2024 King I & II Mines Annual Hydrology Report

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INTRODUCTION

The Annual Hydrology Report is completed at the conclusion of each year to compile and interpret hydrologic data related to GCC Energy's King I and II Mine operations. This satisfies a requirement of the Colorado Department of Reclamation, Mining and Safety (CDRMS) Mining Permit C-1981-035. To best support these efforts, GCC Energy (GCC) maintains a quality assurance/quality control (QA/QC) program to:

- Conduct GCC compliance staff training on water quality sampling for all GCC monitoring locations, equipment and methodologies, with detailed written procedures for each monitoring location provided.
- Collect all water quality field data with an industry-standard multi-parameter device with electronic data deliverable (EDD) output for all field and calibration data.
- Enter and document all water quality field monitoring data by mobile (digital/paperless) field sampling logs specific to surface water, groundwater and spring/seep sampling locations which are automatically distributed to a third party, SLR International Corporation (SLR) for same-day review following sampling.
- Conduct industry-standard, 10% random QA/QC lab sample submittals for duplicate and field blank water quality samples.
- Utilize EDDs produced by the contract environmental analytical laboratory for all data analyses.
- Compile and manage all water quality and level data in a geo-referenced Microsoft Access database.

HYDROLOGIC MONITORING

HYDROLOGIC MONITORING LOCATIONS

GCC monitored twenty-seven (27) hydrologic compliance locations in 2024. Additionally, three wells are monitored under an agreement between GCC and the Ute Mountain Ute Tribe (UMUT) and so are discussed here bringing the total number of monitored locations to thirty (30). Three (3) seeps are also monitored voluntarily twice annually, which is during spring runoff and again during late fall baseflow. These locations are represented by three types of water sources: surface water, seeps and groundwater. Groundwater is monitored through sample collection from dedicated monitoring wells and surface water and seeps are monitored by grab samples at designated locations.

Table 1 lists and **Figure 1** show the total of thirty (30) 2024 routine quarterly hydrologic monitoring locations and their spatial relation to the King I and II Mines.

HYDROLOGIC MONITORING DATA COLLECTION

Hydrologic monitoring data collection was expanded in December 2018 in number of locations and continued through 2024. Protocols for establishment of new hydrologic monitoring locations, as initiated in 2016, were also applied to these locations. The frequency of field parameter monitoring for new

locations is monthly for a one-year period, following the CDRMS "Guidelines for the Collection of Baseline Water Quality and Overburden Geochemistry Data" (1984). The initial monthly field parameter monitoring schedule is intended to more fully characterize any potential seasonal variation in the hydrologic system. Field parameters are collected with an In-Situ AquaTroll multi-parameter sonde at all location types, utilizing an industry-standard low-flow cell system for the monitoring wells. The specific field parameters monitored during each event are listed in **Tables 2, 3 and 4.** The purpose of the expanded analytical suite was to collect water quality data in line with the CDRMS "Guidelines for the Collection of Baseline Water Quality and Overburden Geochemistry Data" (1984), which were adopted in the Mining Permit Technical Revision-26. Water samples are collected quarterly at compliance monitoring locations for laboratory analysis. Depth to water measurements are also documented for wells, whereas flow rates are measured as applicable for surface water monitoring locations. This baseline data collection period is intended to characterize the pre-mining environmental conditions in order to shape the long-term monitoring plan appropriately to evaluate potential mining effects on the hydrologic system. This was intended as a one-year, four-quarter period to evaluate seasonal changes that may occur over a typical year; however, the baseline laboratory analytical suite analyses have continued through 2024 for all compliance monitoring locations per the mine permit. These laboratory analytical suites are approved by CDRMS in TR-26 and are presented in **Tables 2, 3 and 4,** by water source type. The red-highlighted parameters identify those that were added to the pre-2016 compliance to become the current compliance suite. In 2021, under the advisement of CDRMS, the surface water total mercury laboratory analytical method was updated. Previous to 2021 quarter three, the two compliance surface water sites were analyzed for total mercury by method EPA 245.1, which has a reporting limit by the contract laboratory of 0.0002 mg/L. As this method does not allow measurement to the CDPHE mercury surface water standard for the subject drainage of 0.00001 mg/L (0.01 micrograms per liter [µg/L]), a low-level mercury method is necessary to determine if the mercury standard is being met. These sites were fully transitioned to the low-level method EPA 200.8 in 2023 with the contract laboratory's reporting limit of 0.00001 mg/L (0.01 µg/L). No total mercury detections have ever been found for the Ditch sites under either method. When the contract laboratory updated their mercury analytical service offerings, the dissolved mercury analyses for the groundwater sites were changed from EPA 245.1 to EPA 245.7, reducing the reporting limit down to 0.0001 mg/L.

Most wet bedrock cluster monitoring wells are instrumented with dedicated industry-standard low-flow bladder pump groundwater sampling systems. The pumps are set to the approximate depth of the well screen mid-points for the A, MI, LM and PL wells, and set to near the bottom of the C wells to allow for micro-purge sampling methodology. See page 9 for an explanation of these abbreviations. The exception is for wells MW-8-MI and MW-8-LM, which have relatively high static and pumping water levels, allowing use of dedicated stainless steel 12-volt electric submersible pumps with the pump or extended pump intake set to the approximate depth of well screen mid-points. The dry bedrock cluster wells (MW-1-MI, MW-2-C, MW-2-A, MW-2-MI, MW-5-A, MW-6-C) are not instrumented with any groundwater sampling pumps and are monitored for water level only. MW-1-MI was instrumented with a bladder pump, however after the initial several sample events this well dried up and has remained dry for the last six years. Prior

to the 2019 quarter four monitoring event the pump system was removed to make the well easier to access as a water level-only monitoring location. Similarly, MW-6-A and MW-6-MI are also currently each instrumented with a bladder pump, however these wells dried up after initial monitoring events following installation and have remained dry through 2024. These wells will continue to be monitored quarterly for water level and if water is detected at either or both, the pump(s) will be operated to attempt to collect a sample for field parameters and laboratory analysis if adequate volume can be collected.

HYDROLOGIC MONITORING DATA ANALYSIS

Analytical and field parameter data from all 2016-2024 sampling is presented in summary tables in the **Attachment**. Full laboratory reports are not included here as they have been submitted to CDRMS quarterly following each sampling event. The quarterly-updated analytical summary tables found in the **Attachment** are also available in PDF format at:

https://www.gcc.com/file-type/water-monitoring/

Water quality results are discussed for samples collected from quarter four of 2023 through quarter three of 2024. A graphical analysis of water quality results from surface water, alluvial aquifer, and bedrock groundwater monitoring stations, is provided below in Stiff diagrams for major ions and in time series plots for selected trace constituents. The natural variability of water quality in bedrock and surface water units is demonstrated in these plots. Although the King Mines have operated for many years, the monitoring data presented within this report are interpreted to represent natural “baseline” water quality. This interpretation is based on comparison of data from monitoring locations upgradient from the mine against data from monitoring locations cross and downgradient from the mine.

Figures 2 through 3 and 8 through 12 show major ion concentrations at each monitoring site for the last four quarters of monitoring data. Concentrations are given in milli-equivalents (milligrams of solute mass divided by ionic weight and multiplied by ionic charge) per liter so the ionic balance between positive and negative ions can be seen in each analysis. Concentrations of trace elements in alluvial and bedrock groundwater over time are shown in **Figure 4** and **Figures 13 through 18**, respectively.

SURFACE WATER

The Hay Gulch Ditch is a year-round diversion from the La Plata River to the north of approximately 0.5 to 1.5 cubic feet per second (cfs) into the gulch, which is otherwise an intermittent drainage that would flow only during storms or major thaw events. Water infiltrates from spreader dikes and infiltrates the alluvium, and return flows in the ditch are collected in Mormon Reservoir approximately nine miles downstream of the King II Mine, near the confluence with the lower La Plata River. The Huntington Ditch and Pipeline also divert water from the upper La Plata River to a collection point above Hay Gulch for use by the King II Mine, from which water is consumed by the mine principally for underground dust control

with no waste or return flow. This water has been accounted for entirely as moisture in ventilation air. (CDS Environmental Services LLC 2014)

Figure 2 shows major ion compositions in Stiff diagrams for the Hay Gulch Ditch Upgradient and Downgradient locations. The location of each sample site is shown on **Figure 1**. The units of concentration are milli-equivalents per liter, at the same scale in the plots. In general, the water type in the ditch is calcium-magnesium-bicarbonate type. The ditch picks up some salinity from the Hay Gulch valley floor in this reach during the spring months, but as documented in previous Annual Hydrology Reports, the receiving Mormon reservoir has substantially greater concentrations of most constituents except bicarbonate (alkalinity).

Measured pH of surface water in Hay Gulch Ditch is near-neutral to alkaline (pH 7.7 to 8.4), with concentrations of anions and trace metals all below the applicable CDPHE regulation 34 surface water standards.

ALLUVIAL GROUNDWATER

Alluvial groundwater monitoring, previously limited to Hay Gulch, was expanded to include East Alkali Gulch beginning in quarter four of 2018. The purpose of this expansion is for baseline data collection upgradient (MW-7-EAA) and downgradient (MW-8-EAA) of the low-cover crossing (LCC) which allows access from the existing King II Mine underground workings to the coal reserves within the Dunn Ranch lease extension on the west side of East Alkali Gulch, where mining has been active since 2022.

Four alluvial wells in Hay Gulch monitor the level and quality of groundwater in the alluvial aquifer. The Wiltse well, near the King I portal and waste rock site, has been monitored for over forty years, and was once used for water supply in the King I Mine; Well #1 Upgradient was a former water well for a Ute Mountain Ute Tribe homestead of unknown installation date. The other two wells were installed by GCC for King II operational monitoring. Wells #1 Upgradient and #2 Downgradient are above and below the intermittent drainage where the King II portal is located, and MW-HGA-4 is adjacent to the upstream ditch surface water monitoring point, as shown in **Figure 1**.

Alluvial Groundwater Quality

Alluvial groundwater quality in the Hay Gulch and East Alkali Gulch is spatially and temporally variable. The unconsolidated alluvial sediments in each of these areas are a heterogeneous composition of fine sand, silt, clay, and coal fragments with lenses of channel gravel, resulting in the variable water quality observed. **Figure 3** shows the major ion concentrations at four Hay Gulch and two East Alkali Gulch alluvial wells in Stiff diagrams, in which the spatial variation is evident.

MW-HGA-4 is at the confluence of Roberts Gulch and has similar water chemistry as the Hay Gulch ditch water (**Figure 2).** Well #1 Upgradient and Well #2 Downgradient are also in Hay Gulch below the

King I portal and King II portal, respectively. Alluvial groundwater chemistry in these locations is similar to the chemistry observed in MW-HGA-4, with some minor differences resulting from localized variation in lithology. The low observed calcium concentrations at Well #1 Upgradient are likely from cation exchange occurring from bentonite hydrolysis from the well collar. The alluvial groundwater in the Wiltse well likely results from similar processes, such as the dissolution of gypsum, contributing to the overall dissolved constituent load. Factors influencing the alluvial groundwater chemistry likely include variable alluvium matrix materials (sand-silt-coal fines with coarser channel fill stringers), proximity of coal, and uneven application of irrigation. Because of the potential for greater sulfate concentrations in the Hay Gulch alluvium, as evidenced in the Wiltse well, alluvial groundwater is not widely used for consumption.

Alluvial groundwater chemistry in East Alkali Gulch is monitored at MW-7-EAA and MW-8-EAA. In this area, the sulfate and dissolved solids component in groundwater is greater than in the Hay Gulch alluvium and similar to the observed water quality in the Wiltse well. These observed differences in groundwater quality reflect the heterogeneity of the alluvial sediments and the contributions of localized evaporative salts (e.g., gypsum) to groundwater quality.

Measured pH of alluvial groundwater in Hay Gulch and East Alkali Gulch is near-neutral to slightly alkaline (pH 6.9-7.6), with concentrations of anions and trace constituents below the applicable CDPHE regulation 41 agricultural groundwater standards. Exceptions include iron and manganese exceedances of agricultural groundwater quality standards, 5.0 mg/L and 0.2 mg/L, respectively. Time series plots of iron and manganese concentrations for the alluvial groundwater monitoring locations are shown in **Figure 4**. In Hay Gulch, upgradient locations MW-HGA-4 and Well #1 Upgradient contain the greatest concentrations of iron, and all locations have elevated manganese, although the manganese concentrations reported at MW-7-EAA and MW-8-EAA are notably higher than all other alluvium wells. Elevated iron and manganese concentrations are also observed in East Alkali Gulch alluvium, and generally reflect the interaction of groundwater with the marine shales and sandstone deposits.

Seep-2 and Seep-3 were identified and established as monitoring locations in East Alkali Gulch in 2017 and 2020, respectively. Details of the spring and seep monitoring program are documented in the 2020 Spring & Seep Survey report (RHS 2020). Water chemistry results from Seep-2 and Seep-3 trend with the water quality observed at alluvial groundwater monitoring locations MW-7-EAA and MW-8-EAA (**Figure 3**). Concentrations of iron and manganese observed in the seeps are similar to other downgradient locations (**Figure 4**), in which some exceedances of agricultural water quality standards occur for manganese, but concentrations are less than observed in the upgradient alluvial groundwater locations, indicating decreasing concentrations of trace constituents along flow paths.

Alluvial Groundwater Level

Static groundwater levels at all alluvial monitoring wells were measured and documented per CDRMS compliance requirements at the time of each sampling event just prior to initiating well purging. The groundwater hydrograph for the Hay Gulch wells over the entire period of historical record in **Figure 5** shows fairly substantial seasonal variability at all four wells over time which is not only related to variability in precipitation but also subject to the variability in flood irrigation cycles of Hay Gulch irrigated pasture. Water levels show distinct increase with the extreme precipitation of the winter of 2018-2019 with peak levels near ground surface in the spring of 2019. The groundwater hydrograph for East Alkali Gulch in **Figure 6** represents the first six years of monitoring; the fluctuation of the water table measured in both MW-7-EAA and MW-8-EAA was within one foot until the spring of 2023. Quarterly level monitoring in June and August 2023 indicated the level at MW-7-EAA has increased nearly eight feet, and the level at MW-8-EAA has increased approximately four feet. These level increases appear to correspond to a very wet spring which increased infiltration, and thus the saturated thickness of the unconfined East Alkali alluvium. This general trend of increasing levels at MW-7-EAA and MW-8-EAA has continued in 2024. It does appear that MW-7-EAA is slightly more receptive to seasonal groundwater level fluctuation than MW-8-EAA based on the wet and dry season plot peaks. The groundwater level trends observed in East Alkali Gulch contrast those of Hay Gulch, which are quite stable, likely due to seasonal irrigation superimposed over seasonal precipitation trends.

A water table elevation contour map for the alluvium in the vicinity of the King Mines is presented as **Figure 7**. This figure compiles groundwater levels reported on CDWR Well Construction and Test Reports, converted to elevation for the associated water wells. Some of these measurements are from several decades ago, with a subset of the wells utilized in a 1983 USGS Level Survey. A significant portion of these data points are in a separate but adjacent La Plata River watershed, however several alluvial wells in the more relevant Hay Gulch and Alkali Gulch watersheds provide general water table elevation infill data to compliment the GCC compliance wells in these watersheds. The GCC monitoring well groundwater level data utilized in this figure is from August 2024. As **Figure 5** demonstrates with the long record of the Wiltse well, the Hay Gulch alluvial aquifer does not show long-term sustained decrease or increase in groundwater level, only seasonal fluctuation. As previously discussed, Hay Gulch is subject to fairly consistent irrigation water infiltration, which may buffer longer-term drought effects. These values also suggest that the decades-old water level measurements are still useful for the purpose of estimating alluvial groundwater flow gradient. Continued observations in East Alkali Gulch alluvial GCC monitoring wells will build the water table elevation data set to determine if this non-irrigated alluvial aquifer water table level trends differently than the irrigated Hay Gulch alluvium over time.

BEDROCK GROUNDWATER

Several monitoring sites with wells completed in the mined “A” coal seam, the overlying Cliff House Sandstone, and the immediately underlying strata of the Menefee Formation to which the “A” coal seam

belongs, have been maintained by GCC to provide baseline and compliance water quality information for the operation and extension of the King II mine since 2017. In quarter four of 2018, bedrock monitoring was extended in hydrostratigraphic depth to include the next two deeper water-bearing intervals, the lower Menefee Formation and the underlying Point Lookout Formation. The locations of these wells are shown in **Figure 1**. These wells were named with suffixes as follows:

- "C" for Cliff House
- "A" for mined "A" seam coal
- "MI" for Menefee Interburden denoting the floor rock to the "A" coal seam and interburden between the sometimes present "B" coal seam approximately 90 feet below the "A" seam)
- "LM" for the Lower Menefee which includes water-bearing lesser coal seams including the "B" coal seam where present
- "PL" for the Point Lookout Formation, specifically the uppermost approximate 25 feet.

Ten of twenty-two of these bedrock wells are dry, because groundwater flow in these formations is driven by low infiltration rates on ridges between gulches, and the formations have long been eroded from those gulches. The formations are also intrinsically low permeability. Thus, the mine workings have been largely dry, except where large joints have allowed minor draining of perched lenses of water in the roof. It is precisely this lack of groundwater in the higher coal and overlying strata that led domestic water well drillers to over-drill wells into deeper strata in the surrounding area and it is the carbonate cement supporting the sandstone cliffs that host the Anasazi cliff houses in Mesa Verde that reduce the permeability and cause pockets of low quality "old" water in shallower wells.

The Lower Menefee and Point Lookout hydrostratigraphic intervals were targeted for baseline monitoring in the 2018 monitoring well installation program as these are intervals included in domestic water wells in and around the Vista de Oro subdivision downgradient from the King II Mine Dunn Ranch lease area. Of specific interest is the characterization of the East Alkali Gulch alluvial groundwater recharge to the underlying Menefee bedrock, as this is likely the most significant recharge area for the neighboring water wells. The MW-8 location, which has a cluster of four individual monitoring wells, is approximately 400 feet directly downgradient from the LCC in the bottom of East Alkali Gulch to monitor groundwater level and quality in all significant water-bearing intervals from surface (alluvium) to 310 feet depth (upper Point Lookout) for potential effects of King II Mine operations.

Bedrock Groundwater Quality – Major Ions

Water quality from four Cliff House Formation wells and one seep that emanates from the Cliff House Formation (Seep-1) is represented in Stiff diagrams presented in **Figure 8.** When comparing plots between the Cliff House Formation and alluvial wells, it is important to note the difference in the scale of concentrations (in milli-equivalents per liter) presented, as constituent concentrations are much greater in the Cliff House Formation wells.

Seep-1 was first identified near during the initial spring and seep survey conducted in December 2015 and water quality samples collected during monitoring events when apparent flow was observed. Although flow is periodically observed at this location, measured flows are minimal (approximately 1 gallon per hour) and contributions from this seep are not considered a significant component of surface water flow.

Water quality results in the Cliff House Formation are variable, with cation exchange occurring along flow paths. Sulfate concentrations are also variable, with Seep-1 containing greater concentrations than observed in the monitoring wells. These variations in water chemistry suggest the groundwater in the Cliff House Formation is laterally discontinuous. pH in Cliff House Formation wells and Seep-1 is generally neutral to mildly alkaline (7.4 – 8.3). Wells completed in the Cliff House Formation show the greatest concentrations and most variation in major ion makeup. Seep-1 is dominated by calcium-magnesium and sulfate, MW-1-C and MW-2-C are dry, and MW-3-C, MW-4-C, and MW-5-C are dominated by sodium and bicarbonate. This variability and the elevated concentrations in the Cliff House wells indicate slow-moving (long residence time) water, and some water with variable dissolved oxygen content, leading to the non-uniform oxidation of pyrite in some rock types. In the MW-3-C and MW-4-C wells the sodium and chloride may be residual solutes from the marine barrier sand bars in a tightly cemented, low permeability formation. While there may be differences in the Cliff House rock geochemistry that contribute to these observed water type differences, it is also likely to be related to recharge of a different source or at least a significant difference in distance from the source. It may be that saturated alluvium in the upper reach of East Alkali Gulch is directly overlying and recharging the Cliff House formation in the vicinity of the MW-1 location.

The Menefee Formation is monitored in three distinct intervals in the mine area, namely the upper “A” coal seam, interburden between “A” and “B” coal seams, and the sandstone, coal, and siltstone underburden (lower Menefee). Major ion chemistry for groundwater wells completed in each of these intervals are shown in Stiff diagrams presented as **Figures 9 through 11**, respectively. Menefee Formation groundwater is characterized by neutral to alkaline pH (7.0 - 9.0) and generally of sodium-bicarbonate type. Water quality in the “A” coal seam and Menefee Formation interburden are similar in composition.

Monitoring wells completed in the mined “A” coal seam show dominant sodium, and sulfate with lesser bicarbonate (**Figure 9**). Calcium is replaced by sodium through cation exchange on clay minerals in shales. Total dissolved concentrations in “A” wells are less than half those in overlying Cliff House wells. The MW-1 location at the upgradient north end of the ridge overlying the King II workings has a Cliff House and a coal well with some limited water, and a dry sub-coal Menefee Interburden well.

Major ion concentrations of the Menefee Interburden wells are shown as Stiff plots in **Figure 10**. MW-8-MI is completed in East Alkali Gulch just downgradient from significant alluvial recharge; the well is screened across the first bedrock water encountered.

Groundwater monitoring of the lower Menefee Formation is limited to MW-6-LM, located on a ridge top above and cross-gradient of East Alkali Gulch, and MW-8-LM, which is completed in East Alkali Gulch. Observed differences between the magnesium -sulfate groundwater type at MW-6-LM and the sodium-bicarbonate type at MW-8-LM illustrate the chemical discontinuity in these low permeability groundwater lenses located in minor coal seams and minor fractured intervals (**Figure 11)**. As described above, major ion chemistry at MW-6-LM is likely derived from a source of recharge to the Menefee Formation that is unique to that location possibly along West Alkali Gulch and has a has a composition similar to the alluvial groundwater noted in East Alkali Gulch.

