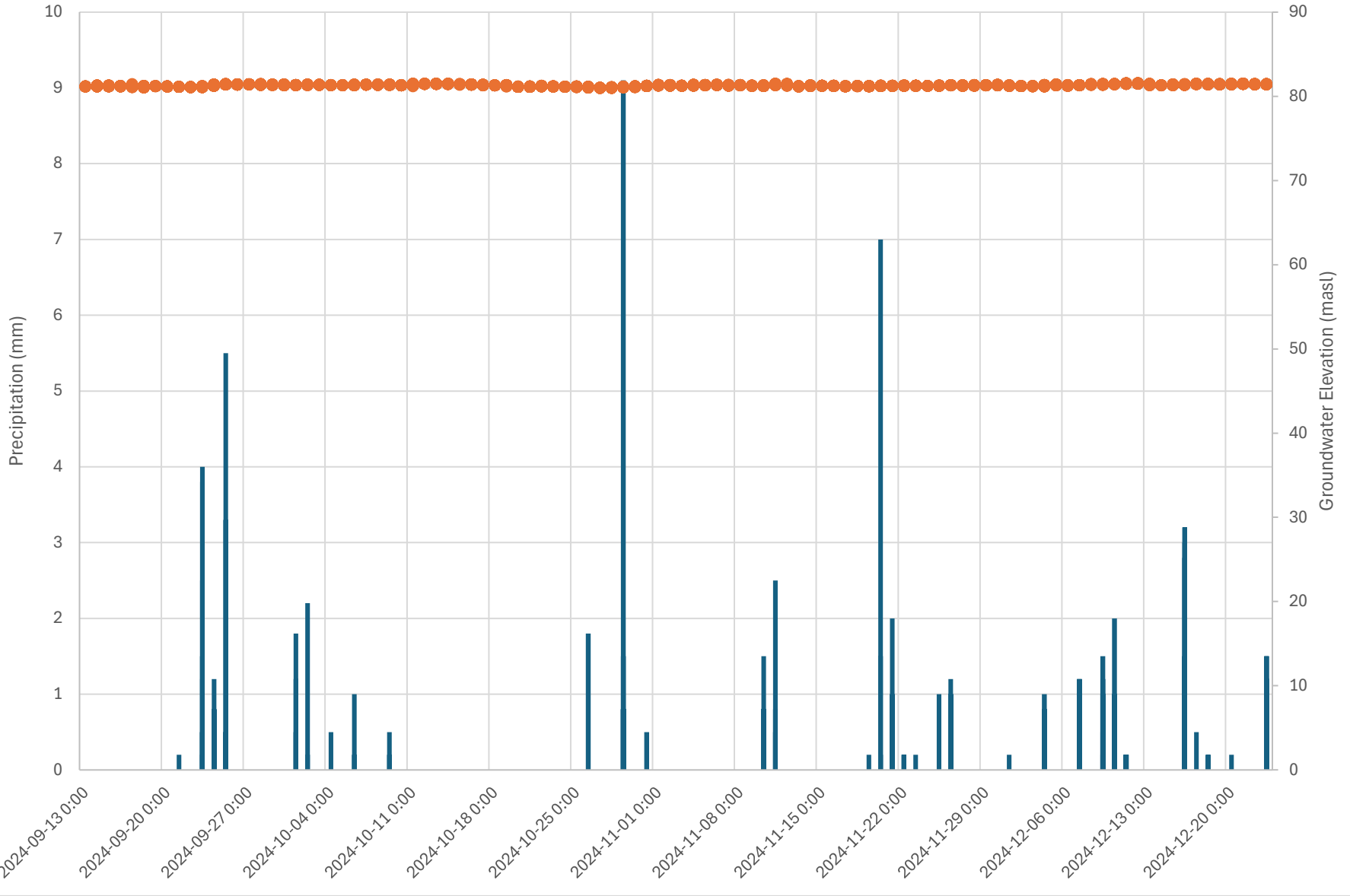
MW-005 Hydrograph

Precipitation Groundwater Elevation



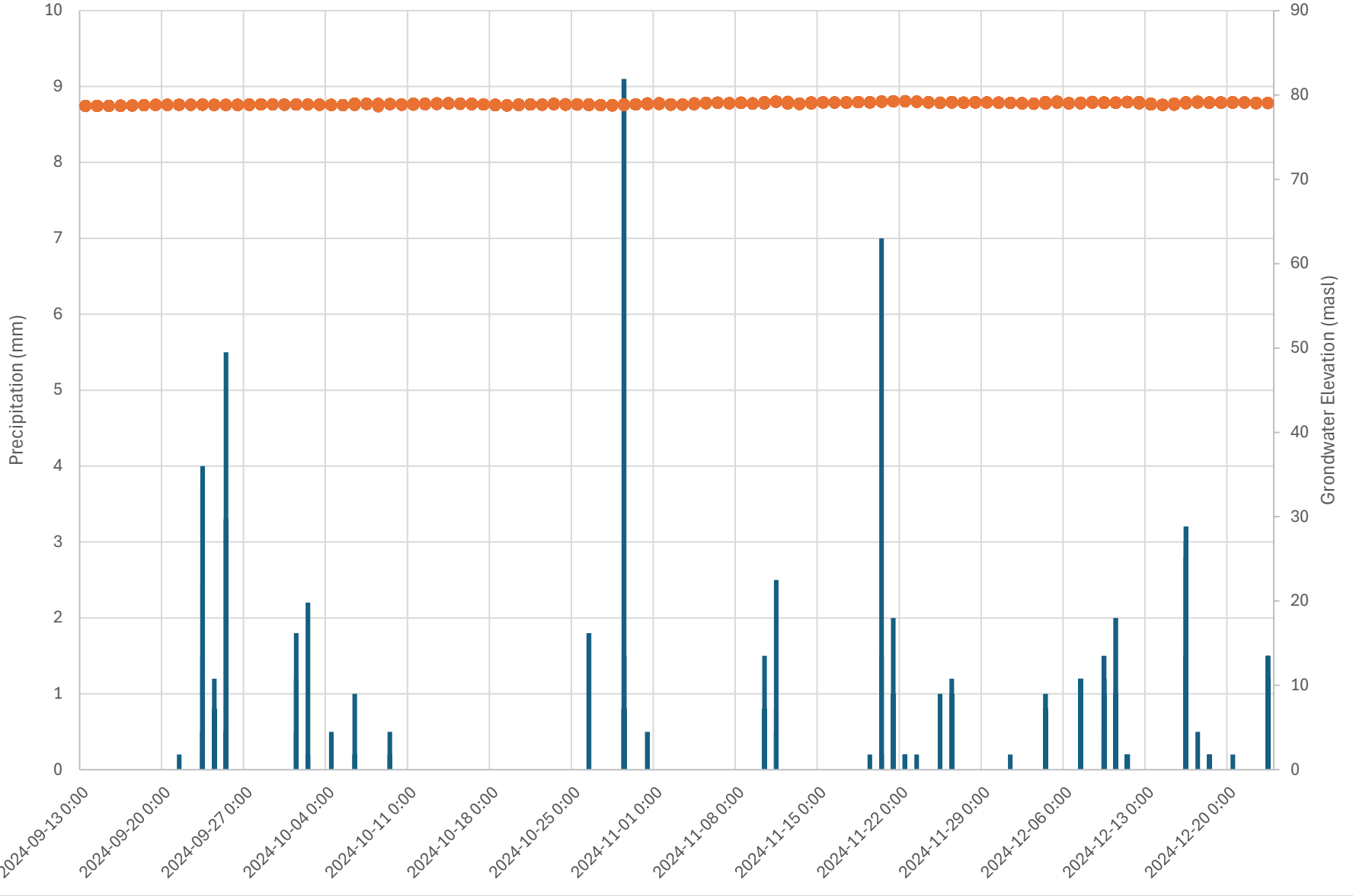
MW-006 Hydrograph

Precipitation Groundwater Elevation



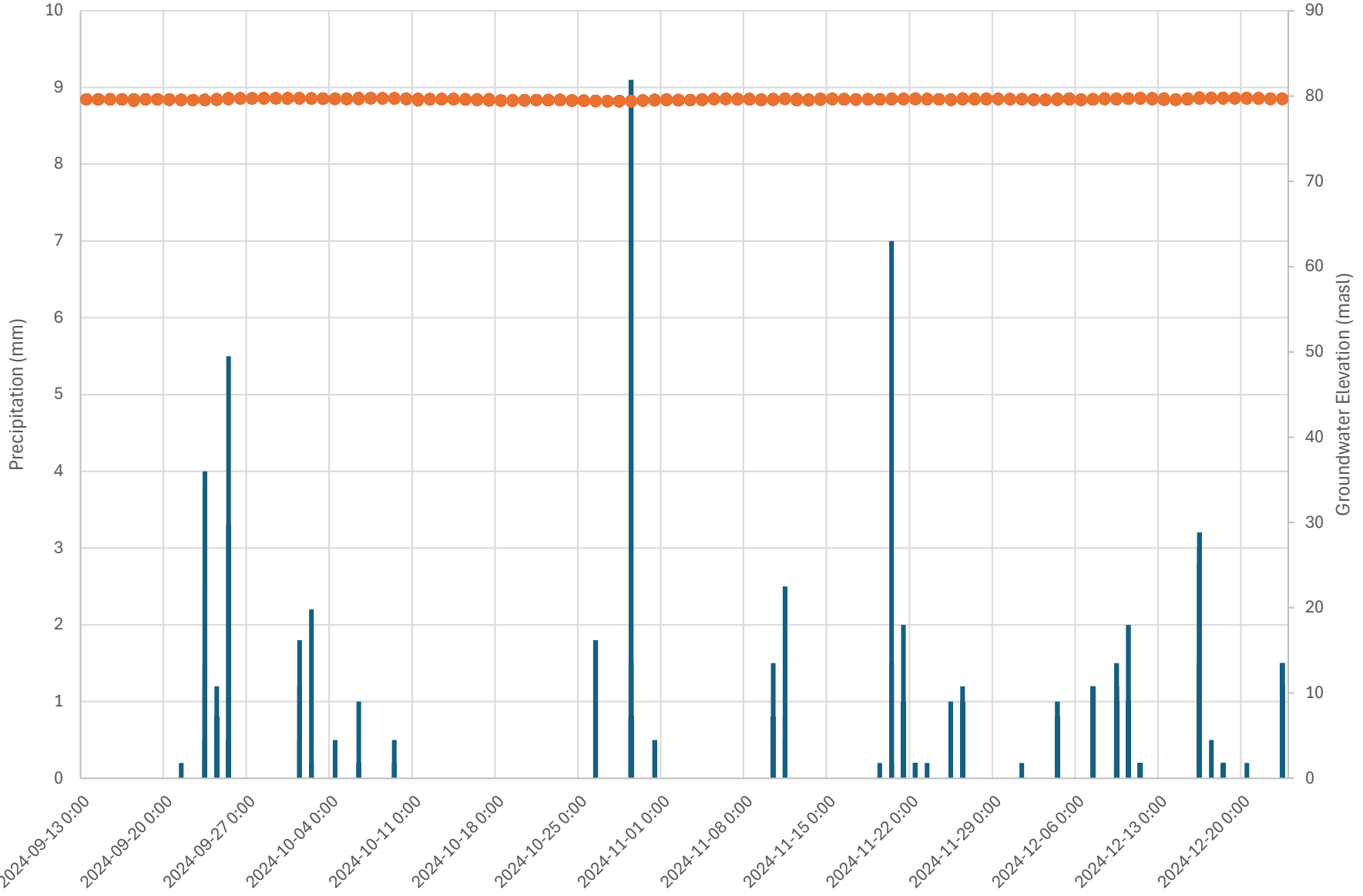