The Point Lookout Formation water quality in the vicinity of the King II Mine is represented by the monitoring well MW-8-PL. **Figure 12** shows the major ion chemistry from the last 4 quarters of monitoring on a Stiff diagram. Point Lookout groundwater in this location is of neutral pH (7.3 - 7.7) and bicarbonate dominant.

Anion concentrations in bedrock groundwater were below the applicable CDPHE regulation 41 agricultural groundwater standards, with the exception of fluoride (standard = 2.0 mg/L) at MW-3-C, MW-4-C, MW-4-MI, MW-5-C, and MW-8-LM.

Bedrock Groundwater Quality – Trace Elements

Concentrations of selected trace constituents are discussed in this section and shown as time-series plots in **Figures 13 through 18**. Detections for the following constituents were observed in bedrock groundwater monitoring wells: arsenic, cadmium, copper, iron, manganese, molybdenum, selenium, uranium, and zinc. These constituents occur in natural waters and can be elevated in groundwater associated with marine sandstones and shales.

Arsenic is present as a minor constituent in bedrock and is sometimes associated with pyrite. During pyrite oxidation, arsenic is typically absorbed, at least in part, and immobilized with iron oxide/hydroxide precipitation. Arsenic concentrations in Cliff House wells MW-3-C and MW-4-C have reported relatively higher concentrations than other bedrock wells since 2021, while remaining below the agricultural groundwater standard. The presence of arsenic at these locations is consistent with unconfined, fractured sandstone aquifers, where residence times are typically long. As shown in in **Figure 13**, arsenic in “A” seam coal wells is at very low concentrations. In contrast, the majority of the Menefee Interburden wells contain variable concentrations of arsenic, with historical (pre-2020) concentrations approaching 0.25 mg/L and recent (2021 to present) concentrations generally below 0.15 mg/L, while remaining below the agricultural groundwater standard in all samples. The widespread occurrence of arsenic in these wells may suggest it is disseminated throughout in the Menefee Formation and may be associated with mineral phases in addition to pyrite.

Copper is likely to be present as a trace constituent and is sometimes associated with pyrite in bedrock. Concentrations of copper in all bedrock groundwater units was low, and no exceedances of the agricultural groundwater standard were observed over the period of record.

Iron and manganese are common trace metals observed in the regional rock types near the mine. Iron is commonly sourced from pyrite in the Mesaverde strata which oxidizes in the weathering zone. Generally, the oxidized iron will precipitate in the oxidation zone and dissolved concentrations of trace constituents under neutral pH conditions are low. Concentrations of iron in bedrock groundwater through time are plotted in **Figure 14**. In general, the greatest concentrations of iron were observed in MW-6-A and MW-1-C, which have been dry since 2022 and MW-4-C.

Manganese is typically derived from similar processes of pyrite oxidation as a minor constituent in groundwater. Concentrations of manganese appear to be decreasing and stabilizing through time, such as observed in the lower Menefee Formation well MW-6-LM and the Point Lookout Formation well MW-8-PL (**Figure 15**).

There is no agricultural groundwater standard for molybdenum, although the EPA has set a health-based advisory limit of 0.04 mg/L. No exceedances of the health-based advisory have occurred in any well since December of 2018 at MW-6-LM (**Figure 16**). Concentrations of selenium have been similar to the agricultural groundwater standard at wells MW-3-C, MW-4-C, MW-3A, and MW-8-MI since 2020, with intermittent exceedances, while exceedances are generally not observed in any other monitoring wells in recent years, with the exception of one exceedance noted in the June 2024 sample at MW-6-LM of 0.024 mg/L (**Figure 17**). However, the most recent sample collected from MW-6-LM did not contain detectable concentrations of selenium.

Concentrations of uranium are presented in **Figure 18**. Uranium is a trace constituent commonly present in groundwater of the Four Corners regional area, an area known for elevated levels of naturally-present uranium and thus where historical uranium mining has occurred since the 1950s. Uranium is typically mobilized under oxic groundwater conditions and is immobilized as conditions become more reducing. Historical concentrations (pre-2018) of uranium were relatively greater in Cliff House Formation wells MW-4-C, and to a lesser extent, MW-1-C, as compared to all other sample records. In both locations, concentrations have continued to decrease through time and uranium concentrations at all wells appear stable.

Zinc is present as a trace constituent and is sometimes associated with pyrite in marine deposits. Concentrations of zinc measured in GCC groundwater monitoring wells were low, with no exceedances of the agricultural groundwater standard at any well.

Bedrock Groundwater Level

Groundwater potentiometric surface contour maps utilizing August 2024 measured levels have been prepared for each monitored hydrostratigraphic interval and are presented as **Figures 19-23**. No significant change to the groundwater potentiometric elevations occurred in 2024, with the exception again of the Cliff House Formation in the northeast portion of the mine permit area, which is discussed below. Contouring is only possible for intervals that include three or more monitoring locations, so the "LM" and "PL" figures do not include contours to indicate groundwater flow direction or gradient. Regardless, it is expected that regional flow direction in these intervals is south-southwest in the direction of strata dip, as documented in the overlying three hydrostratigraphic intervals. Groundwater flow gradient appears to be approximately 100 feet per mile (1.9% or 1.1°) for all intervals, which is about 1/3 to 1/2 of the strata dip. The King II Mine permit area is an excellent demonstration of the natural hydraulics in play to create and sustain a multiple bedrock aquifer system in an arid basin. Dry unsaturated (vadose) rock is present at the upland outcrop basin margin areas; water infiltration must pass through initially unconfined fractured networks filling fractures and pore space while displacing gases, and then finally into fully confined conditions with increased depth towards the central part of the basin. When the head pressure observed at any given point in the aquifer is greater than the equivalent distance from ground surface to the top of that aquifer then the aquifer is defined as confined. Significant recharge areas, inferred by buried bedrock exposure to overlying saturated alluvium, are also displayed in these figures.

Groundwater levels, as measured from wellheads during routine compliance monitoring, are converted to measured depth below ground surface and given in the GCC Hydrologic Monitoring Summary Tables, provided in this report as the **Attachment**.

As shown in the GCC Hydrologic Monitoring Summary Tables, provided in this report as the **Attachment,** as well as **Figure 19,** the measured static water levels at MW-1-C found this well dry throughout 2024, while the MW-5-C well rewetted in 2024. It is reasonable to assess that ongoing regional drought has continued to limit available infiltration of precipitation and runoff, thus preventing adequate recharge to maintain a Cliff House aquifer in this area, however somewhat more precipitation in the winter of 2023-2024 allowed more Cliff house recharge and thus re-wetting of MW-5-C. As can be seen in **Figure 19**, the mapped topography in this area documents steep canyons generally to the east and west of MW-1-C and MW-5-C which substantially reduce the volume of available Cliff House Formation that could be subject to otherwise upgradient groundwater flow paths. This combined with the Cliff House Formation being the uppermost bedrock unit in the mine permit area, contributes to this portion of the aquifer being more susceptible to drought than downgradient locations such as MW-3-C and MW-4-C.

REFERENCES

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TABLES

Table 1. GCC Quarterly Hydrologic Monitoring Locations

Monitoring Location ID	Water Resource Monitored	UTM NAD 83 Zone 13N Easting (meters)	UTM NAD 83 Zone 13N Northing (meters)	Surface Elevation (ft amsl)
Wiltse Well	Groundwater - Alluvial Hay Gulch	757024.673	4126948.393	7372.0
Well #1 Upgradient	Groundwater - Alluvial Hay Gulch	755543.611	4126352.130	7254.0
Well # 2 Downgradient	Groundwater - Alluvial Hay Gulch	754164.863	4125282.984	7174.8
MW-HGA-4	Groundwater - Alluvial Hay Gulch	757641.447	4127453.016	7410.5
MW-1-C	Groundwater - Bedrock Cliff House overburden	757690.096	4131037.627	8519.8
MW-1-A	Groundwater - Bedrock "A" coal seam	757693.395	4131042.883	8520.4
MW-1-MI	Groundwater - Bedrock Menefee interburden	757696.625	4131048.193	8520.8
MW-2-C	Groundwater - Bedrock Cliff House overburden	755125.962	4126776.758	7711.7
MW-2-A	Groundwater - Bedrock "A" coal seam	755128.957	4126781.777	7713.0
MW-2-MI	Groundwater - Bedrock Menefee interburden	755132.894	4126786.834	7713.5
MW-3-C	Groundwater - Bedrock Cliff House overburden	752333.836	4124416.003	7416.6
MW-3-A	Groundwater - Bedrock "A" coal seam	752337.515	4124420.823	7416.6
MW-3-MI	Groundwater - Bedrock Menefee interburden	752341.458	4124425.586	7416.3
MW-4-C	Groundwater - Bedrock Cliff House overburden	752098.476	4125629.241	7568.8
MW-4-A	Groundwater - Bedrock "A" coal seam	752101.678	4125634.068	7569.5
MW-4-MI	Groundwater - Bedrock Menefee interburden	752105.037	4125639.328	7569.7
MW-5-A	Groundwater - Bedrock "A" coal seam	757132.319	4130205.100	8407.4
MW-5-C	Groundwater - Bedrock Cliff House overburden	757128.949	4130200.072	8407.1
MW-5-MI	Groundwater - Bedrock Menefee interburden	757135.778	4130210.290	8407.7
MW-6-C	Groundwater - Bedrock Cliff House overburden	752322.705	4127770.537	7879.0
MW-6-A	Groundwater - Bedrock "A" coal seam	752319.364	4127765.472	7879.0
MW-6-MI	Groundwater - Bedrock Menefee interburden	752315.858	4127760.196	7878.0
MW-6-LM	Groundwater - Bedrock Lower Menefee	752312.834	4127755.333	7878.0
MW-7-EAA	Groundwater - Alluvial East Alkali Gulch	753001.888	4127319.951	7460.0
MW-8-EAA	Groundwater - Alluvial East Alkali Gulch	752916.895	4127107.544	7440.0
MW-8-MI	Groundwater - Bedrock Menefee interburden	752912.969	4127110.290	7447.0
MW-8-LM	Groundwater - Bedrock Lower Menefee	752908.636	4127106.081	7446.0
MW-8-PL	Groundwater - Bedrock Point Lookout	752904.413	4127101.783	7445.0
Hay Gulch Ditch Downgradient	Surface Water - Irrigation ditch	754376.015	4125623.299	7210.0
Hay Gulch Ditch Upgradient	Surface Water - Irrigation ditch	757636.698	4127606.813	7430.0

Table 2.

GCC Surface Water Baseline Water Quality Parameter Suite (GCC SW Baseline)

Parameter	Analytical Method	Units	Justification for Addition	Comments
Potassium (K) - dissolved	*EPA200.7*	*mg/L*	*Rounding out major ion constituents with K, Cl will allow for better interpretation with trilinear plotting*	
Chloride (Cl^-)	*EPA300.0*	*mg/L*		
Calcium (Ca^{+2}) - dissolved	EPA200.7	mg/L		
Magnesium (Mg^{+2}) - dissolved	EPA200.7	mg/L		
Sodium (Na^+) - dissolved	EPA200.7	mg/L		
Sulfate (SO_4)	EPA300.0	mg/L		
Alkalinity, as $CaCO_3$	2320 B	mg/L		
Silica (SiO_2) - dissolved	*Calculation*	*mg/L*	*Allows comparison of TDS vs. sum of major ions*	
Manganese (Mn) - dissolved	EPA200.8	mg/L		
Fluoride (F)	*EPA300.0*	*mg/L*	*Secondary ion that has been identified with minor potential nuisance value*	
Iron (Fe) - dissolved	EPA200.7	mg/L		
Aluminum (Al) - dissolved	*EPA200.7*	*mg/L*	*Trace metals commonly associated with coal mining impacts*	
Arsenic (As) - dissolved	*EPA200.8*	*mg/L*		
Cadmium (Cd) - dissolved	*EPA200.8*	*mg/L*		
Copper (Cu) - dissolved	*EPA200.8*	*mg/L*		
Lead (Pb) - dissolved	*EPA200.8*	*mg/L*		
Mercury (Hg) - total, low-level	*EPA200.8*	*µg/L*		*Method updated from EPA245.1 in 2021Q3*
Molybdenum (Mo) - dissolved	*EPA200.8*	*mg/L*		
Selenium (Se) - dissolved	*EPA200.8*	*mg/L*		
Zinc (Zn) - dissolved	*EPA200.8*	*mg/L*		
Uranium (U) - dissolved	*EPA200.8*	*mg/L*	*DRMS request via HGCAP*	
Hardness, as $CaCO_3$	2340 B	mg/L		
Bicarbonate, as $CaCO_3$	2320 B	mg/L		
Carbonate, as $CaCO_3$	2320 B	mg/L		
Hydroxide, as $CaCO_3$	2320 B	mg/L		
Total Nitrogen as Nitrate-Nitrite	*EPA353.2*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	
Ammonia (NH_3 as N)	*EPA350.1*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	*1-time only to establish presence/absence, SW and Alluvial GW sites only*
Phosphate (PO_4 as P)	*EPA300.0*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	*1-time only to establish presences/absence, SW and Alluvial GW sites only*
Sodium Adsorption Ratio (SAR)	*Calculation*	*mg/L*	*Measure of suitability for agricultural irrigation*	
Oil & Grease	*EPA1664 A*	*mg/L*	*Indication of background/upstream impacts*	
pH (lab)	EPA150.1	SU		
Total Dissolved Solids (TDS)	EPA160.1	mg/L		
Total Suspended Solids (TSS)	*2540 D*	*mg/L*	*Provides mass of particulates causing turbidity*	
Total Organic Carbon (TOC)	*5310C*	*mg/L*	*Surrogate parameter for coal mining impacts*	
Temperature (field)	NA	°C		
pH (field)	*NA*	*SU*	*Allows comparison of field vs. lab measurements, key for proper bicarbonate, carbonate, hydroxide calculations*	
Specific Conductivity (field)	NA	mS/cm		
Oxygen Reduction Potential (ORP) (field)	*NA*	*mV*	*To predict states of chemical speciation of water, i.e. dissolved metals*	
Dissolved Oxygen (DO) (field)	*NA*	*mg/L*	*General water quality parameter to document available oxygen*	
Flow Rate (field, ditch only)	NA	cfs		

Notes:

New (2016) analytes in bold, italicized red text

mg/L = milligrams per liter

SU = standard units

mS/cm millisiemens per centimeter

cfs = cubic feet per second

mV = millivolt

NA = not applicable

Table 3.

GCC Groundwater Baseline Water Quality Parameter Suite (GCC GW Baseline)

Parameter	Analytical Method	Units	Justification for Addition	Comments
Potassium (K) - dissolved	*EPA200.7*	*mg/L*	*Rounding out major ion constituents with K, Cl will allow for better interpretation with trilinear plotting*	
Chloride (Cl^-)	*EPA300.0*	*mg/L*		
Calcium (Ca^{+2}) - dissolved	EPA200.7	mg/L		
Magnesium (Mg^{+2}) - dissolved	EPA200.7	mg/L		
Sodium (Na^+) - dissolved	EPA200.7	mg/L		
Sulfate (SO_4)	EPA300.0	mg/L		
Alkalinity, as $CaCO_3$	2320 B	mg/L		
Silica (SiO_2) - dissolved	*Calculation*	*mg/L*	*Allows comparison of TDS vs. sum of major ions*	
Manganese (Mn) - dissolved	EPA200.8	mg/L		
Fluoride (F)	*EPA300.0*	*mg/L*	*Secondary ion that has been identified with minor potential nuisance value*	
Iron (Fe) - dissolved	EPA200.7	mg/L		
Aluminum (Al) - dissolved	*EPA200.7*	*mg/L*	*Trace metals commonly associated with coal mining impacts*	
Arsenic (As) - dissolved	*EPA200.8*	*mg/L*		
Cadmium (Cd) - dissolved	*EPA200.8*	*mg/L*		
Copper (Cu) - dissolved	*EPA200.8*	*mg/L*		
Lead (Pb) - dissolved	*EPA200.8*	*mg/L*		
Mercury (Hg) - dissolved	*EPA245.1*	*mg/L*		
Molybdenum (Mo) - dissolved	*EPA200.8*	*mg/L*		
Selenium (Se) - dissolved	*EPA200.8*	*mg/L*		
Zinc (Zn) - dissolved	*EPA200.8*	*mg/L*		
Uranium (U) - dissolved	*EPA200.8*	*mg/L*	*DRMS request via HGCAP*	
Hardness, as $CaCO_3$	2340 B	mg/L		
Bicarbonate, as $CaCO_3$	2320 B	mg/L		
Carbonate, as $CaCO_3$	2320 B	mg/L		
Hydroxide, as $CaCO_3$	2320 B	mg/L		
Total Nitrogen as Nitrate-Nitrite	*EPA353.2*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	
Ammonia (NH_3)	*EPA350.1*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	*1-time only to establish presence/absence, SW and Alluvial GW sites only*
Phosphate (PO_4 as P)	*EPA300.0*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	*1-time only to establish presences/absence, SW and Alluvial GW sites only*
pH (lab)	EPA150.1	SU		
Total Dissolved Solids (TDS)	EPA160.1	mg/L		
Total Organic Carbon (TOC)	*5310C*	*mg/L*	*Surrogate parameter for coal mining impacts*	
Temperature (field)	NA	°C		
pH (field)	*NA*	*SU*	*Allows comparison of field vs. lab measurements, key for proper bicarbonate, carbonate, hydroxide calculations*	
Specific Conductivity (field)	NA	mS/cm		
Oxygen Reduction Potential (ORP) (field)	*NA*	*mV*	*To predict states of chemical speciation of water, i.e. dissolved metals*	
Depth to Water (field, wells only)	NA	feet		

Notes:

New (2016) analytes in bold, italicized red text

mg/L = milligrams per liter

SU = standard units

mS/cm millisiemens per centimeter

gpm = gallons per minute

mV = millivolt

NA = not applicable

Table 4.

GCC Spring & Seep Baseline Water Quality Parameter Suite (GCC S&S Baseline)

Parameter	Analytical Method	Units	Justification for Addition	Comments
Potassium (K) - dissolved	*EPA200.7*	*mg/L*	*Rounding out major ion constituents with K, Cl will allow for better interpretation with trilinear plotting*	
Chloride (Cl^-)	*EPA300.0*	*mg/L*		
Calcium (Ca^{+2}) - dissolved	EPA200.7	mg/L		
Magnesium (Mg^{+2}) - dissolved	EPA200.7	mg/L		
Sodium (Na^+) - dissolved	EPA200.7	mg/L		
Sulfate (SO_4)	EPA300.0	mg/L		
Alkalinity, as $CaCO_3$	2320 B	mg/L		
Silica (SiO_2) - dissolved	*Calculation*	*mg/L*	*Allows comparison of TDS vs. sum of major ions*	
Manganese (Mn) - dissolved	EPA200.8	mg/L		
Fluoride (F)	*EPA300.0*	*mg/L*	*Secondary ion that has been identified with minor potential nuisance value*	
Iron (Fe) - dissolved	EPA200.7	mg/L		
Aluminum (Al) - dissolved	*EPA200.7*	*mg/L*	*Trace metals commonly associated with coal mining impacts*	
Arsenic (As) - dissolved	*EPA200.8*	*mg/L*		
Cadmium (Cd) - dissolved	*EPA200.8*	*mg/L*		
Copper (Cu) - dissolved	*EPA200.8*	*mg/L*		
Lead (Pb) - dissolved	*EPA200.8*	*mg/L*		
Mercury (Hg) - dissolved	*EPA245.1*	*mg/L*		
Molybdenum (Mo) - dissolved	*EPA200.8*	*mg/L*		
Selenium (Se) - dissolved	*EPA200.8*	*mg/L*		
Zinc (Zn) - dissolved	*EPA200.8*	*mg/L*		
Uranium (U) - dissolved	*EPA200.8*	*mg/L*	*DRMS request via HGCAP*	
Hardness, as $CaCO_3$	2340 B	mg/L		
Bicarbonate, as $CaCO_3$	2320 B	mg/L		
Carbonate, as $CaCO_3$	2320 B	mg/L		
Hydroxide, as $CaCO_3$	2320 B	mg/L		
Total Nitrogen as Nitrate-Nitrite	*EPA353.2*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	
Ammonia (NH_3)	*EPA350.1*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	*1-time only to establish presence/absence, SW and Alluvial GW sites only*
Phosphate (PO_4 as P)	*EPA300.0*	*mg/L*	*Distinguish fertilizer and/or stock impacts*	*1-time only to establish presences/absence, SW and Alluvial GW sites only*
Sodium Adsorption Ratio (SAR)	*Calculation*	*mg/L*	*Measure of suitability for agricultural irrigation*	
pH (lab)	EPA150.1	SU		
Total Dissolved Solids (TDS)	EPA160.1	mg/L		
Total Organic Carbon (TOC)	*5310C*	*mg/L*	*Surrogate parameter for coal mining impacts*	
Temperature (field)	NA	°C		
pH (field)	*NA*	*SU*	*Allows comparison of field vs. lab measurements, key for proper bicarbonate, carbonate, hydroxide calculations*	
Specific Conductivity (field)	NA	mS/cm		
Oxygen Reduction Potential (ORP) (field)	*NA*	*mV*	*To predict states of chemical speciation of water, i.e. dissolved metals*	
Flow Rate (field, spring/seep only)	NA	gpm		

Notes:

New (2016) analytes in bold, italicized red text

mg/L = milligrams per liter

SU = standard units

mS/cm millisiemens per centimeter

gpm = gallons per minute

mV = millivolt

NA = not applicable

FIGURES

Figure 1. GCC 2024 hydrologic monitoring locations.

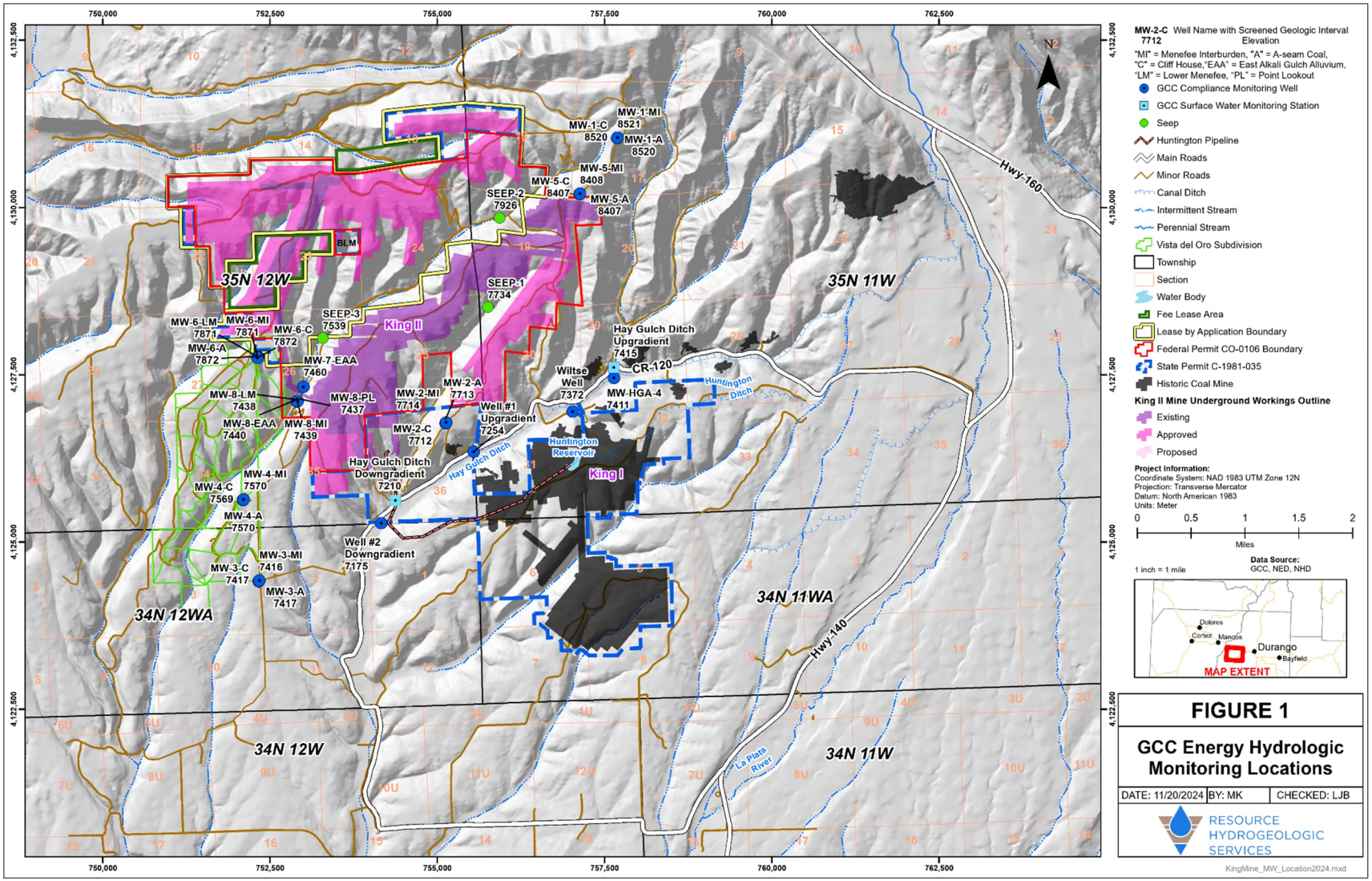

Figure 2. Major ions in Hay Gulch Ditch Upgradient and Downgradient samples from water year 2024.

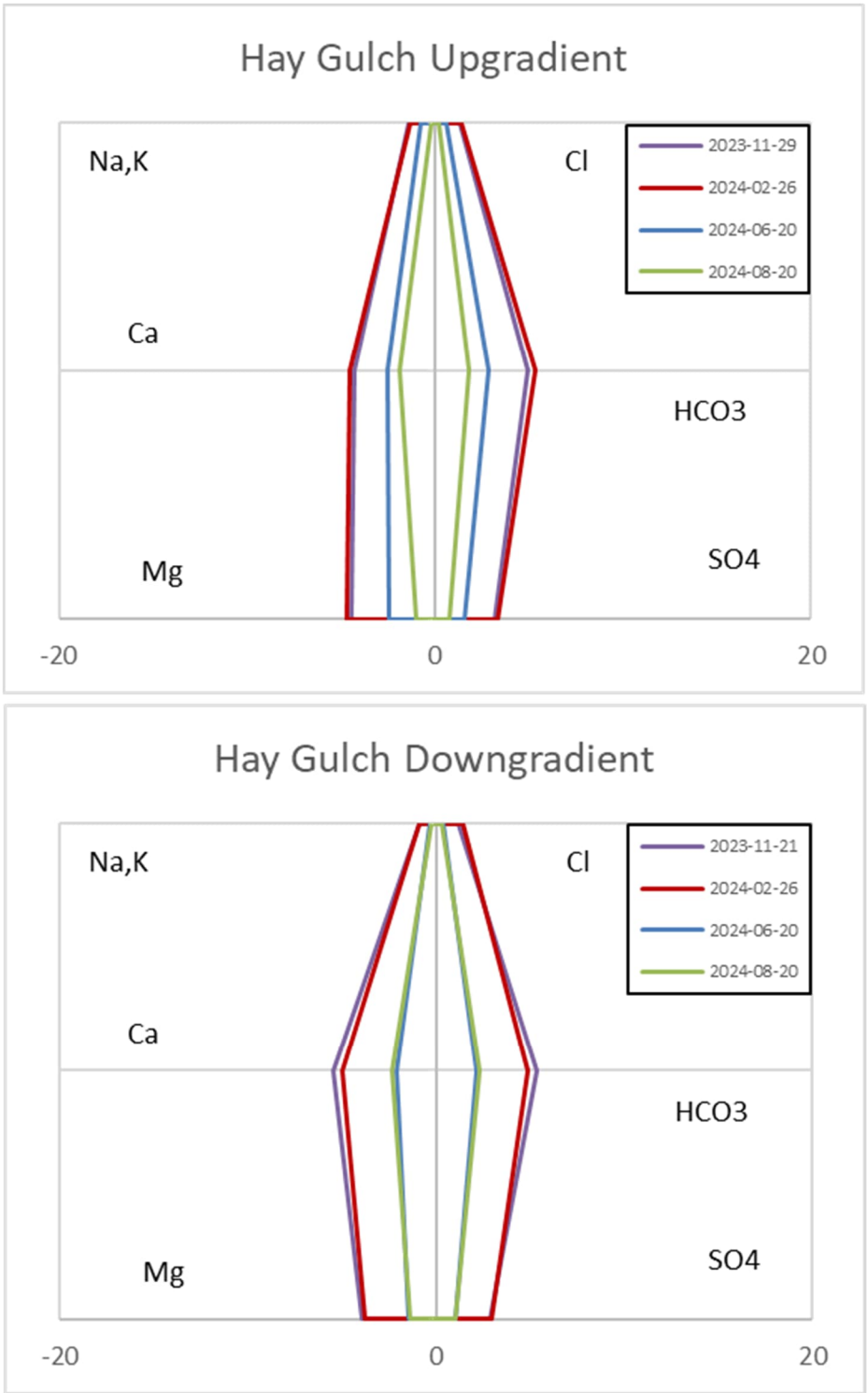

Figure 3. Major ions in Hay Gulch alluvial groundwater up and downgradient of the King I portal (left), up and downgradient of the King II portal (center left), in East Alkali Gulch alluvial groundwater up and downgradient of the King II low-cover crossing (center right), and from two seeps upgradient of the proposed low-cover crossing in East Alkali Gulch (right) for 2024. Note that Seep-2 was dry in 2024, so the 2023 Quarter 2 plot is shown here for comparison.

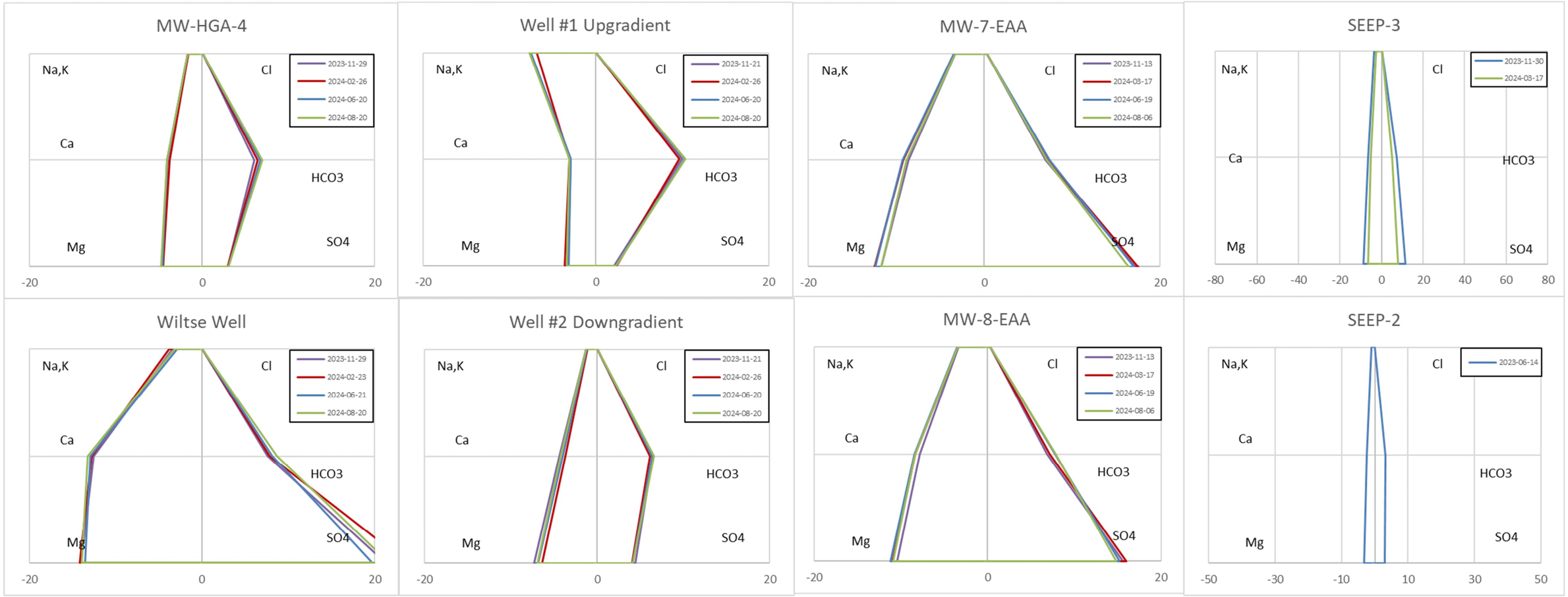

Figure 4. Concentrations of iron and manganese in alluvial groundwater (2016-2024).

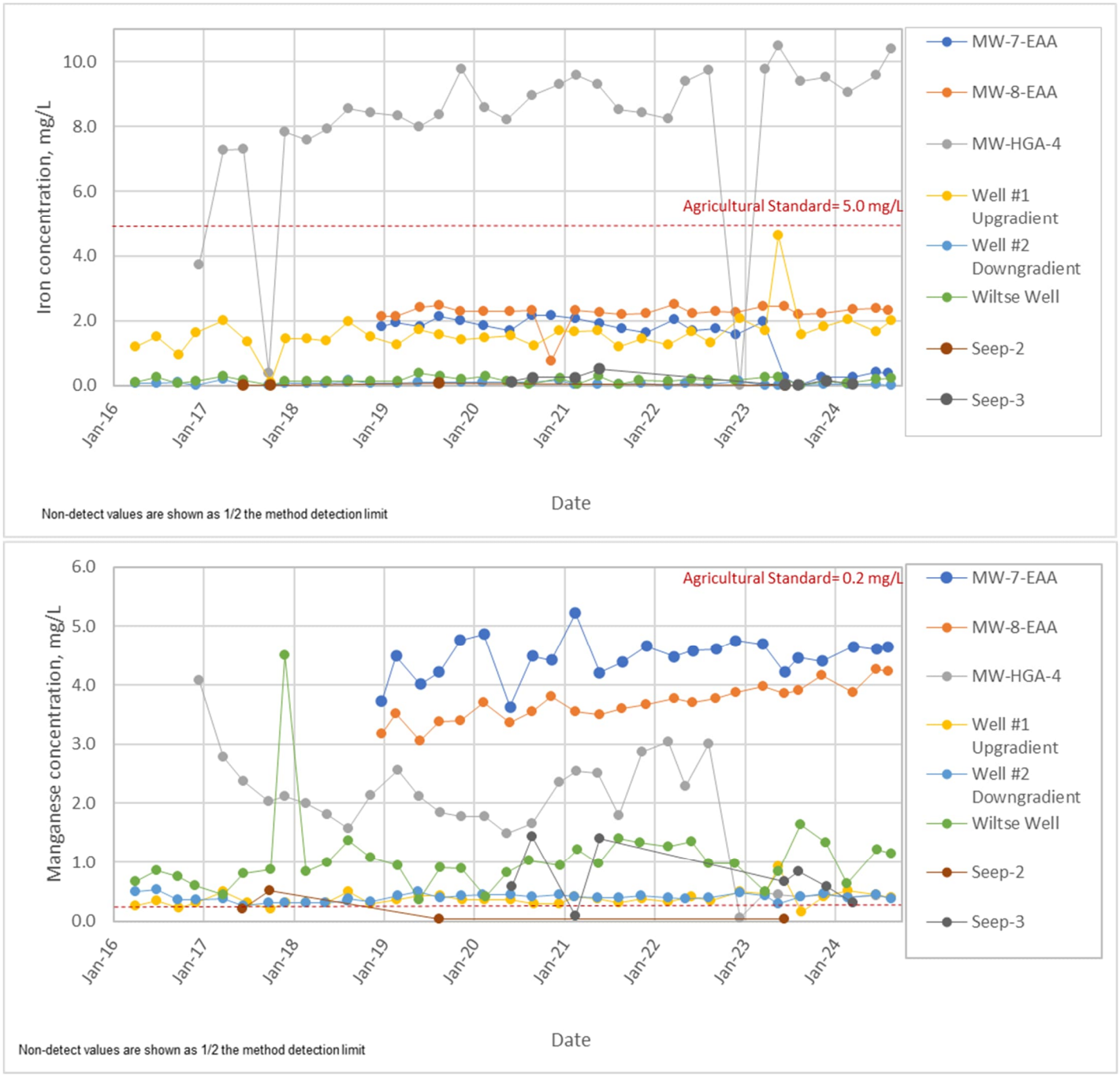

Figure 5. Hay Gulch alluvial groundwater hydrograph, full period of record through August 2024.

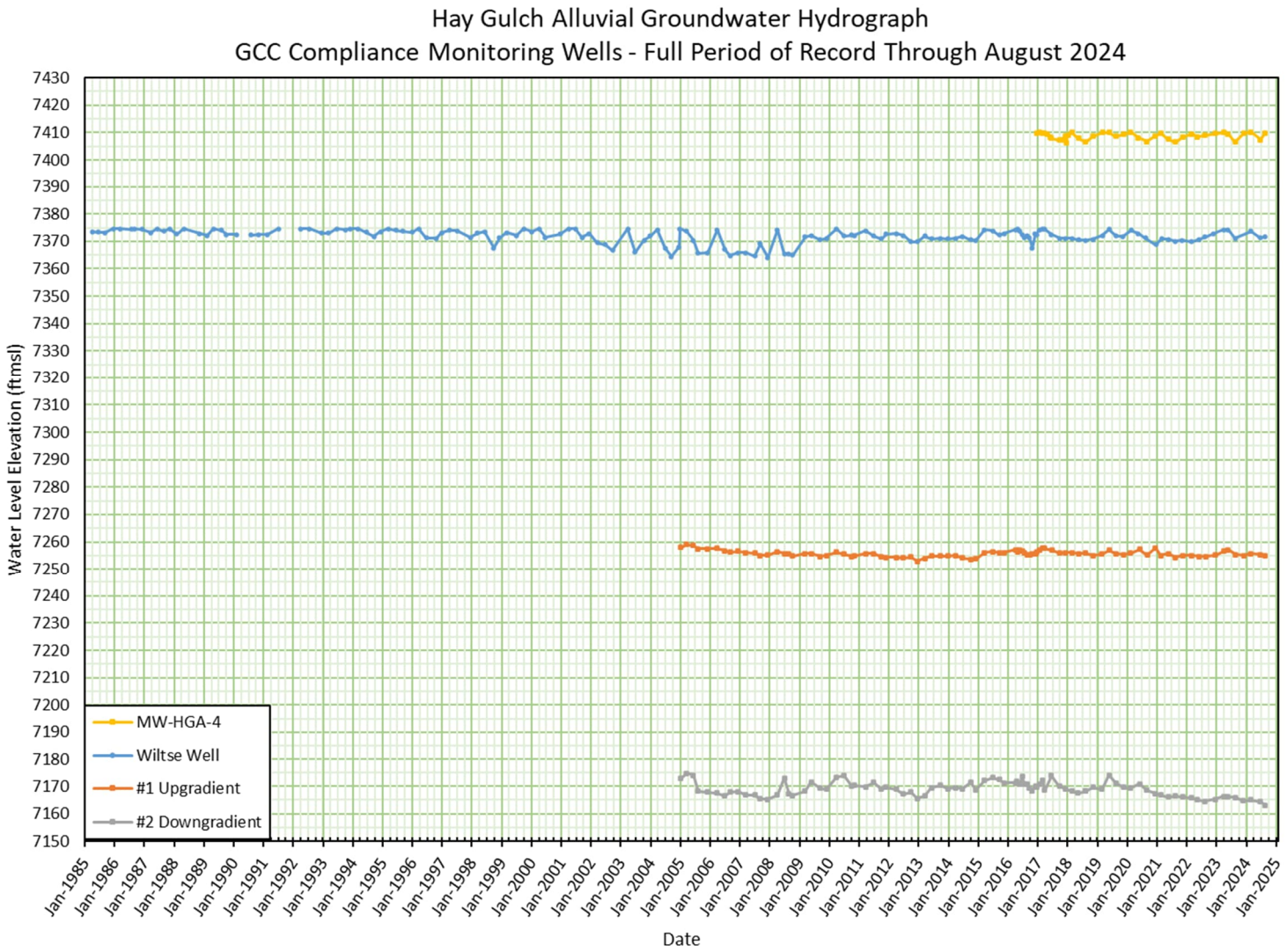

Figure 6. East Alkali Gulch alluvial groundwater hydrograph, full period of record through August 2024.

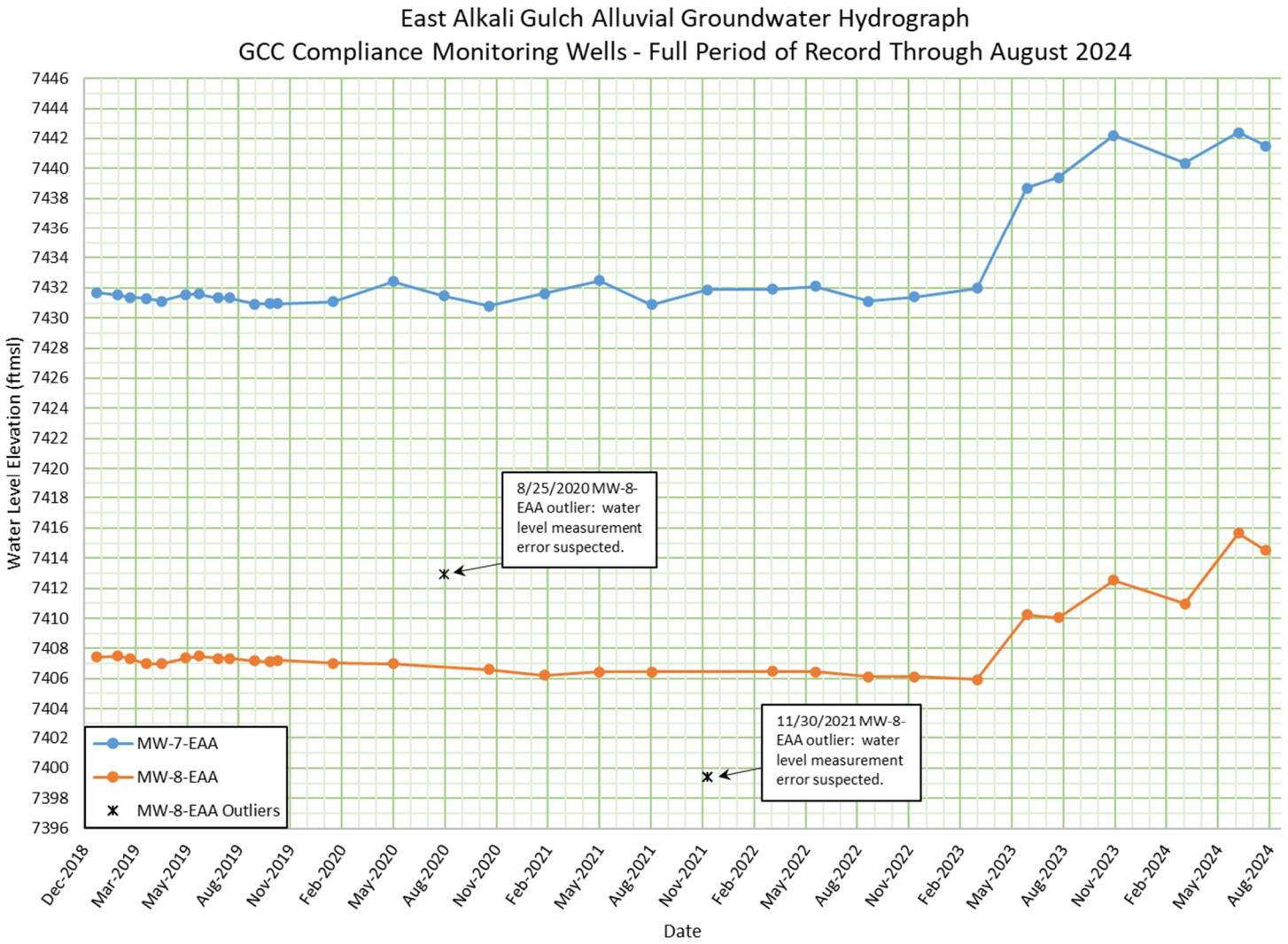

Figure 7. Alluvial groundwater table contour map, August 2024.