MW-008 Hydrograph

Precipitation Groundwater Elevation



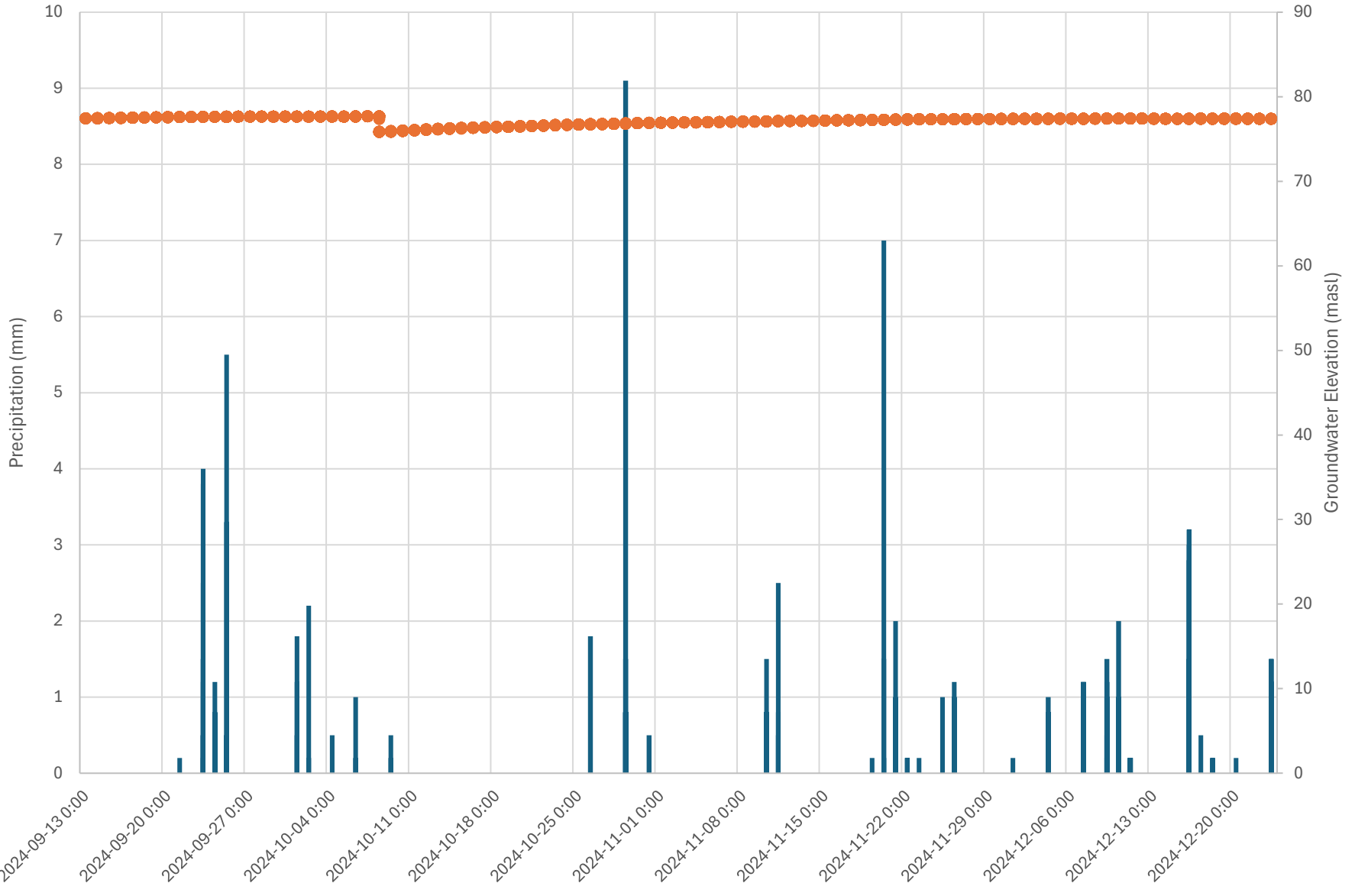