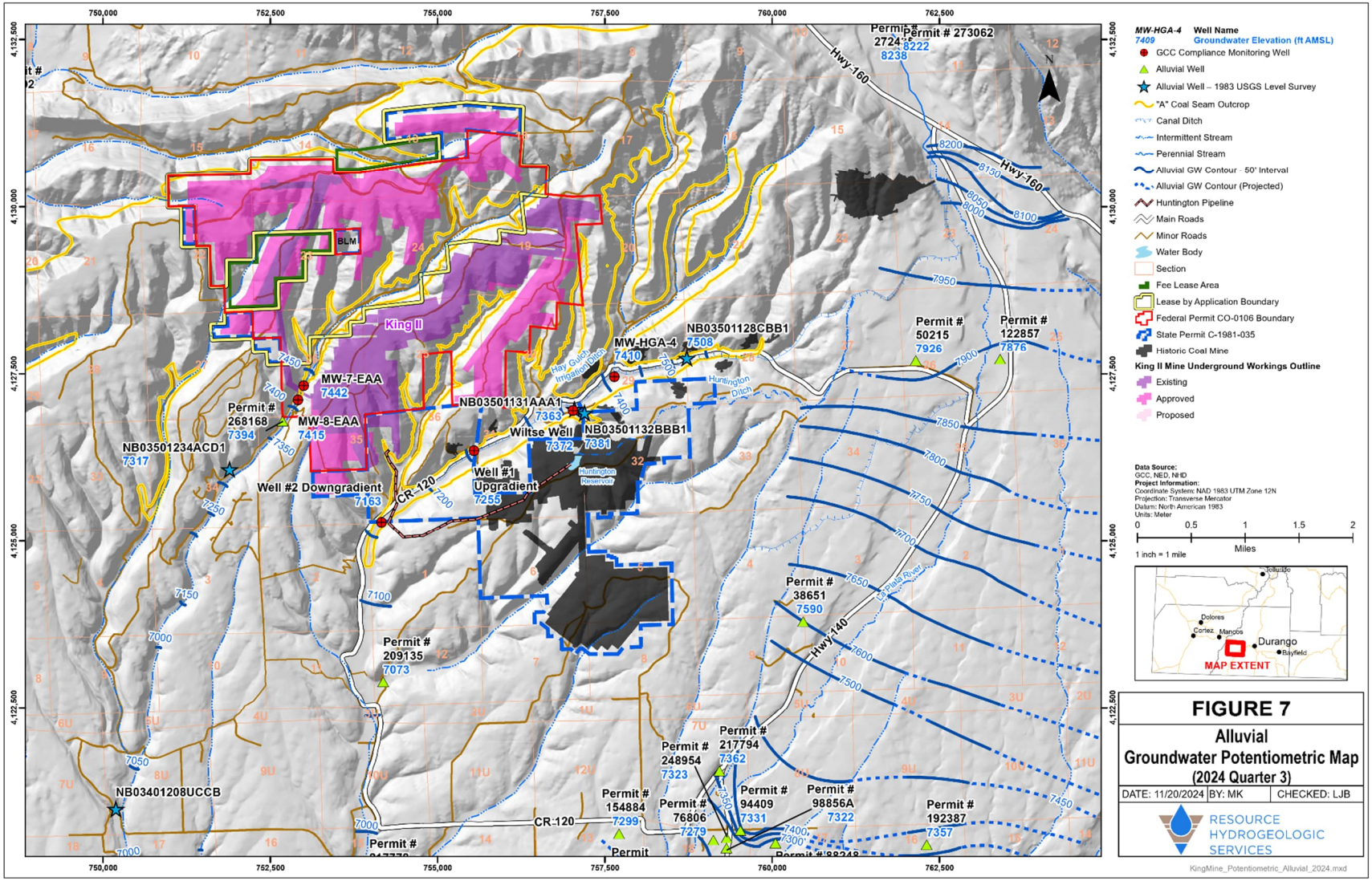

Figure 8. Comparison of major ion concentrations in Cliff House (“A” seam overburden) bedrock monitoring wells, and a seep (Seep-1) for 2024.

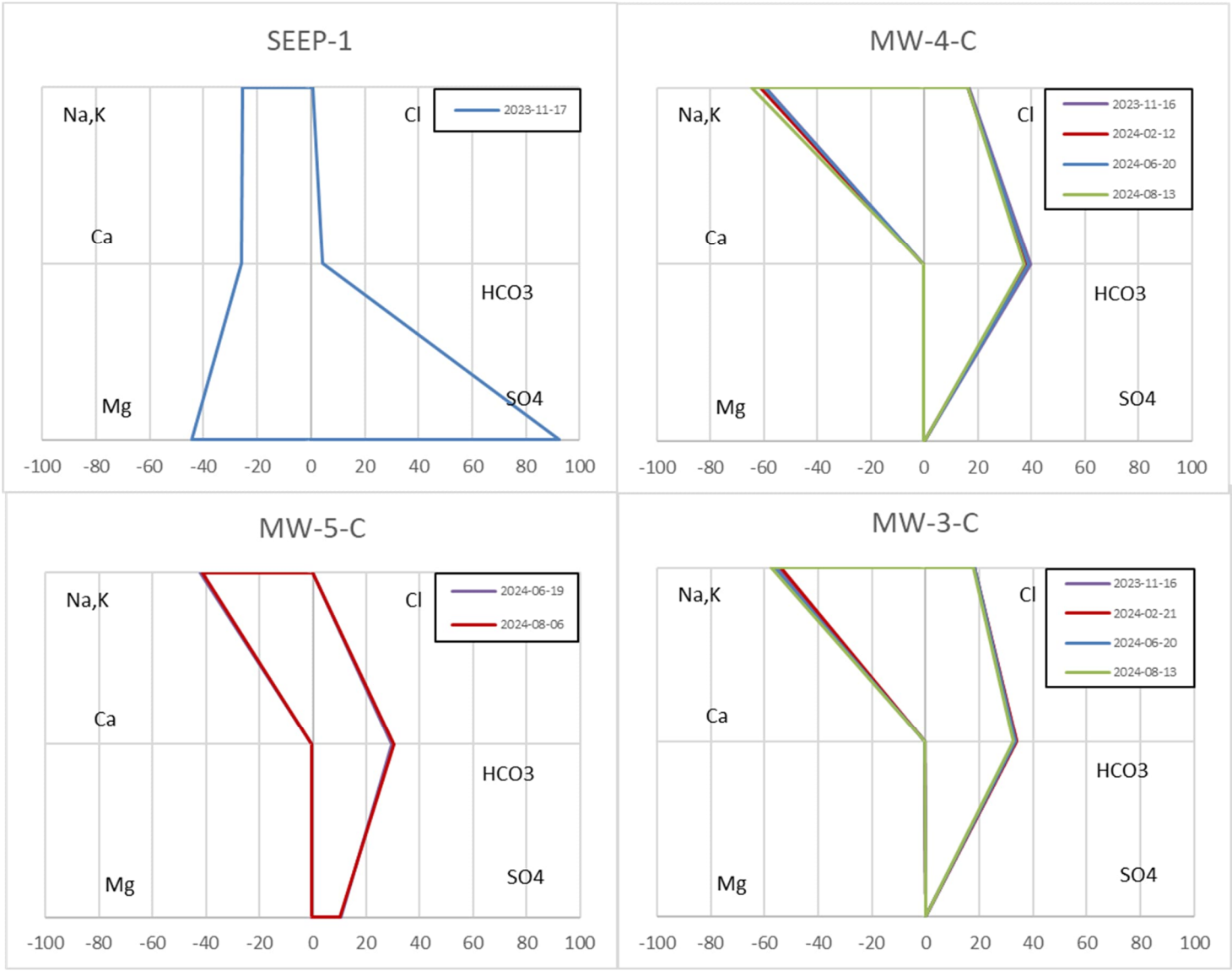

Figure 9. Stiff diagrams of the three wet GCC monitoring wells completed in the "A" coal seam of the Menefee Formation for 2024.

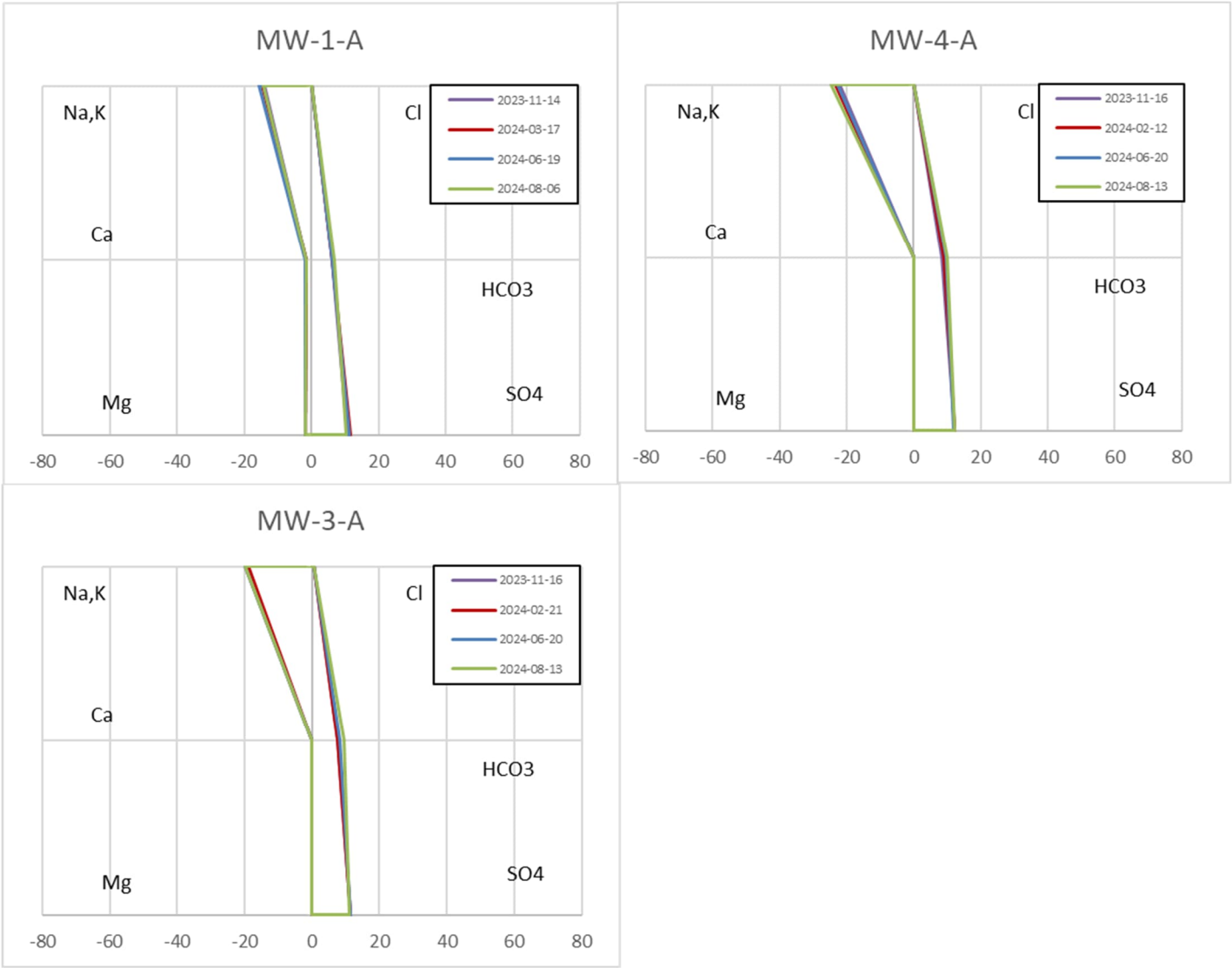

Figure 10. Stiff diagrams of the four wet GCC monitoring wells completed in the Menefee Interburden immediately below the "A" seam for 2024.

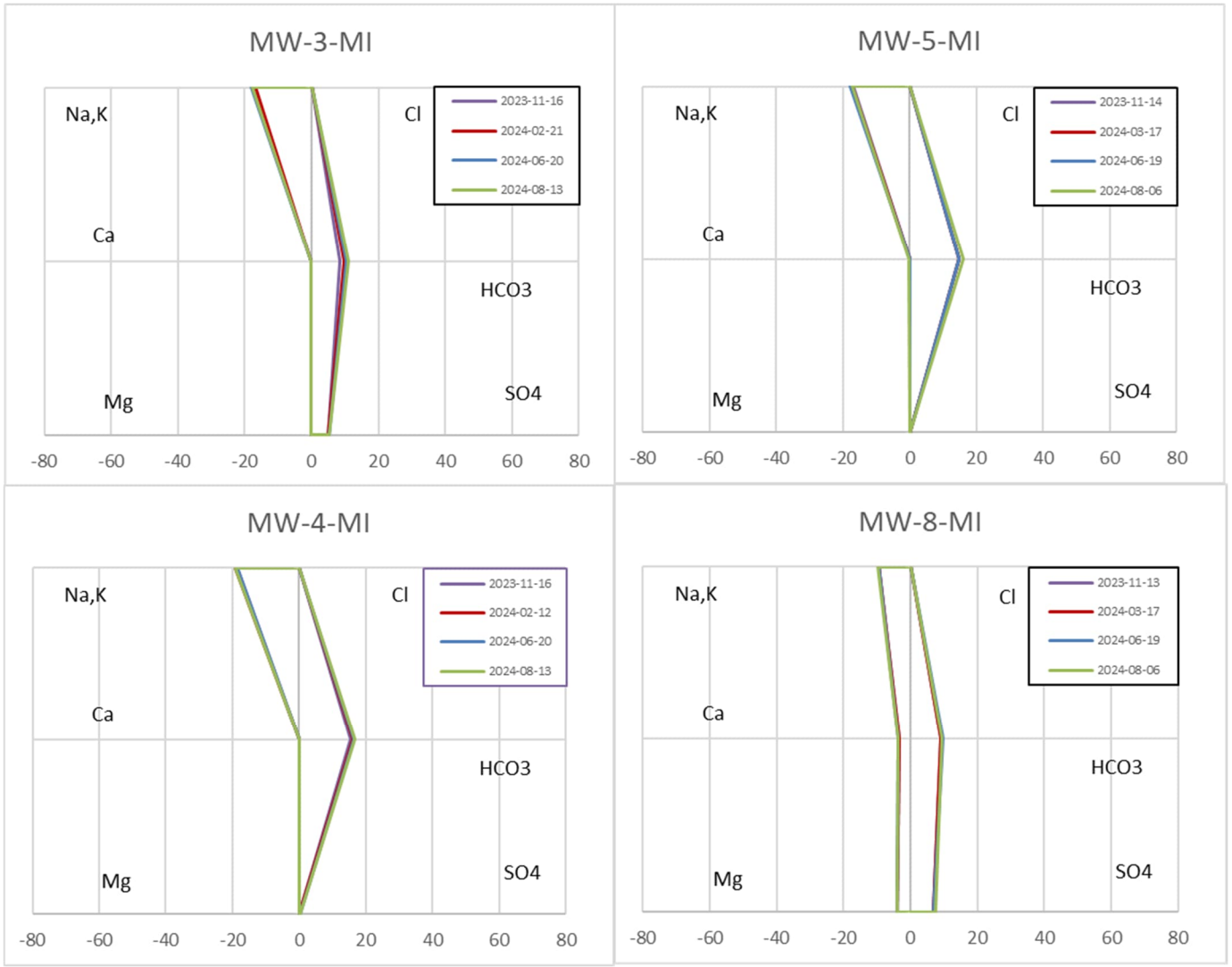

Figure 11. Stiff diagrams of GCC monitoring wells completed in the Lower Menefee for 2024.

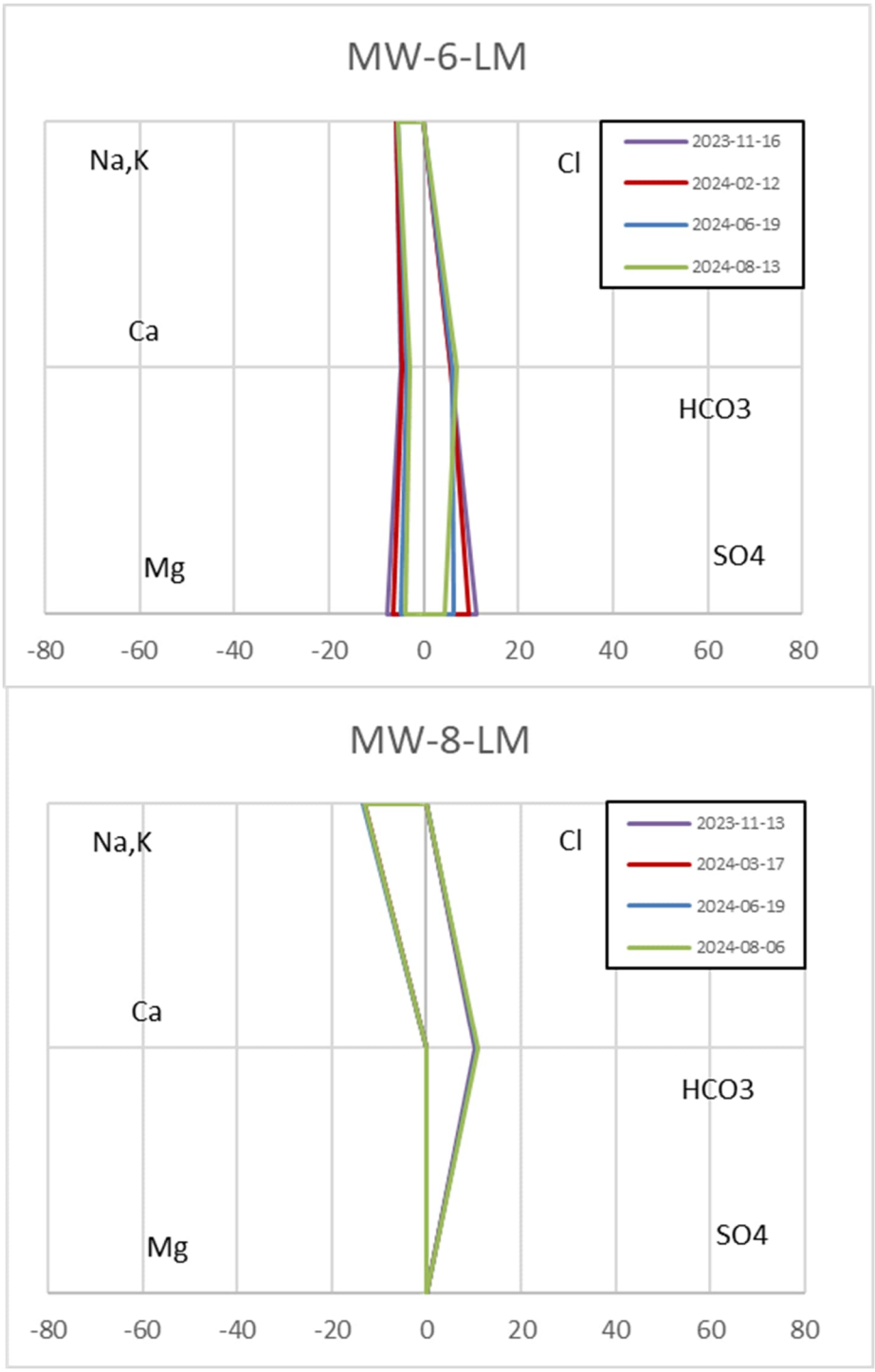

Figure 12. Stiff diagram of the single GCC monitoring well completed in the Point Lookout for 2024.

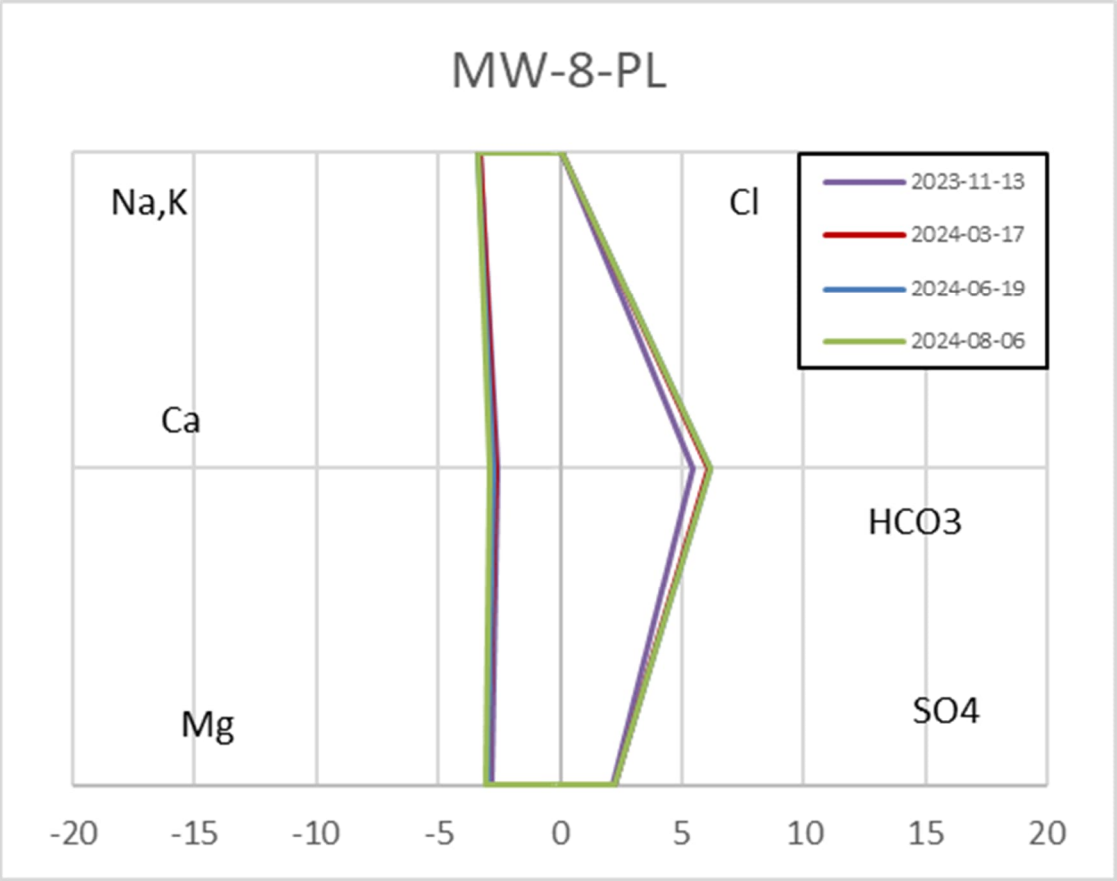

Figure 13. Concentrations of arsenic in bedrock groundwater (2016-2024).