MW-009 Hydrograph

Precipitation Groundwater Elevation



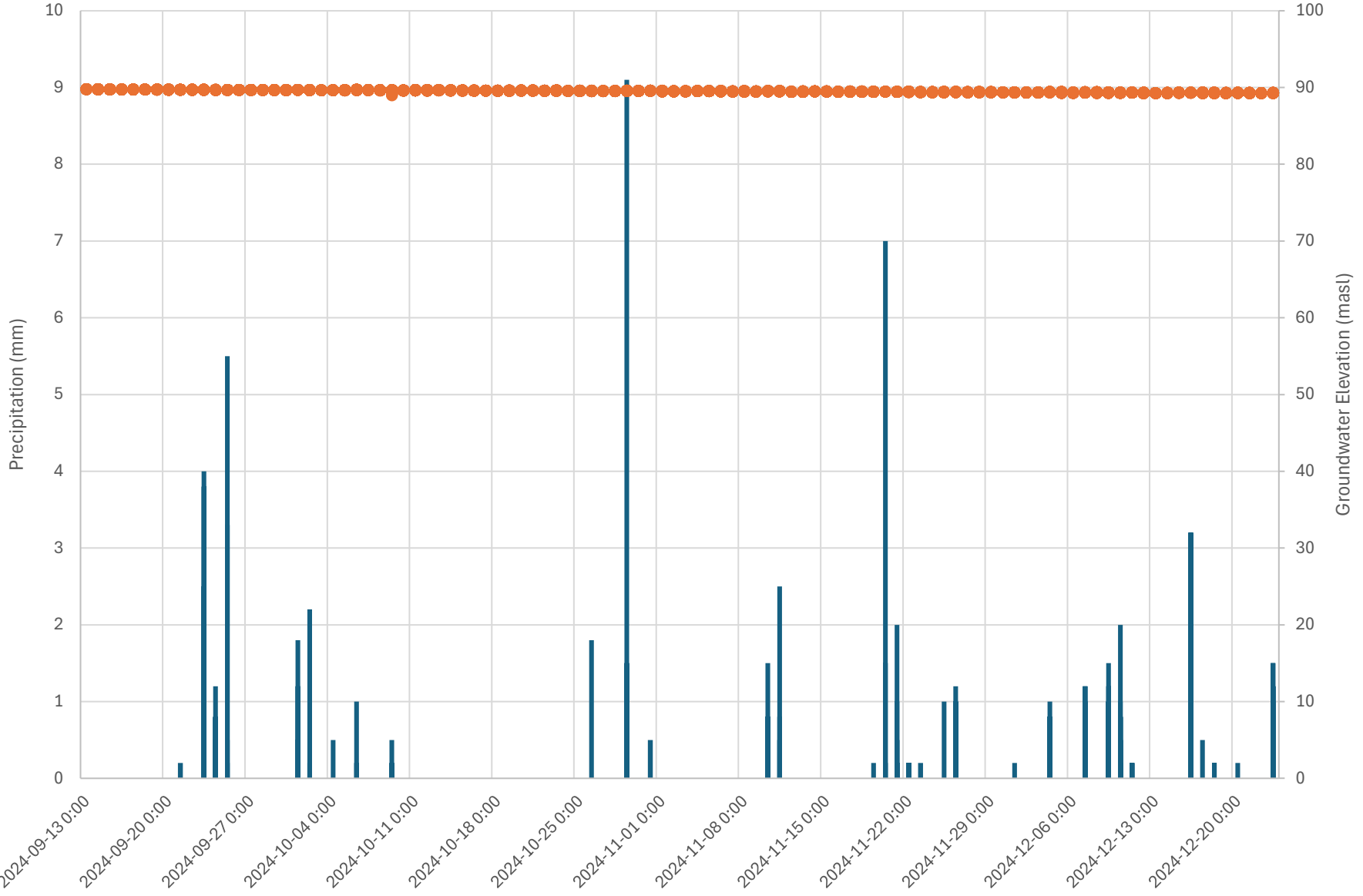
MW-044 Hydrograph