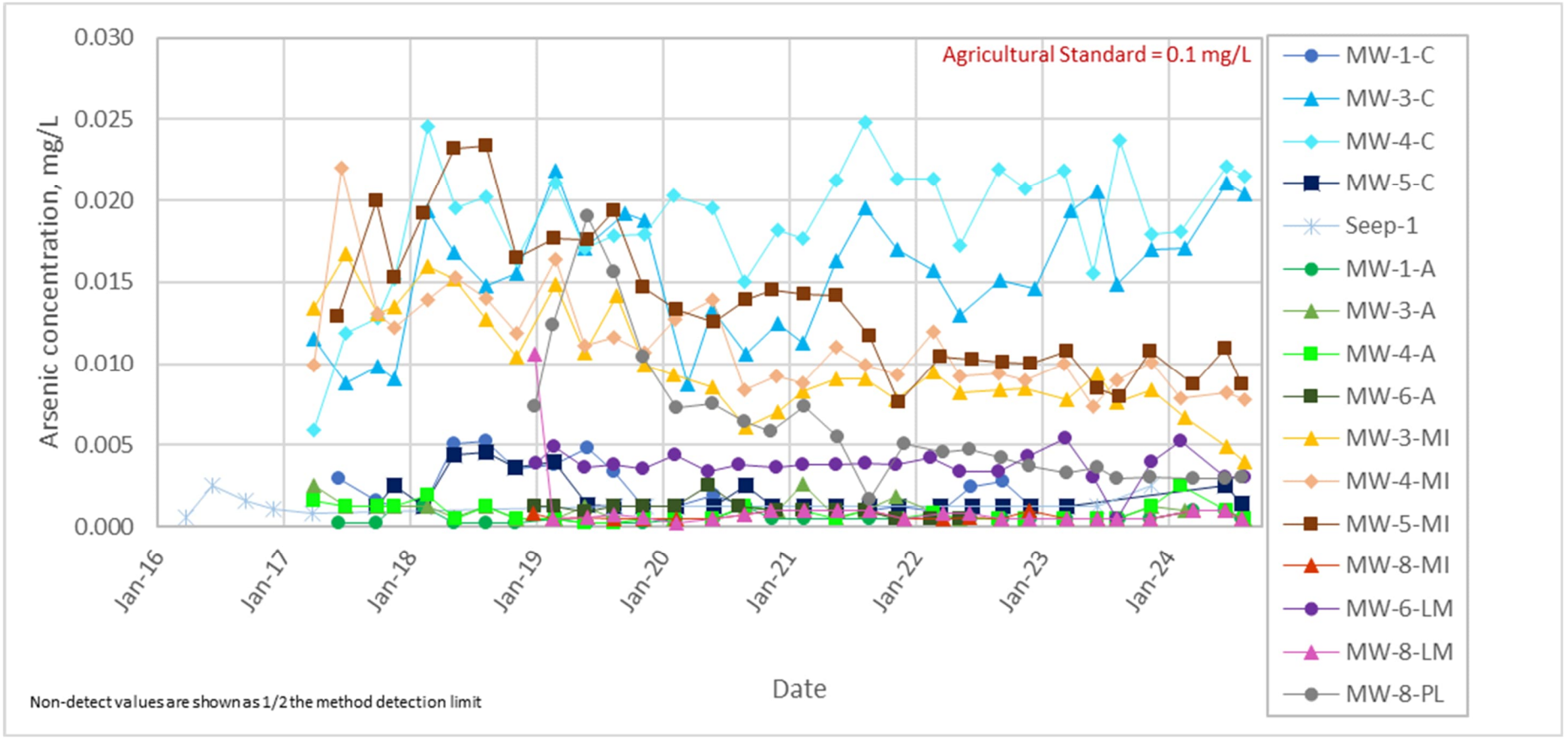

Figure 14. Concentrations of iron in bedrock groundwater (2016-2024).

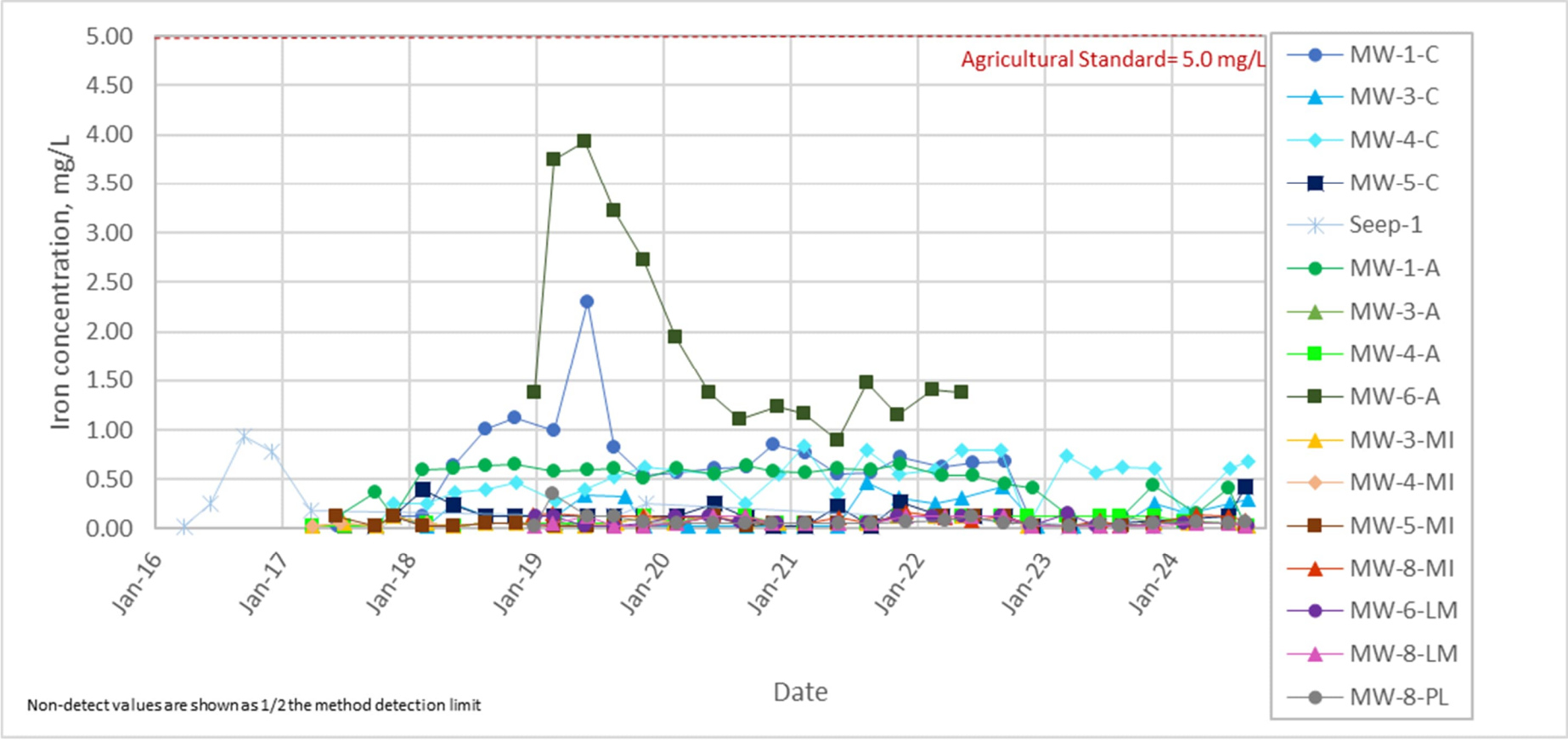

Figure 15. Concentrations of manganese in bedrock groundwater (2016-2024).

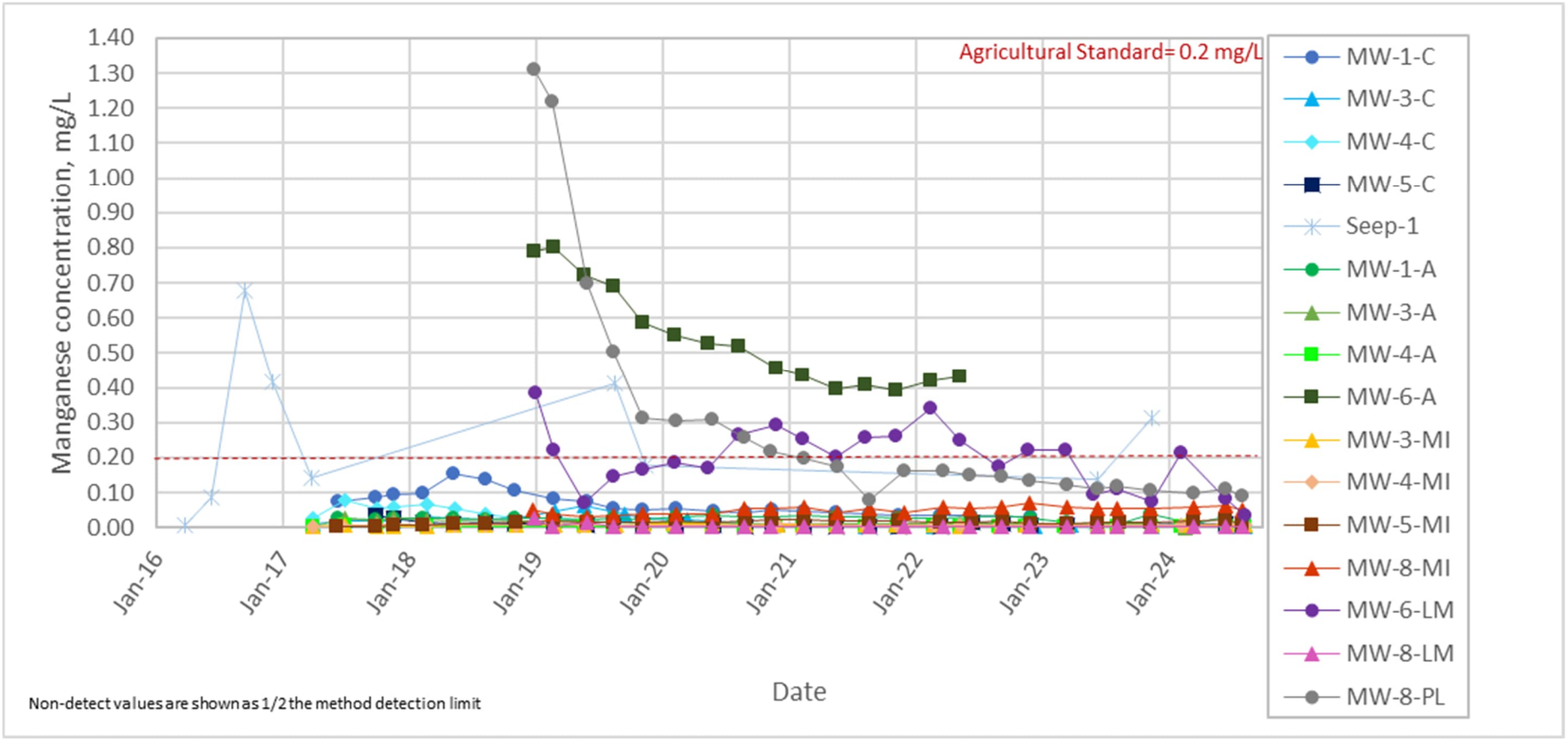

Figure 16. Concentrations of molybdenum in bedrock groundwater (2016-2024).

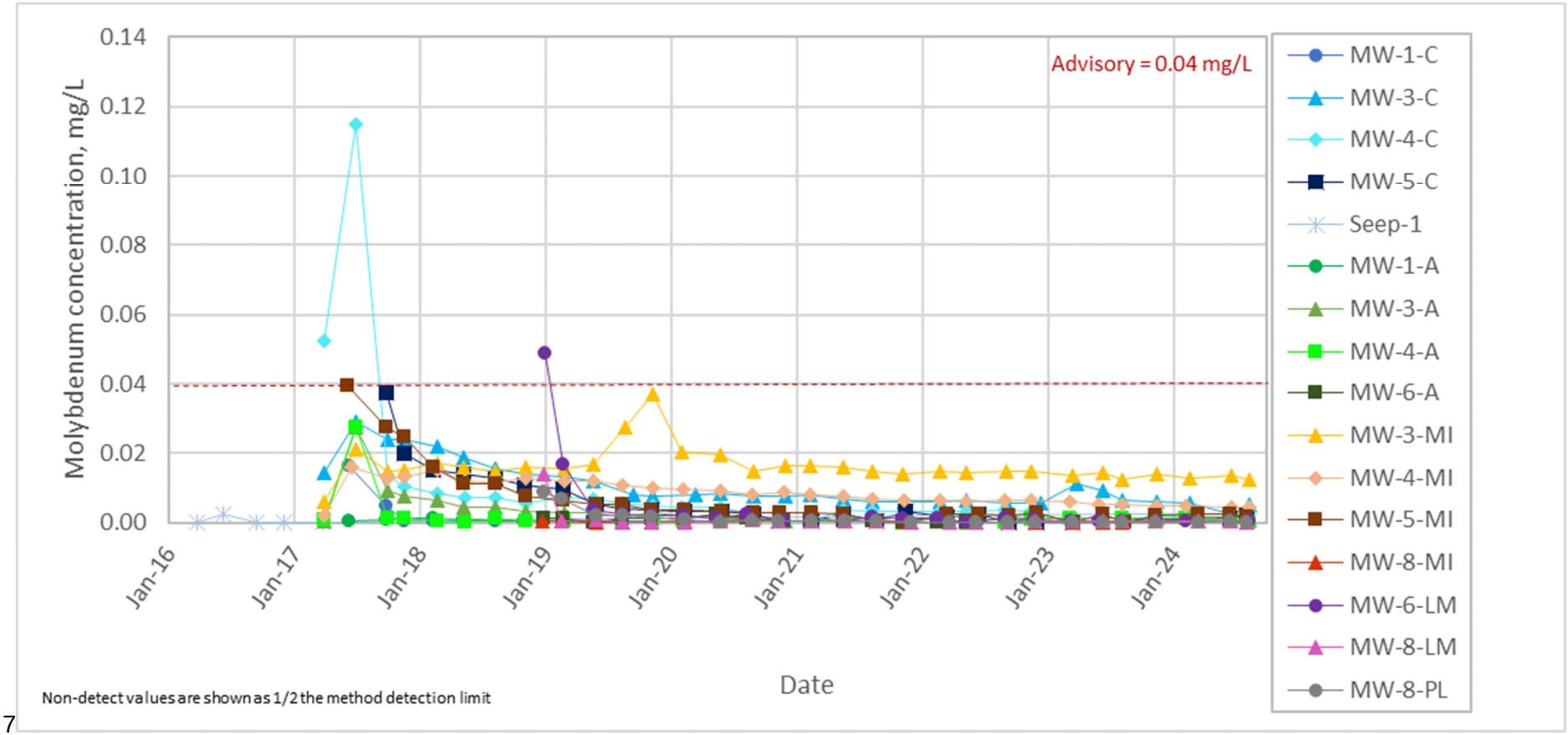

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Figure 17. Concentrations of selenium in bedrock groundwater (2016-2024).

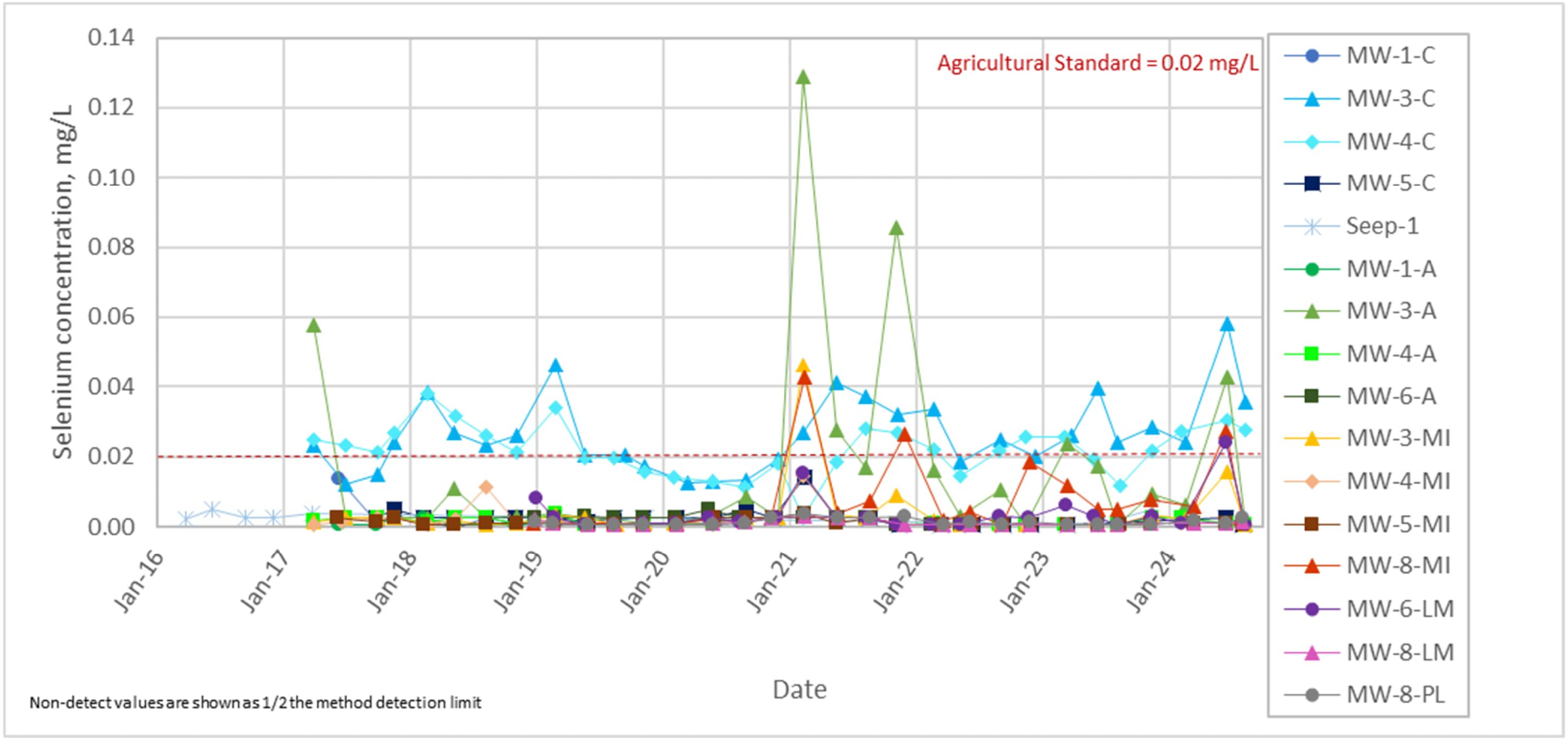


Figure 18. Concentrations of uranium in bedrock groundwater (2016-2024).

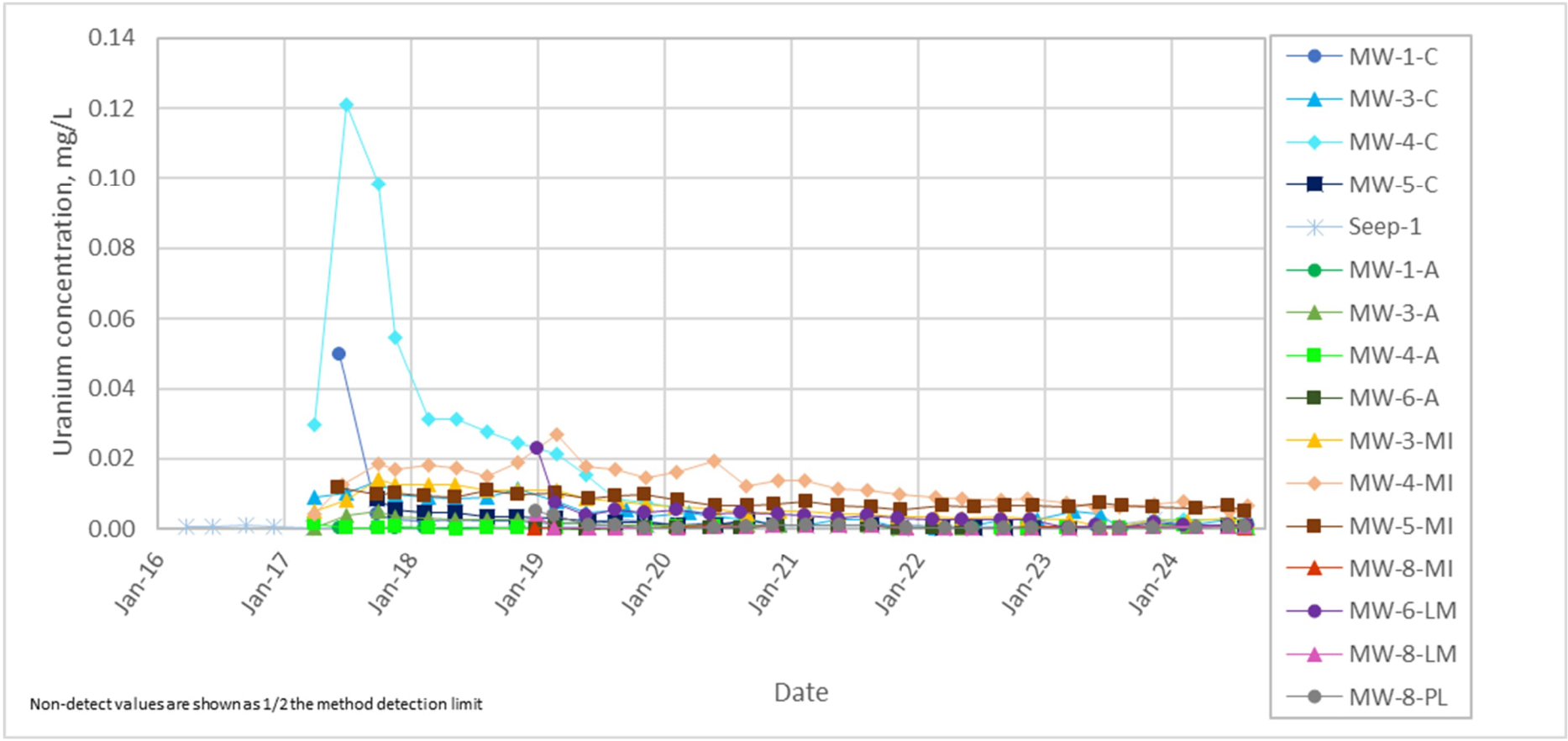


Figure 19. Cliff House groundwater potentiometric map, August 2024.

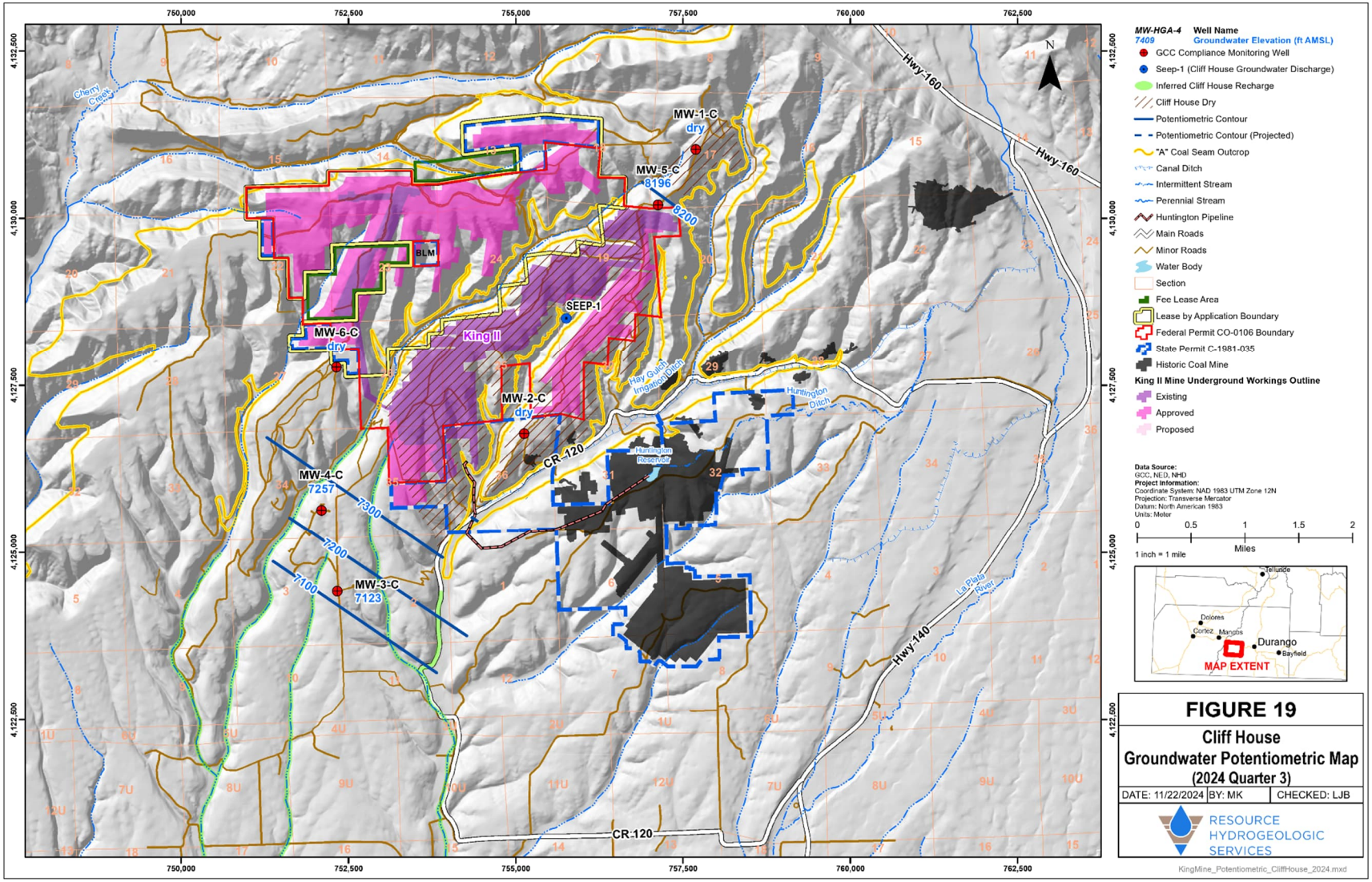


Figure 20. “A” seam coal groundwater potentiometric map, August 2024.

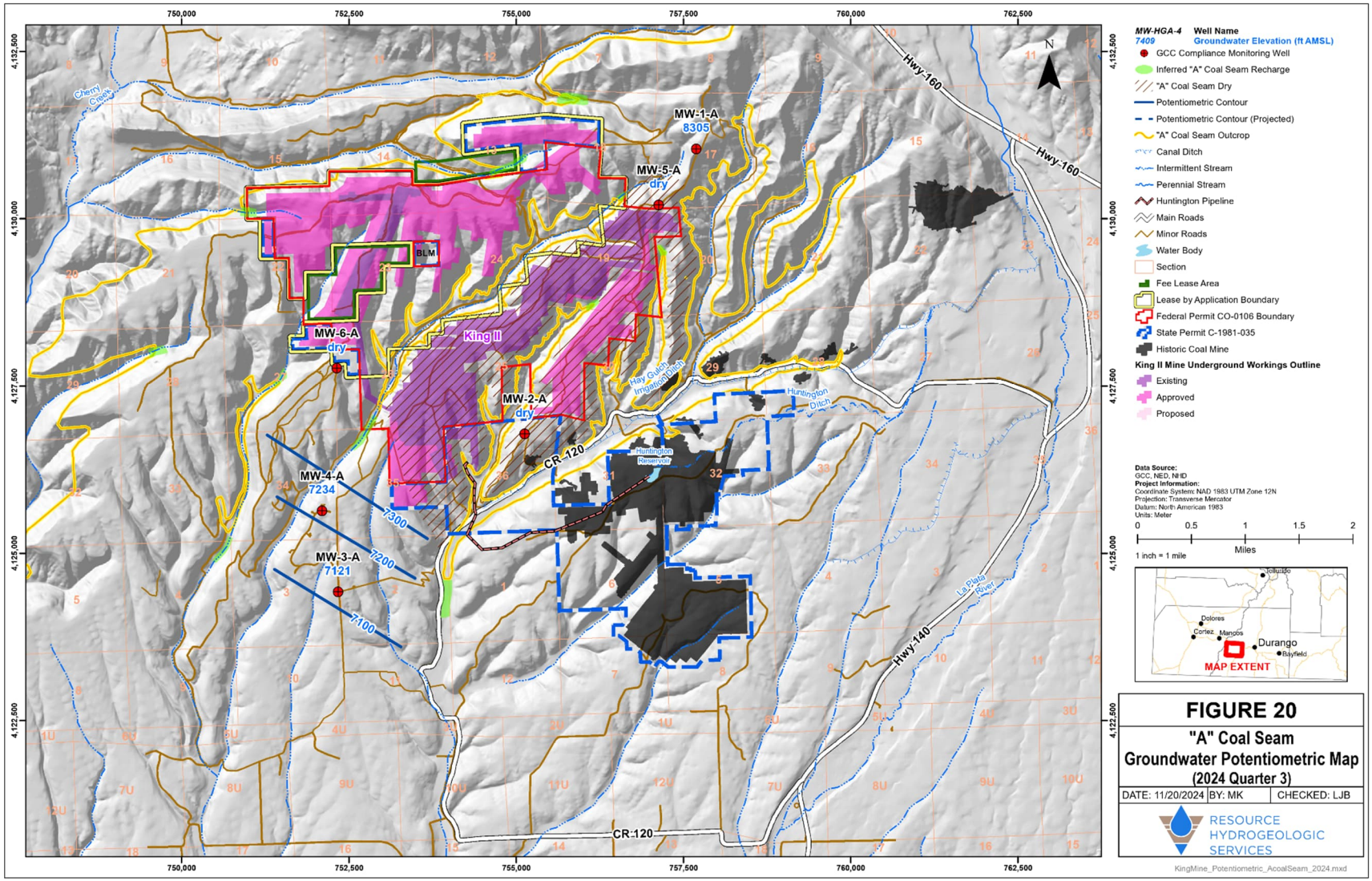


Figure 21. Menefee Interburden groundwater potentiometric map, August 2024.

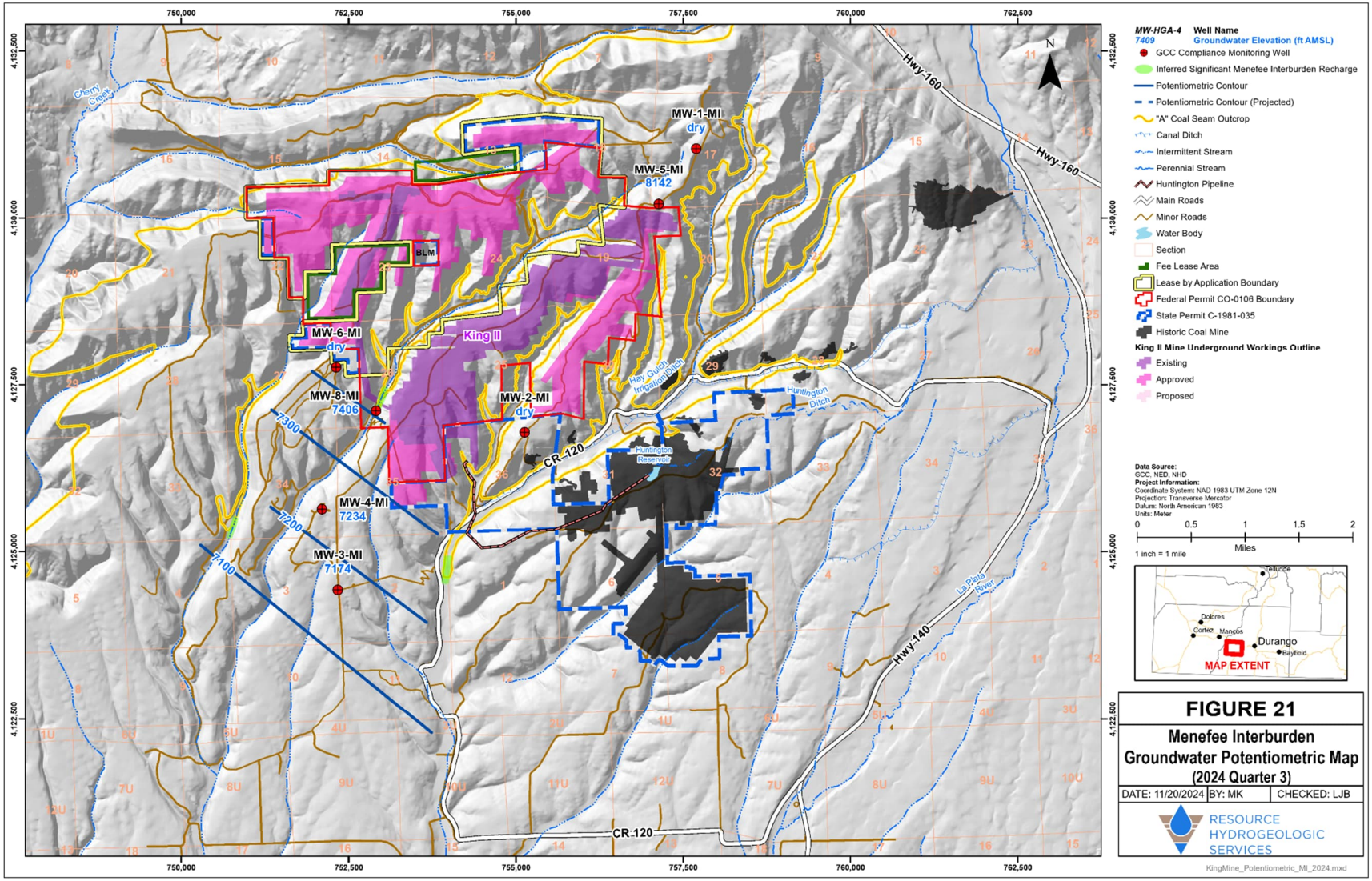


Figure 22. Lower Menefee groundwater potentiometric map, August 2024.

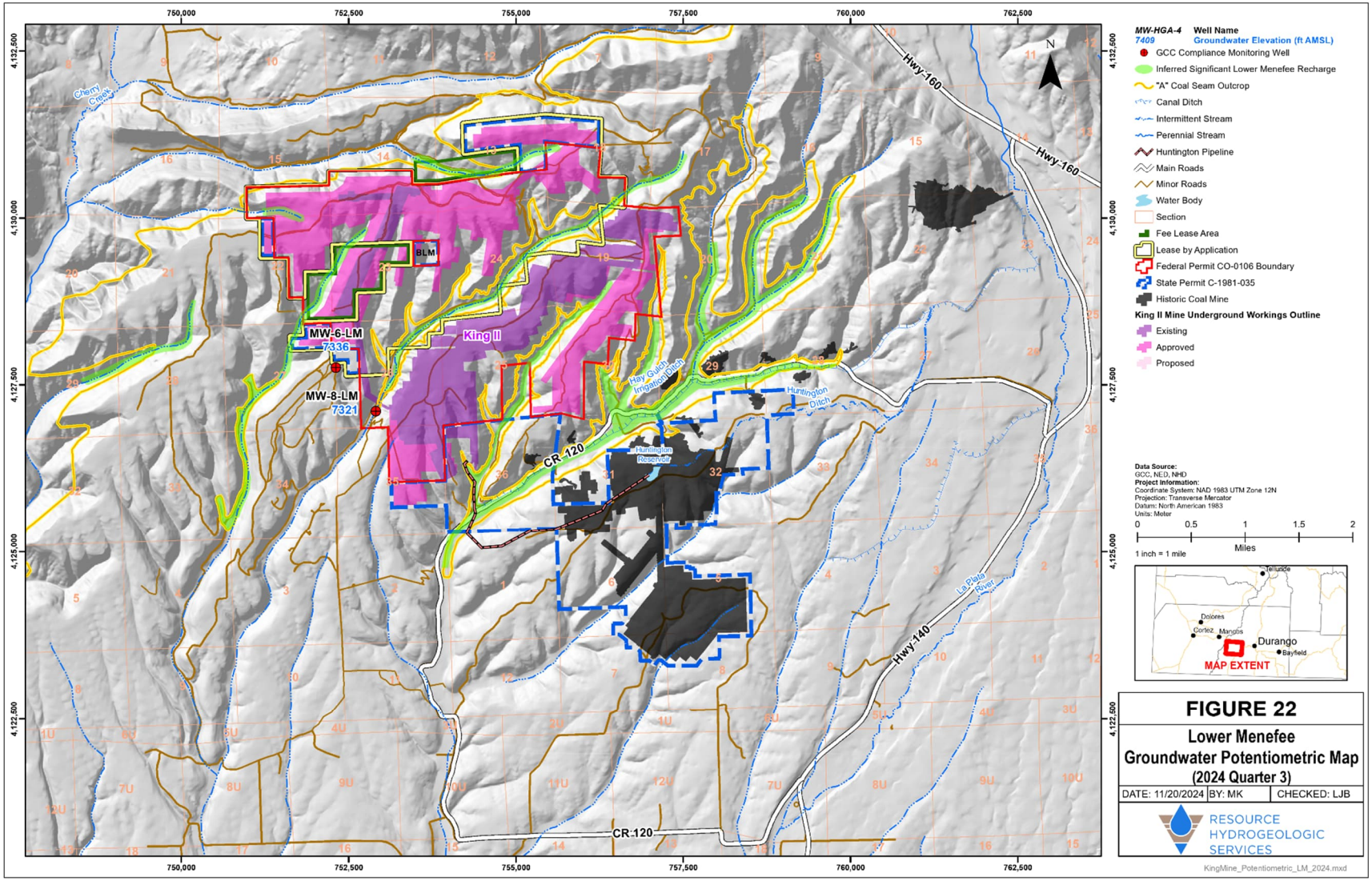
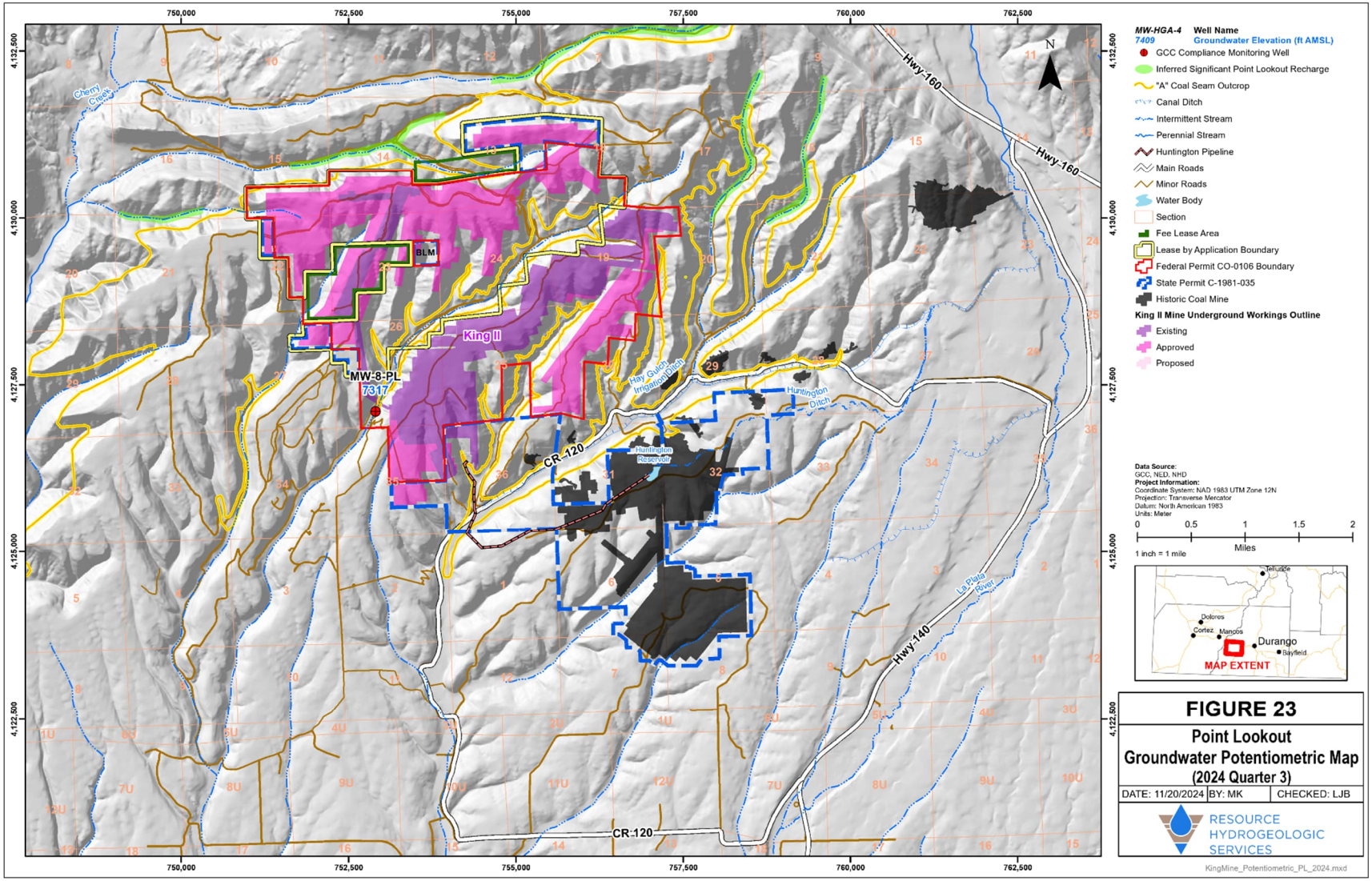


Figure 23. Point Lookout groundwater potentiometric map, August 2024.