Precipitation Groundwater Elevation



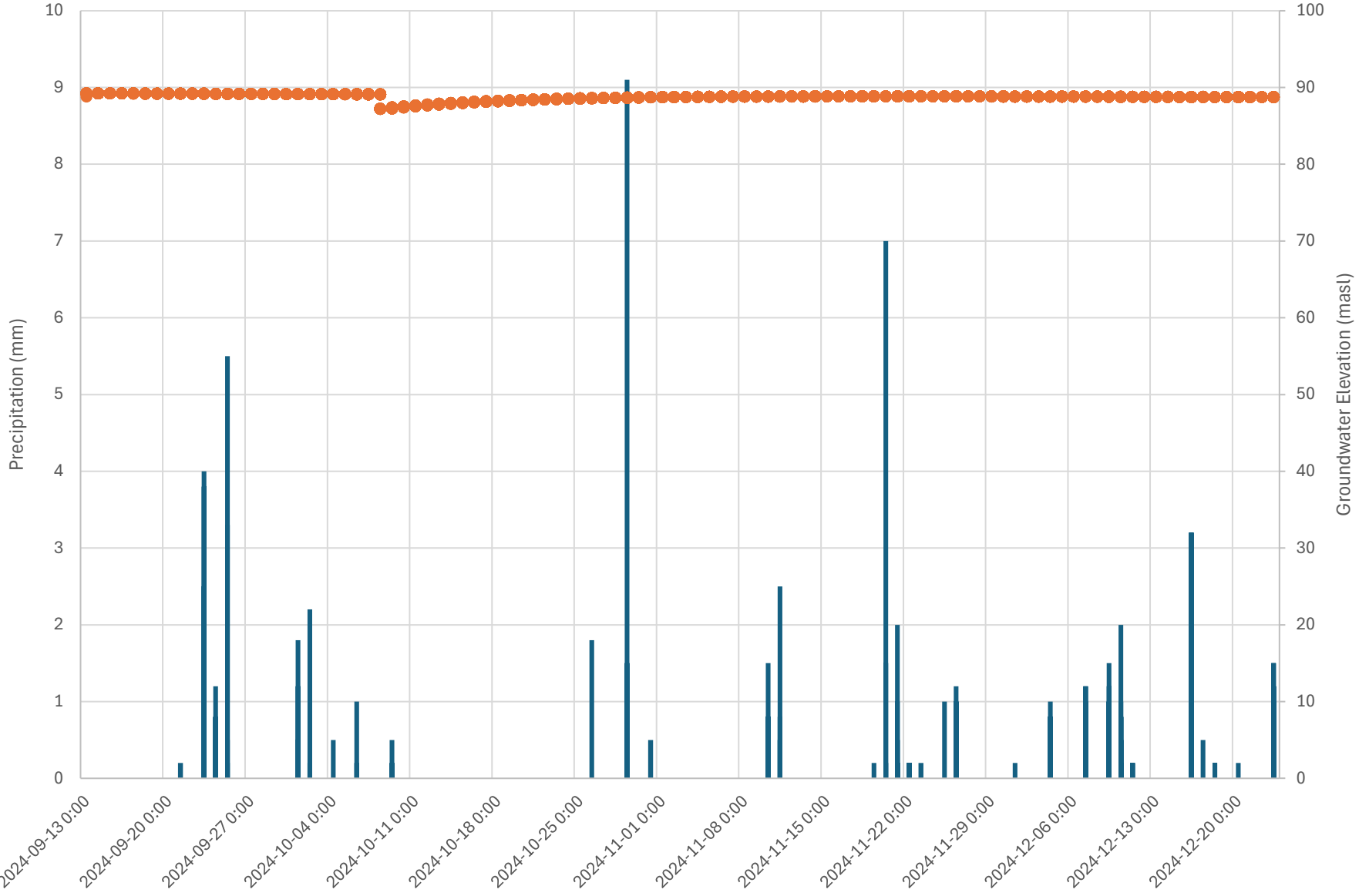
MW-045 Hydrograph

Precipitation Groundwater Elevation



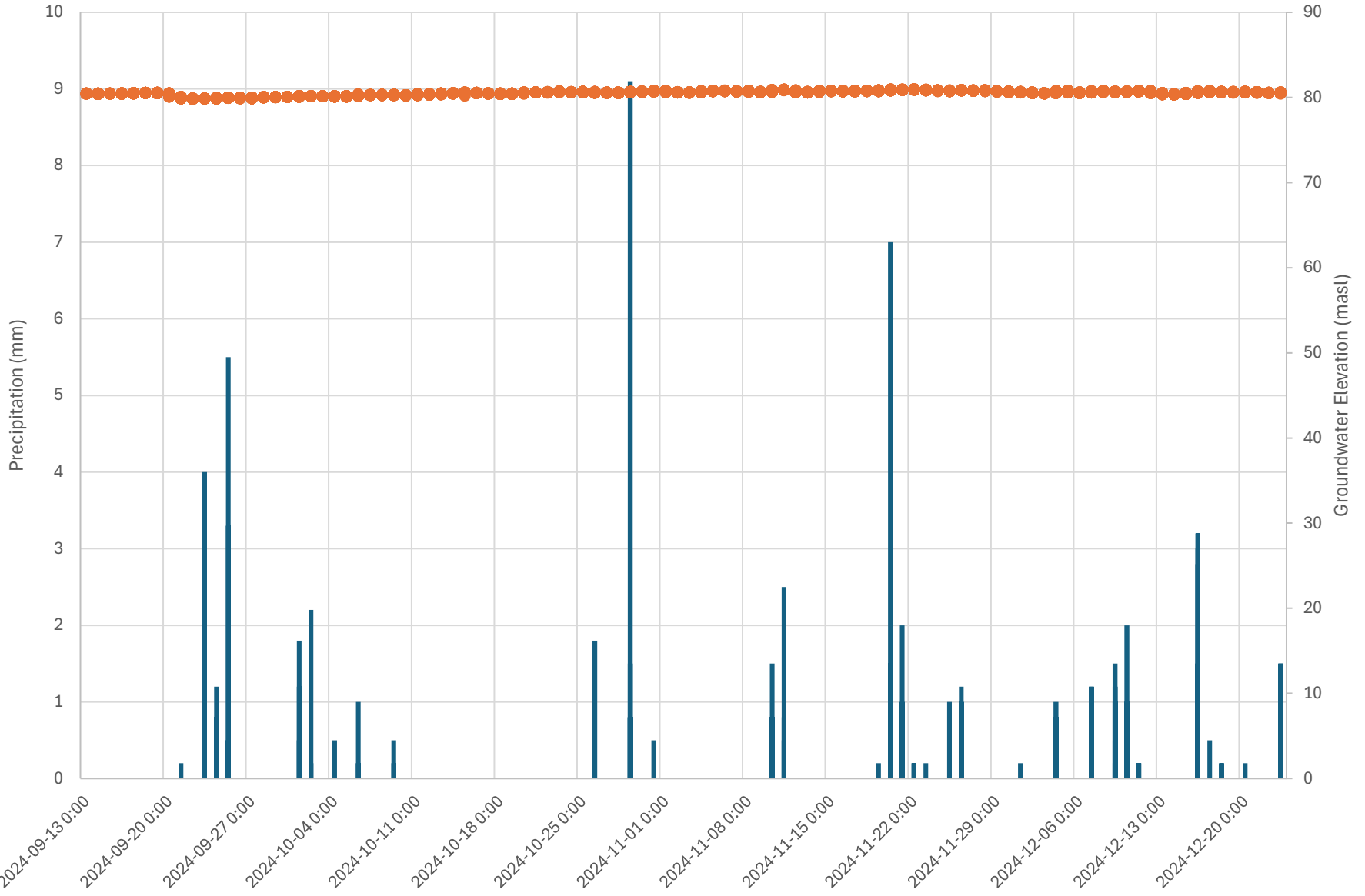
MW-052 Hydrograph

Precipitation Groundwater Elevation