ATTACHMENT - GCC Hydrologic Monitoring Data Summary Tables

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Upgradient																													
Year		2018				2019				2020				2021				2022				2023				2024		
Quarter		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		2	5	8	11	2	5	8	11	2	5	8	12	2	6	9	11	3	6	9	12	3	5	8	11	2	6	8
Sample Date		2/22	5/14	8/9	11/8	2/28	5/23	8/16	11/13	2/13	5/13	8/13	12/3	2/22	6/3	9/1	11/15	3/24	6/20	9/13	12/20	3/27	5/18	8/24	11/29	2/26	6/20	8/20
Lab Analysis (Y/N)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																													
Flow Rate	cfs	NM	0.60	0.70	0.70	0.25	3.63	1.17	NM	NM	0.92	0.13	1.02	0.06	0.16	NM	0.67	0.16	0.07	0.01	0.07	NM	0.74	0.89	0.64	0.44	0.66	1.85
Temperature	deg C	4.7	11.3	22.1	1.1	5.9	5.9	16.9	5.7	1.5	16.5	18.1	2.0	5.8	11.3	15.5	7.1	8.6	17.8	15.0	2.7	0.1	17.8	16.0	3.2	5.5	13.6	16.6
pH	SU	7.9	7.58	9.07	7.16	6.4	7.53	8.03	7.33	7.75	8.39	8.65	8.08	7.83	7.75	8.07	6.94	7.11	7.94	7.15	6.19	7.85	8.01	7.7	7.76	7.68	7.73	8.05
Specific Conductance	µS/cm	1041	304	307	307	752	306	275	682	902	314	528	434	1024	189	280	252	553	832	570	708	1508	442	764	1013	1058	532	306
Oxygen Reduction Potential	mV	-164.1	111.4	-181.3	13.9	103.7	-24.0	24.4	-22.4	-4.5	81.7	118.9	120.3	51.6	86.6	58.3	109.2	3.2	97.8	-108.9	-148.2	13.3	-8.6	-27.5	-76.4	-117.6	-9.7	21.4
Dissolved Oxygen	mg/L	9.4	8.5	6.4	10.2	8.0	8.9	7.8	7.9	7.0	7.5	8.4	10.4	8.7	8.5	7.1	9.2	8.5	8.5	8.1	10.4	9.0	7.3	6.0	8.0	6.7	6.1	6.7
Lab Analytical Results:																													
Hardness as CaCO3	mg/L	489	101	153	149	393	136	125	372	405	150	287	213	588	92.6	131	120	280	383	273	336	697	293	342	434	458	245	141
pH (Lab)	SU	8.39	7.99	9.07	7.86	7.45	7.69	7.83	7.40	7.22	7.60	8.01	7.92	7.57	7.72	7.44	7.52	7.81	7.87	7.81	7.98	7.56	7.91	7.56	7.85	7.96	7.76	7.96
Total Dissolved Solids (Lab)	mg/L	700	140	215	175	535	205	225	635	587	255	340	160	685	210	185	140	380	520	355	410	955	380	480	600	615	295	150
Total Suspended Solids	mg/L	6.01	106	6.25	14.8	22.0	113	20.0	5.38	<4.0	140	19.5	13.2	55	133	51	13.2	13.4	5.07	45.4	<2.5	121	38.0	9.79	< 2.50	10.0	57.3	4.92
Calcium	mg/L	87.3	26.3	39.1	40.3	79.8	34.6	32.4	79.3	81.5	36.1	63.2	49.9	113	25.8	35.8	34.2	61.7	70.8	55.0	69.9	124	63.5	70.2	86.3	90.2	50	37
Magnesium	mg/L	65.9	8.61	13.5	11.9	47.0	12.1	10.8	42.2	49	14.5	31.3	21.5	74.3	6.87	10.1	8.35	30.5	50.1	33.1	39.2	93.9	32.6	40.5	53.0	56.6	29.1	11.8
Sodium	mg/L	34.6	3.31	5.33	5.00	19.1	7.24	5.81	25.4	30.9	7.67	10.9	8.39	34.3	2.71	3.97	3.53	13.8	19.3	12.4	15.1	36.8	18.1	20.6	31.6	30.5	16.9	5.13
Potassium	mg/L	3.52	1.18	1.24	<1.00	3.89	1.57	1.07	3.25	3.65	1.86	1.85	1.53	4.74	<1.00	3.28	<1.00	3.39	3.58	2.18	2.82	6.20	2.79	2.97	6.33	4.89	3.32	1.3
Alkalinity, Total	mg/L	244	67	111	120	260	390	103	233	315	102	220	137	340	68	98	87.0	162	330	209	231	365	179	247	300	326	175	111
Alkalinity, Bicarbonate	mg/L	244	67	107	120	260	390	103	233	295	102	220	131	340	68	98	87.0	162	330	209	231	365	179	247	300	326	175	111
Alkalinity, Carbonate	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	46.7	3.12	6.70	5.58	48.1	7.75	6.04	22.8	31.6	9.64	24.5	14.8	85.9	3.17	5.23	3.44	32.3	33.6	21.9	29.2	108	36.1	41.7	45.8	51.2	21.6	7.84
Fluoride	mg/L	0.285	0.224	0.272	0.224	0.252	0.208	0.214	<0.500	0.239	<0.500	0.226	0.226	0.235	0.188	0.227	0.179	0.178	0.260	0.238	0.227	0.266	0.185	0.235	0.189	< 0.200	0.223	0.215
Sulfate as SO4	mg/L	229	34	49.7	45.0	128	47.2	35.6	107	151	44.0	86.3	64.4	211	26.4	42.2	40.0	95.5	121	85.1	99.4	314	116	114	152	159	76.6	38.8
Total Organic Carbon (TOC)	mg/L	1.81	2.31	1.61	1.09	4.94	3.08	1.84	4.54	5.45	2.93	1.65	1.22	2.69	1.39	2.8	0.832	1.86	5.18	1.74	0.897	3.93	6.04	4.35	6.45	8.35	8.72	1.41
Oil & Grease	mg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Nitrate/Nitrite as N	mg/L	0.105	0.026	<0.020	<0.020	0.263	0.050	0.072	0.104	0.044	0.302	0.042	0.026	0.282	0.049	0.026	<0.02	0.118	0.165	<0.02	0.066	0.850	0.133	0.298	0.113	0.038	0.085	0.024
Sodium Adsorption Ratio (SAR)	no unit	0.68	0.14	0.18	0.16	0.42	0.26	0.22	0.55	0.65	0.26	0.29	0.25	0.62	0.12	0.15	0.14	0.36	0.43	0.33	0.37	0.61	0.46	0.48	0.66	0.63	0.47	0.19
Ammonia as N ^	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.250	<0.050	< 0.050	< 0.100	< 0.100	< 0.050	< 0.050
Arsenic	mg/L	<0.0025	<0.0005	0.0009	<0.0005	0.0007	0.0006	0.0007	0.0005	0.0006	<0.0005	0.0007	<0.0005	0.0012	<0.0005	0.001	<0.0005	0.0005	0.0010	0.0007	0.0009	<0.0025	0.0006	0.0008	< 0.0010	0.0011	< 0.0010	< 0.0010
Cadmium	mg/L	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	< 0.0005	< 0.0010	< 0.0005	< 0.0005	< 0.0005
Copper	mg/L	0.0007	0.0011	0.0011	0.0013	0.0026	0.0013	0.0012	0.0005	0.0005	0.0010	0.0006	0.0005	0.0007	0.0009	0.0012	0.0006	0.0011	0.0011	0.0007	0.0069	0.0102	0.0036	0.0020	< 0.0040	0.0031	0.0036	0.0053
Iron	mg/L	<0.0500	<0.0500	<0.0500	<0.0500	0.255	0.055	<0.0500	0.316	0.551	<0.0500	<0.0500	<0.0500	0.103	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.272	<0.0500	0.237	< 0.100	0.528	0.081	< 0.050
Lead	mg/L	<0.0025	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	< 0.0005	< 0.0010	< 0.0005	< 0.0005	< 0.0005
Manganese	mg/L	0.0049	0.0093	0.0016	0.0043	0.127	0.0349	0.0096	0.113	0.368	0.0297	0.0087	0.0047	0.149	0.0042	0.0156	0.0074	0.0337	0.0761	0.0241	0.0398	0.432	0.0989	0.140	0.317	0.754	0.102	0.0157
Mercury (total)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002											
Mercury (total low-level)	ng/L															<10.0	<10.0	<0.200	<100	<100	<100	<100	<100	<100	<100	<10.0	<10.0	<10.0
Molybdenum	mg/L	<0.0025	0.001	0.0012	0.0009	0.0011	0.0009	0.0011	0.0007	0.0005	0.0009	0.0009	0.0009	0.0007	0.0009	0.0011	0.0008	0.0009	0.0014	0.0012	0.0012	<0.0025	0.0008	0.0013	< 0.0010	0.0009	0.0012	0.001
Selenium	mg/L	<0.0050	<0.0010	<0.0010	<0.0010	0.0017	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0018	<0.0010	<0.0010	<0.001	<0.0010	0.0012	<0.001	0.0011	<0.0050	<0.0010	< 0.0010	< 0.0020	0.0013	0.0018	< 0.0010
Silica (Si02)	mg/L	11.0	8.4	8.64	8.31	11.3	8.55	9.17	13.4	13	7.57	7.36	9.86	13.4	7.18	9.33	8.95	9.73	13.9	10.6	11.3	12.3	12.0	11.9	14.0	13.2	10.5	9.51
Silicon	mg/L	5.14	3.93	4.04	3.88	5.29	3.99	4.29	6.25	6.06	3.54	3.44	4.61	6.26	3.36	4.36	4.18	4.55	6.49	4.96	5.30	5.77	5.61	5.59	6.53	6.19	4.90	4.44
Uranium	mg/L	0.0013	0.0001	0.0002	0.0003	0.0009	0.0003	0.0004	0.0007	<0.0005	<0.0005	0.0006	<0.0005	0.0013	<0.0005	<0.0005	<0.0005	0.0005	0.0008	0.0006	0.0006	<0.0025	<0.0005	0.0010	< 0.0010	0.0005	0.0005	< 0.0005
Zinc	mg/L	<0.0100	<0.0020	0.0033	<0.0020	0.0044	<0.0020	<0.0020	0.0033	0.0087	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0050	<0.0100	0.0047	0.0022	< 0.0040	0.0056	0.0095	0.0123

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis
Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)
ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Downgradient																												
Year		2018				2019				2020				2021				2022				2023				2024		
Quarter		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		2	5	8	11	2	5	8	11	2	6	8	12	2	6	9	11	3	6	9	12	3	5	8	11	2	6	8
Sample Date		2/22	5/7	8/9	11/7	2/28	5/23	8/16	11/13	2/6	6/1	8/13	12/3	2/22	6/3	9/1	11/15	3/24	6/20	9/13	12/20	3/27	5/18	8/18	11/21	2/26	6/20	8/20
Lab Analysis (Y/N)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																												
Flow Rate	cfs	NM	NM	NM	0.50	0.25	0.30	1.05	NM	NM	1.50	0.13	NM	0.001	0.40	NM	0.67	0.06	0.04	0.01	0.07	0.10	1.34	0.20	0.08	0.06	0.57	0.43
Temperature	deg C	6.3	11.3	20.6	4.7	6.88	8.23	15.15	3.51	3.73	14.21	20.4	6.83	10.37	13.35	10.47	4.00	9.21	17.71	18.02	4.05	4.52	15.48	14.54	7.36	5.85	15.03	14.51
pH	SU	8.33	7.58	7.43	7.48	6.42	7.77	7.61	8.38	7.94	8.24	8.00	7.7	7.76	8.12	8.26	7.00	7.22	7.53	6.50	6.42	8.43	8.30	7.68	8.29	8.23	8.35	8.14
Specific Conductance	µS/cm	742	304	356	309	577	202	295	554	882	137	237	478	815	131	184	311	636	150	248	292	891	762	835	976	984	358	378
Oxygen Reduction Potential	mV	51.6	111.4	-10.0	-88.9	125.6	50.6	111.6	-108.1	124.2	104.8	103.0	127.8	-26.5	85.1	119.5	122.7	-85.2	136.1	39.9	-132.7	66.9	79.6	-148.0	-29.4	-12.0	47.6	79.7
Dissolved Oxygen	mg/L	9.8	8.5	6.3	9.1	7.6	8.8	7.2	9.6	9.5	8.0	6.4	9.6	6.8	7.8	6.7	9.8	NM	7.2	7.0	9.7	10.2	6.8	7.3	9.0	9.8	7.2	6.8
Lab Analytical Results:																												
Hardness as CaCO3	mg/L	329	140	182	167	281	91.9	137	295	416	63.6	120	232	419	64.8	90.7	143	346	65.7	95.9	138	433	337	497	467	439	180	184
pH (Lab)	SU	8.17	8.05	8.09	7.95	7.84	7.68	7.73	7.73	7.80	7.49	7.59	7.85	7.83	7.74	7.58	7.39	8.01	7.86	7.68	7.97	7.95	8.09	8.28	8.07	8.04	8.2	8.04
Total Dissolved Solids (Lab)	mg/L	420	220	260	185	390	185	195	355	573	120	135	370	435	175	90	120	410	29.9	89.9	225	555	475	625	575	570	195	225
Total Suspended Solids	mg/L	49.5	<2.00	5.67	4.40	18.4	153.0	22.5	<4.00	4.20	17.5	28.6	10.5	28.0	8.4	4.8	5.44	18.3	29.2	3.67	8.00	17.8	62.0	16.0	3.38	25.7	31.3	9.15
Calcium	mg/L	75.4	37.5	49.0	44.7	61.6	26.0	34.5	67.2	85.6	20.3	34.2	55.6	98.2	21.2	29.8	39.3	82.1	21.4	30.2	39.0	101	75.8	114	110	99.9	42.9	47
Magnesium	mg/L	34.2	11.2	14.4	13.4	31	6.54	12.3	30.8	49.0	3.15	8.38	22.7	42.2	2.86	3.94	11.0	34.2	2.96	5.01	9.73	43.8	35.8	51.9	47.1	46.0	17.6	16.3
Sodium	mg/L	18.1	5.42	6.49	5.15	16.5	5.03	6.62	17.0	28.5	1.90	3.68	9.03	15.8	1.14	1.75	4.71	16.4	1.58	2.04	4.08	18.6	18.5	29.6	21.7	21.6	8.83	6.83
Potassium	mg/L	2.84	1.14	1.58	1.34	3.13	1.31	1.27	2.60	3.81	<1.00	1.36	1.89	3.75	<1.00	1.02	1.30	2.89	<1.00	<1.00	1.07	2.94	2.77	6.45	4.82	3.73	1.36	1.53
Alkalinity, Total	mg/L	265	112	170	140	150	340	140	194	297	48	110	158	315	52	72	116	282	46.0	73.0	103	303	218	293	325	312	129	139
Alkalinity, Bicarbonate	mg/L	259	104	170	140	150	340	140	188	283	48	110	154	315	52	72	116	282	46.0	73.0	103	293	218	265	325	296	129	139
Alkalinity, Carbonate	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	14.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	28.0	< 10.0	16.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	23.1	7.54	7.47	5.69	40.2	16.9	7.65	14.8	30.7	1.87	4.42	17.1	59	1.16	1.21	5.07	15.0	1.23	1.69	6.57	39.6	39.4	50.5	42.7	51.6	12.7	11.9
Fluoride	mg/L	0.308	0.228	0.295	0.228	0.232	0.205	0.218	0.252	0.272	0.185	0.224	0.244	0.246	0.195	0.216	0.185	0.257	0.191	0.221	0.213	0.274	0.202	0.231	0.201	0.201	0.216	0.223
Sulfate as SO4	mg/L	86.5	40.2	46.8	45.0	91.4	18.5	42.7	83.3	143	14.2	32.4	70.2	90.1	17.3	25.7	46.3	74.7	18.8	26.4	42.2	138	127	168	138	142	47.6	48.6
Total Organic Carbon (TOC)	mg/L	1.56	1.28	1.33	1.76	2.90	2.37	2.10	3.26	4.53	1.39	1.47	1.55	2.31	1.18	1.48	1.12	1.42	1.10	1.13	1.01	<5.00	6.19	6.17	4.04	3.74	2.01	2.35
Oil & Grease	mg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	< 5.00	< 5.00 ~	< 5.00	< 5.00	< 5.00
Nitrate/Nitrite as N	mg/L	<0.020	<0.020	<0.020	<0.020	0.17	0.146	0.090	<0.020	0.056	0.031	0.053	<0.020	0.148	0.021	<0.020	<0.020	0.041	<0.02	<0.02	<0.02	0.361	0.170	0.078	< 0.020	0.072	0.056	0.025
Sodium Adsorption Ratio (SAR)	no unit	0.43	0.2	0.20	0.17	0.43	0.22	0.24	0.41	0.61	0.10	0.14	0.26	0.34	0.06	0.08	0.17	0.38	0.08	0.90	0.15	0.39	0.44	0.58	0.44	0.46	0.29	0.22
Ammonia as N ^	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.100	<0.050	< 0.100	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic	mg/L	0.0005	0.0005	0.0008	<0.0005	0.0006	0.0006	0.0006	0.0005	0.0006	<0.0005	0.0007	<0.0005	0.0013	<0.0005	0.0007	<0.0005	<0.0005	0.0010	0.0007	0.0005	<0.001	0.0009	< 0.0010	< 0.0005	< 0.0010	< 0.0010	< 0.0010
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	< 0.0010	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Copper	mg/L	0.0005	0.0008	0.0008	0.0008	<0.0010	0.0021	0.0009	0.0007	0.0006	0.0014	0.0009	0.0005	0.0006	0.0011	0.001	0.0007	0.0009	0.0034	0.0010	0.0045	0.0070	0.0026	0.0029	0.0025	0.0028	0.0022	0.0194
Iron	mg/L	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050	< 0.100	< 0.050	< 0.050	< 0.050	< 0.050
Lead	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	< 0.0010	<0.0005	< 0.0010	< 0.0005	< 0.0005	< 0.0005	0.0016
Manganese	mg/L	0.0962	0.0038	0.0445	0.0102	0.048	0.0125	0.0033	0.0102	0.0286	0.0012	0.0046	0.0116	0.133	0.0011	0.0021	0.0124	0.0082	0.0024	0.0175	0.0315	0.0552	0.0233	0.0156	0.0490	0.0844	0.0055	0.0153
Mercury (total)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00002											
Mercury (total low-level)	ng/L															<10.0	<10.0	<0.200	<100	<100	<100	<100	<100	<100	<100	<10.0	<10.0	< 10.0
Molybdenum	mg/L	0.0010	0.0011	0.0012	0.0010	0.001	0.0011	0.0012	0.0007	0.0006	0.0008	0.0012	0.0009	0.0009	0.0009	0.001	0.0009	0.0010	0.0010	0.0011	0.0009	<0.001	0.0009	0.0010	0.0008	0.0009	0.001	0.0009
Selenium	mg/L	0.0011	<0.0010	<0.0010	<0.001	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	0.0010	0.0011	<0.0010	<0.0010	< 0.0020	0.0010	< 0.0020	0.0013	0.0014	0.0014	< 0.0010
Silica (Si02)	mg/L	10.7	8.41	8.77	8.66	8.46	5.70	8.86	11.8	12.3	6.38	7.14	10.6	12.9	6.68	8.84	9.38	12.0	6.98	7.96	8.75	11.3	11.8	13.4	13.8	11.3	9.03	9.95
Silicon	mg/L	5.01	3.93	4.10	4.05	3.95	2.67	4.14	5.50	5.75	2.98	3.34	4.94	6.01	3.12	4.13	4.38	5.59	3.26	3.72	4.09	5.26	5.50	6.25	6.47	5.27	4.22	4.65
Uranium	mg/L	0.0012	0.0004	0.0005	0.0003	0.0009	0.0002	0.0004	0.0007	0.0006	<0.0005	<0.0005	0.0005	0.0009	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	0.0010	0.0007	0.0010	0.0009	0.0011	< 0.0005	< 0.0005
Zinc	mg/L	<0.0020	0.0074	0.0048	0.0035	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	0.0022	<0.0020	0.0065	0.0042	<0.0020	< 0.0040	0.0032	0.0026	0.0031	0.026

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

~ re-sample on 12/19/23 following detection of 9.10 mg/L on 11/21/23

^ one-time analysis

Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)
ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