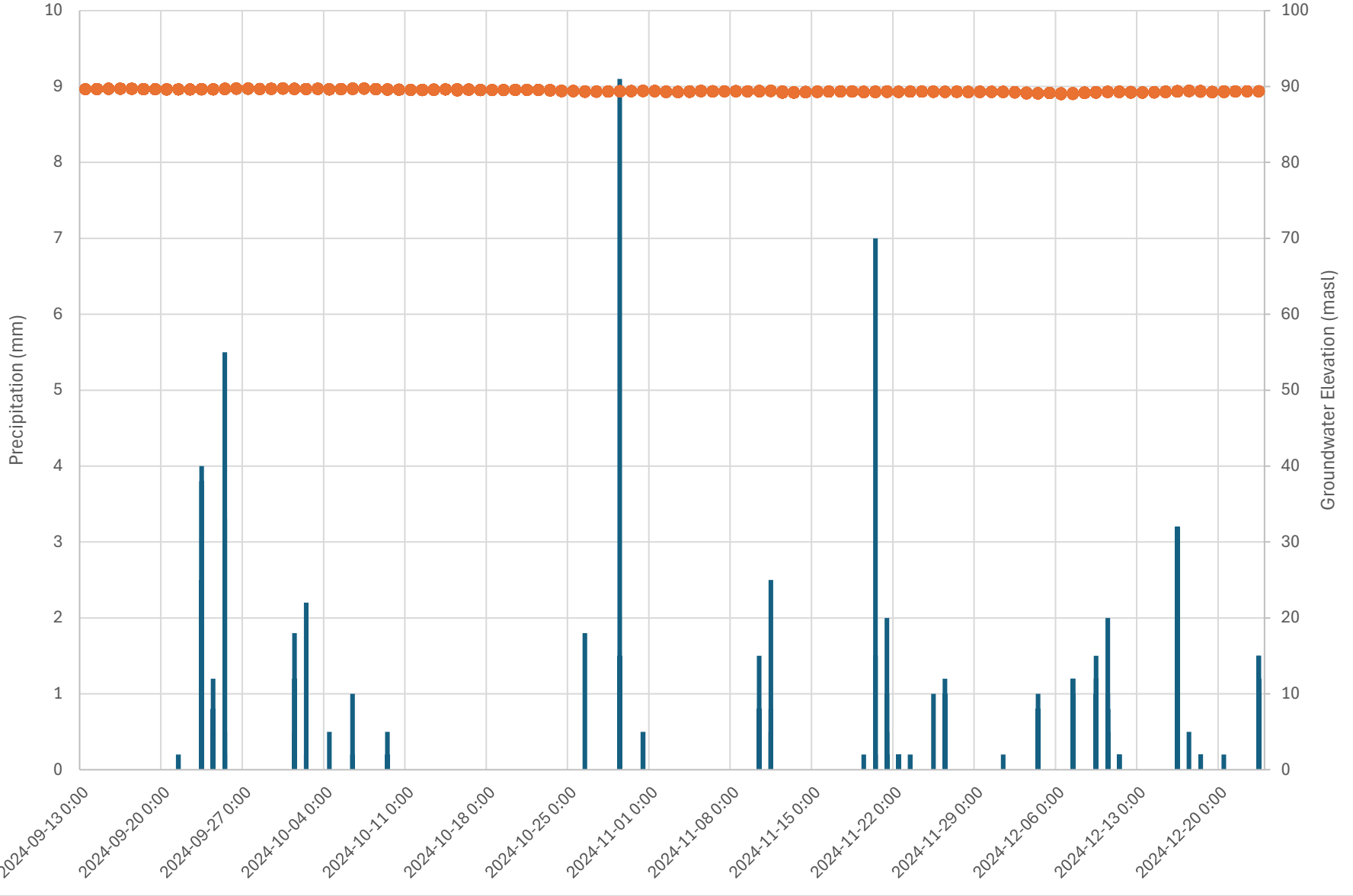
MW-060 Hydrograph

Precipitation Groundwater Elevation



MW-061 Hydrograph

Precipitation Groundwater Elevation



MW-062 Hydrograph

Precipitation Groundwater Elevation