Well #1 Upgradient																											
Year		2018				2019				2020				2021				2022				2023				2024		
Quarter		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		2	5	8	11	2	5	8	11	2	6	8	12	2	5	8	11	3	6	8	12	3	5	8	11	2	6	8
Sample Date		2/22	5/14	8/9	11/7	2/25	5/23	8/16	11/14	2/13	6/1	8/31	12/14	2/11	5/19	8/12	11/12	3/1	6/2	8/17	12/16	3/29	5/19	8/21	11/21	2/26	6/20	8/20
Lab Analysis (Y/N)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																												
Purge Flow Rate	gpm	7.2	7.2	10	7.2	10.0	8.3	11.0	6.5	8.0	10.0	8.0	8.0	8.0	8.0	8.0	4.0	8.0	5.0	9.0	6.0	7.1	10.2	8.8	6.1	8.1	8.7	4.8
Total Purged	gal	268	280	267	305	300	321	327	293	314	300	291	280	302	324	300	400	300	300	400	350	270	280	304	264	270	265	263
Depth to Water	ft bgs	5.40	5.77	5.65	6.50	5.98	4.50	5.68	6.08	5.55	4.17	6.25	3.72	6.48	5.82	7.25	6.55	6.47	6.80	6.80	6.30	4.92	4.42	6.15	6.40	5.70	6.10	6.40
Temperature	deg C	11.5	11.7	12.0	12.5	11.7	11.5	11.8	12.9	11.6	12.1	12.3	11.5	11.6	12.2	12.3	12.0	12.0	12.3	12.0	11.7	11.8	11.7	12.7	12.3	12.3	11.7	12.7
pH	SU	7.56	7.49	7.35	7.34	7.44	7.39	7.37	7.32	7.37	7.38	7.57	7.6	7.54	7.56	7.59	7.57	7.46	7.54	7.49	6.84	7.67	7.53	7.67	7.52	7.59	7.36	7.46
Specific Conductance	µS/cm	1278	1218	1289	1204	1235	1308	1253	1232	1277	1268	1067	1190	1142	1235	1212	1301	1235	1301	1235	1282	1313	1375	1201	1287	1312	1238	1265
Oxygen Reduction Potential	mV	-185.3	-219.3	-251.6	-273.0	-232.0	-194.0	-192.0	-159.9	-193.0	-221.7	-187.2	-138.1	-153.4	-208.9	-202.5	-272.2	-306.3	-231.9	-351.0	-306.7	-162.0	-126.9	-157.9	-238.5	-260.6	-174.9	-212.8
Lab Analytical Results:																												
Hardness as CaCO3	mg/L	274	275	369	287	252	350	303	263	290	319	255	247	298	313	236	286	271	311	281	317	334	561	301	303	330	304	321
pH (Lab)	SU	7.75	7.95	7.48	7.50	7.77	7.56	7.23	7.35	7.12	7.26	7.53	7.72	7.39	7.33	7.47	7.23	7.51	7.67	7.46	7.39	7.43	NA*	7.62	7.44	7.67	7.52	7.57
Total Dissolved Solids (Lab)	mg/L	745	770	835	730	735	860	780	705	700	775	710	690	755	785	750	745	725	790	735	745	765	835	740	755	745	750	730
Calcium	mg/L	53.4	53.8	71.5	56.7	49.1	67.8	58.2	51.5	56.5	61.6	49.6	47.4	58.1	60.9	45.4	54.8	53.3	60.3	52.1	60.2	64.2	107	58.1	58.1	61.3	58.9	61.4
Magnesium	mg/L	34.2	34.1	46.4	35.4	31.4	43.8	38.3	32.7	36.1	40.0	31.7	31.1	37.2	39.1	29.8	36.1	33.5	39.0	36.6	40.5	42.2	71.2	37.7	38.4	43.0	38.1	40.7
Sodium	mg/L	183	191	154	212	196	172	167	198	183	178	193	196	204	172	177	182	185	172	179	166	168	106	192	174	158	173	177
Potassium	mg/L	3.09	3.03	3.16	3.15	3.01	3.32	3.01	3.01	<5	3.05	3.05	3.02	<5.00	3.00	<5.00	<5.00	2.93	3.09	2.94	<5.00	<5.00	3.04	< 5.00	2.89	2.80	3.00	3.03
Alkalinity, Total	mg/L	620	595	630	640	610	615	615	590	600	576	520	605	570	620	600	770	640	650	570	615	640	590	602	610	590	625	630
Alkalinity, Bicarbonate	mg/L	620	595	630	640	610	615	615	590	600	576	520	587	570	620	600	770	640	590	570	615	640	590	602	610	590	625	630
Alkalinity, Carbonate	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	18	<10.0	<10.0	<10.0	<10.0	<10.0	60.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	4.30	4.35	4.34	4.23	4.35	4.59	4.36	6.19	4.76	4.76	4.62	4.34	4.27	4.91	4.89	4.93	4.46	4.50	4.75	4.78	4.77	6.43	4.76	4.83	5.05	5.38	4.84
Fluoride	mg/L	0.354	0.335	0.390	0.359	0.355	0.349	0.335	<0.500	0.348	0.366	0.356	0.342	0.311	0.338	0.35	0.284	0.349	0.268	0.332	0.334	0.340	0.320	0.304	0.268	0.266	0.352	0.34
Sulfate as SO4	mg/L	106	97.2	147	89.9	91.4	131	112	92.1	104	110	79.6	87.9	102	110	98.5	122	96.4	114	103	114	122	174	90.8	102	117	108	112
Total Organic Carbon (TOC)	mg/L	3.37	3.5	3.94	3.35	3.31	3.70	3.53	3.14	3.29	3.37	3.32	3.17	3.26	3.27	3.23	3.23	3.04	3.46	3.45	1.82	3.36	4.62	3.17	2.99	5.09	3.46	3.44
Nitrate/Nitrite as N	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L	NA	NA	NA	NA	NA	NA	NA	0.931	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.250	<0.050	<0.150	<0.050	<0.250	<0.050	<0.250	<0.250	<0.050	<0.050	<0.050	<0.250	<0.250	<0.100	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L	0.0005	0.0005	0.0005	<0.0005	0.0005	0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0010	0.0008	<0.0025	0.0005	<0.0005	<0.0025	<0.0005	0.0006	<0.0005	<0.0025	<0.0025	0.0013	< 0.0010	< 0.0010	< 0.0020	< 0.0020	< 0.0010
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.0001	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.0025	<0.0025	<0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L	0.0035	0.003	0.0022	0.0025	0.0042	0.0015	0.0019	0.0012	0.0017	0.0017	0.0021	0.0007	<0.0025	0.0039	0.0038	0.0059	0.0053	0.0067	0.0069	0.0067	0.0031	0.0022	0.0016	0.0035	0.0055	0.0067	0.0052
Iron	mg/L	1.44	1.39	1.98	1.52	1.26	1.74	1.58	1.41	1.49	1.53	1.24	1.7	1.66	1.69	1.19	1.43	1.25	1.65	1.32	2.07	1.70	4.63	1.56	1.81	2.03	1.65	2.01
Lead	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0010	<0.0005	<0.0025	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.0025	<0.0025	<0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0100	< 0.0050
Manganese	mg/L	0.307	0.306	0.498	0.286	0.355	0.439	0.428	0.354	0.366	0.369	0.297	0.297	0.414	0.388	0.308	0.387	0.325	0.410	0.349	0.501	0.471	0.922	0.162	0.422	0.517	0.451	0.402
Mercury (dissolved)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																		<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L	<0.0005	<0.0005	0.0006	<0.0005	0.0005	<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0010	0.0005	<0.0025	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	0.0005	<0.0025	<0.0025	0.0013	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Selenium	mg/L	<0.0010	0.0171	0.0120	0.0022	0.0032	0.0024	<0.0010	<0.0020	<0.001	<0.0010	0.0095	0.0171	0.0902	0.0324	0.0331	0.0439	0.0021	0.0089	0.0131	<0.005	0.0406	<0.002	0.0022	0.0113	0.0075	0.064	0.0055
Silica (Si02)	mg/L	13.4	14.6	13.8	13.7	13.5	13.1	13.1	14.3	13.1	13.1	13.6	14.3	13	13.9	12.5	13.2	14.2	13.3	13.4	12.9	13.2	14.4	14.0	13.9	12.9	13.3	13.6
Silicon	mg/L	6.27	6.81	6.45	6.41	6.30	6.13	6.11	6.68	6.13	6.14	6.37	6.67	6.10	6.5	5.84	6.17	6.62	6.21	6.28	6.01	6.17	6.74	6.55	6.51	6.05	6.22	6.34
Uranium	mg/L	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0010	<0.0005	<0.0025	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.0025	<0.0025	<0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0100	< 0.0050
Zinc	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0040	<0.0020	<0.0020	<0.0040	<0.0020	<0.0100	<0.0020	<0.0020	<0.0100	<0.0020	<0.0020	<0.0020	<0.0100	<0.0100	<0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0020

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis

* sample out of holding time

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

Well #2 Downgradient																													
Year		2018					2019				2020				2021				2022				2023				2024		
Quarter		Q1	Q2	Q3	Q4	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		2	5	8	8	11	2	5	8	11	2	6	8	12	2	5	8	11	2	5	8	12	3	5	8	11	2	6	8
Sample Date		2/22	5/7	8/8	8/9	11/7	2/27	5/22	8/16	11/13	2/6	6/1	8/26	12/14	2/11	5/19	8/12	11/10	2/28	5/9	8/9	12/13	3/28	5/19	8/18	11/21	2/26	6/20	8/20
Lab Analysis (Y/N)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																													
Purge Flow Rate	gpm	0.1	1.00	0.10	1.00	0.50	0.25	0.50	0.25	0.50	0.25	0.25	0.25	0.13	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.04	0.33	0.60	0.34	0.19	0.23	0.38	0.23
Total Purged	gal	6	11	2	6.5	7.5	13.0	10.0	9.0	7.5	12.0	8.0	7.0	7.0	12.0	9.0	7.0	12.0	6.0	9.0	19.0	0.4	5.4	8.0	5.2	4.6	4.8	4.4	3.6
Depth to Water	ft bgs	6.68	7.4	6.65	6.59	5.17	5.85	0.92	3.60	5.20	5.60	4.00	6.29	7.48	8.10	8.70	8.32	8.75	9.14	9.70	10.25	9.65	8.55	8.65	8.95	10.07	9.70	10.50	11.75
Temperature	deg C	9.8	8.9	14.0	11.1	11.9	9.1	8.1	10.5	11.5	10.4	9.1	11.5	11.0	9.8	9.4	11.2	12.1	10.1	9.5	11.1	11.2	9.2	8.7	11.3	11.4	9.8	9.2	10.3
pH	SU	7.59	7.48	7.84	7.20	7.15	7.41	7.34	7.23	7.19	7.32	7.41	7.44	7.56	7.50	7.54	7.57	7.53	7.53	7.50	7.45	7.79	7.72	7.52	7.59	7.47	7.57	7.32	7.42
Specific Conductance	µS/cm	887	847	828	895	955	960	1091	1051	1083	1083	1134	1017	1099	964	939	1038	1073	1050	1019	1063	1201	1193	1253	1184	1202	1139	1093	1109
Oxygen Reduction Potential	mV	-44.9	-34	-75.6	-127	-91.9	48.4	-57.8	-30.1	-5.5	25.3	-51.3	19.9	3.2	-4.8	-48.3	-26.0	-33.5	-94.0	-13.3	-207.6	-266.7	15.1	2.1	-18.4	-115.3	-112.5	-67.6	-39.7
Lab Analytical Results:																													
Hardness as CaCO3	mg/L	412	415	422	415	465	488	537	513	603	540	575	560	569	624	529	503	521	500	527	551	557	503	641	646	582	500	540	553
pH (Lab)	SU	7.62	7.6	7.61	7.45	7.50	7.5	7.4	7.04	7.12	7.20	7.09	7.3	7.2	7.17	7.15	7.32	7.24	7.57	7.53	7.71	7.54	7.40	NA*	7.40	7.45	7.57	7.51	7.61
Total Dissolved Solids (Lab)	mg/L	515	545	545	575	550	575	695	655	690	695	730	665	685	660	655	685	655	605	645	680	695	770	775	855	745	660	670	680
Calcium	mg/L	70.1	70.2	72.7	70.4	78.7	81.3	87.1	83.3	99.4	87.2	92.2	90.1	90	97.9	81.2	76.8	80.1	76.0	79.1	84.6	84.1	76.4	101	98.9	88.3	73.4	80.4	84.3
Magnesium	mg/L	57.4	58.2	58.4	58.2	65.2	69.2	77.6	74.0	86.3	78.2	83.7	81.3	83.7	92.2	79.2	75.6	77.9	75.3	80.0	82.5	84.3	75.8	94.7	97.0	87.8	76.8	82.3	83.2
Sodium	mg/L	19.4	19.2	19.6	19.1	21.3	22.1	23.4	21.4	25.5	23.3	24.5	23.8	24.5	26.9	23.4	23.1	23.3	23.3	24.9	26.1	62.7	24.6	30.7	33.8	29.3	27.0	28.6	30.1
Potassium	mg/L	1.76	1.68	2.00	1.82	2.08	1.97	1.94	2.06	2.40	2.04	2.00	2.06	2.22	<5.00	1.94	<5.00	2.12	2.01	1.99	2.28	2.42	<2.00	2.51	2.80	2.26	2.02	2.07	2.3
Alkalinity, Total	mg/L	333	350	380	328	340	395	460	365	348	324	324	345	341	385	375	380	540	372	385	288	358	379	395	379	390	372	385	400
Alkalinity, Bicarbonate	mg/L	333	350	380	328	340	395	460	365	348	324	324	345	333	385	375	380	540	372	385	288	358	379	395	379	390	372	385	400
Alkalinity, Carbonate	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	24.7	27.2	34.5	34.1	39.3	40.1	42.9	45.2	47.2	48.9	50.3	44.8	44.6	46	45.9	37	44.3	41.1	38.1	41.9	53.1	49.2	54.4	52.0	46.9	43.0	44.1	43.4
Fluoride	mg/L	0.244	0.224	0.259	0.281	0.263	0.244	0.246	0.221	<0.500	<0.500	<0.500	0.254	0.248	0.216	0.236	<0.500	0.210	0.251	0.217	0.229	0.268	0.262	0.210	0.220	< 0.200	< 0.200	0.236	0.234
Sulfate as SO4	mg/L	104	102	112	111	137	138	196	189	182	199	230	204	219	190	199	186	176	187	160	190	235	224	258	239	214	195	199	196
Total Organic Carbon (TOC)	mg/L	2.10	2.02	2.06	1.93	2.08	1.87	2.69	2.28	1.99	1.80	1.84	1.87	1.74	2.18	1.74	1.77	1.73	1.73	1.56	1.68	1.04	1.77	3.14	1.88	1.65	1.79	1.71	1.93
Nitrate/Nitrite as N	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.029	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050	<0.250	<0.050	<0.250	<0.050	<0.050	<0.050	<0.050	<0.100	<0.100	<0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L	0.0010	0.0009	0.0012	0.0012	0.0010	0.0012	0.0011	0.0012	0.0012	0.0011	0.0009	<0.001	0.0013	<0.0025	0.0009	0.0012	<0.0025	0.0007	0.0005	0.0009	0.0015	<0.001	<0.001	< 0.0010	< 0.0010	0.0011	< 0.0020	< 0.0010
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	< 0.0010	< 0.0010	< 0.0005	< 0.0010	< 0.0005
Copper	mg/L	0.0056	0.0002	0.0006	0.0004	0.0003	0.001	0.0016	0.0003	0.0002	<0.0005	<0.0005	<0.0010	<0.0005	<0.0025	0.0006	0.0005	<0.0025	<0.0005	0.0006	0.0006	0.0032	0.0050	0.0017	0.0215	0.0023	0.0025	< 0.0020	0.0096
Iron	mg/L	0.060	0.073	0.089	0.163	0.082	0.062	0.116	0.105	0.119	0.094	0.107	0.109	0.159	<0.250	<0.050	<0.250	0.076	<0.050	0.069	0.054	0.134	<0.100	<0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.050
Lead	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005	<0.0025	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0010	< 0.0010	< 0.0010	< 0.0005	< 0.0010	0.0008
Manganese	mg/L	0.304	0.306	0.349	0.375	0.320	0.423	0.504	0.404	0.427	0.454	0.444	0.412	0.441	0.422	0.401	0.389	0.438	0.403	0.384	0.397	0.477	0.431	0.293	0.416	0.464	0.399	0.440	0.373
Mercury (dissolved)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																			<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L	0.0024	0.0022	0.0024	0.0029	0.0024	0.0029	0.0026	0.0019	0.0024	0.0021	0.0023	0.0024	0.0027	0.0026	0.0026	0.0028	0.0027	0.0029	0.0029	0.0032	0.0033	0.0030	0.0027	0.0032	0.0032	0.0032	0.0032	0.0029
Selenium	mg/L	0.0012	<0.001	0.0012	0.0015	0.0013	0.0021	0.001	0.0011	0.0011	<0.010	0.0012	<0.002	0.0012	0.0069	0.0012	0.0012	<0.010	0.0013	<0.001	0.0013	<0.002	<0.002	<0.002	< 0.0020	< 0.0020	0.0013	0.0082	0.0019
Silica (Si02)	mg/L	11.1	11.5	11.4	11.5	11.0	11.2	10.5	11.6	12.8	11.2	10.6	11.5	12.7	11.2	10.9	11.3	12.2	11.1	11.3	12.3	11.7	9.61	11.4	12.5	12.2	10.4	11.0	11.7
Silicon	mg/L	5.19	5.39	5.34	5.38	5.15	5.26	4.93	5.44	5.99	5.22	4.98	5.39	5.94	5.24	5.09	5.3	5.72	5.17	5.29	5.76	5.46	4.49	5.35	5.85	5.70	4.84	5.12	5.47
Uranium	mg/L	0.0013	0.0013	0.0013	0.0015	0.0014	0.0019	0.0016	0.0012	0.0015	0.0016	0.0016	0.0013	0.0017	<0.0025	0.0015	0.0015	<0.0025	0.0017	0.0016	0.0015	0.0017	0.0017	0.0022	0.0020	0.0019	0.0017	0.0018	0.0018
Zinc	mg/L	0.0053	0.0022	0.0028	<0.0020	<0.0020	0.0025	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.0040	<0.0020	<0.0100	<0.0020	<0.0020	<0.0100	<0.0020	<0.0020	<0.002	<0.0040	<0.0040	<0.0040	0.0198	< 0.0040	< 0.0020	< 0.0040	0.0113

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis

* sample out of holding time

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

Wiltse Well																												
Year		2018				2019				2020				2021				2022				2023				2024		
Quarter		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		2	5	8	11	2	5	8	11	2	5	8	12	2	5	8	11	3	6	8	11	3	5	8	11	2	6	8
Sample Date		2/22	5/16	8/9	11/8	2/28	5/23	8/19	11/11	2/17	5/13	8/12	12/15	2/24	5/21	8/11	11/3	3/1	6/1	8/10	11/26	3/28	5/19	8/18	11/29	2/23	6/21	8/20
Lab Analysis (Y/N)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																												
Purge Flow Rate	gpm	11.9	12.0	18.5	12.3	28.0	38.0	18.0	17.0	35.0	24.4	16.0	18.0	15.0	12.5	8.5	24.0	18.0	25.0	25.0	16.7	34.8	38.5	46.9	14.3	19.2	11.5	11.8
Total Purged	gal	2700	2890	2783	2747	3017	3200	3010	3058	3825	3495	3200	3030	2920	3000	1800	2800	2900	2950	3000	3000	4000	4000	3100	2612	3753	3100	3199
Depth to Water	ft bgs	3.35	3.93	4.13	3.78	2.40	0.05	2.47	2.68	0.43	1.60	3.18	5.65	3.64	3.70	4.55	4.10	4.70	3.70	2.82	1.60	0.30	0.20	3.35	3.10	0.80	3.30	2.65
Temperature	deg C	8.0	10.2	11.7	10.4	8.0	9.3	10.7	9.9	6.7	9.8	11.7	8.7	8.9	9.9	11.3	10.8	9.5	10.8	12.4	9.7	7.2	9.0	11.3	11.9	7.3	10.5	11.9
pH	SU	7.26	7.13	7.04	7.07	7.17	7.08	7.09	7.09	7.01	7.12	7.22	7.26	7.25	7.23	7.33	7.23	7.17	7.21	7.14	7.07	7.46	7.26	7.22	7.12	7.20	6.96	6.99
Specific Conductance	µS/cm	2232	2144	2072	2167	2170	2151	1964	1970	2171	2017	1450	1984	1739	1789	2012	2038	1965	2039	2285	2268	2518	2449	2332	2571	2651	2336	2542
Oxygen Reduction Potential	mV	14.3	29.9	-52.7	-18.8	22.7	-10.6	-23.7	51.9	49.33	71.9	72.2	73.7	6.9	31.2	41.5	50.5	-26.1	32.4	-76.3	41.4	34.4	39.9	5.5	45.5	-30.9	12.7	10.7
Lab Analytical Results:																												
Hardness as CaCO3	mg/L	1090	1160	1130	1180	1150	1080	1080	1060	982	1060	1070	1130	1090	1070	1080	1080	1070	1070	1300	1200	1330	1340	1380	1320	1340	1320	1350
pH (Lab)	SU	7.70	8.35	7.22	7.42	7.38	7.35	7.11	7.09	7.12	7.09	7.29	6.86	7.27	6.98	7.25	7.52	7.25	7.15	7.39	7.42	7.17	NA*	7.03	7.45	7.18	7.1	7.15
Total Dissolved Solids (Lab)	mg/L	1740	1740	1750	1720	1710	1670	1520	1480	1600	1560	1580	1540	1550	1500	1580	1640	1520	1580	1850	1740	2120	1980	1920	2050	2080	1900	2070
Calcium	mg/L	211	216	221	230	226	214	214	208	191	206	206	215	208	199	206	209	208	206	255	232	261	269	273	251	255	259	265
Magnesium	mg/L	136	150	139	147	143	132	132	132	123	132	136	144	138	140	136	136	133	135	160	151	164	162	170	168	170	163	167
Sodium	mg/L	80.4	82.3	79.1	81.2	83.2	89.4	72.4	67.3	68.1	69.1	64	67.5	65.1	61.1	61.6	63.6	61.0	60.1	77.8	71.6	99.0	94.2	82.4	78.9	87.4	66.5	73.9
Potassium	mg/L	4.73	4.98	5.01	5.00	5.01	4.77	4.92	4.85	4.33	<5.00	4.48	4.54	<5.00	4.35	<5.00	4.41	4.42	4.41	4.92	4.20	5.43	5.12	5.74	5.31	4.52	4.98	5.29
Alkalinity, Total	mg/L	445	435	463	505	515	469	474	460	460	431	475	470	480	480	480	520	505	485	530	468	485	435	460	465	480	495	530
Alkalinity, Bicarbonate	mg/L	445	435	463	505	515	469	474	460	460	431	475	470	480	480	480	520	505	485	530	468	485	435	460	465	480	495	530
Alkalinity, Carbonate	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	66.7	60	57.2	57.5	67.2	67.8	49.9	48.2	57.7	51.8	58.1	57.9	54.8	52.3	49	52.4	49.8	45.7	57.5	52.2	79.0	73.0	59.0	62.2	70.5	57.2	59.1
Fluoride	mg/L	<0.500	<0.500	<0.500	0.298	0.324	0.306	<0.500	<0.500	<0.500	<0.500	0.304	0.292	0.276	0.28	<0.500	0.280	0.286	0.240	0.288	0.288	<0.500	<0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Sulfate as SO4	mg/L	832	714	733	741	801	709	627	627	711	633	704	728	683	661	679	697	688	702	818	873	1070	1060	960	1020	1140	947	1040
Total Organic Carbon (TOC)	mg/L	3.37	3.5	3.51	3.63	3.82	4.87	4.27	3.30	4.22	3.80	3.69	3.43	3.29	3.33	3.48	3.37	3.21	3.19	3.72	1.95	5.38	5.82	6.11	3.96	4.72	3.76	3.87
Nitrate/Nitrite as N	mg/L	2.26	2.48	2.26	1.99	1.95	0.651	0.896	1.31	1.05	0.865	1.25	1.48	1.82	1.49	2.06	1.87	1.69	1.53	1.16	1.01	0.469	0.619	2.32	2.85	2.09	0.469	1.53
Ammonia as N ^	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.100	<0.050	<0.050	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.250	<0.100	<0.050	<0.250	<0.050	<0.250	<0.100	<0.050	<0.100	<0.100	<0.100	<0.250	<0.250	< 0.250	< 0.250	< 0.150	< 0.100	< 0.050
Arsenic	mg/L	0.0009	0.0006	<0.0025	<0.001	<0.0010	0.0006	<0.0010	<0.0010	<0.0010	<0.0025	<0.0010	0.0005	<0.0025	<0.0025	<0.0025	<0.0010	<0.0005	0.0007	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0050	< 0.0020	< 0.0010
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0001	<0.0005	<0.0025	<0.0025	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0005
Copper	mg/L	0.0020	0.0019	0.0018	0.0030	0.002	0.0021	0.0021	0.0012	0.0020	<0.0025	0.0013	0.0006	0.0028	<0.0025	<0.0025	0.0033	0.0031	0.0049	0.0038	0.0060	0.0119	0.0043	0.0035	< 0.0100	0.0090	0.0052	0.019
Iron	mg/L	0.132	0.151	0.125	0.121	0.151	0.379	0.287	0.209	0.285	<0.250	<0.100	0.216	<0.250	0.304	<0.250	0.154	0.129	0.212	0.161	0.178	0.255	0.252	< 0.250	< 0.250	< 0.150	0.194	0.220
Lead	mg/L	<0.0005	<0.0005	<0.0005	<0.001	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0010	<0.0005	<0.0025	<0.0025	<0.0025	<0.0010	<0.0005	<0.0005	<0.001	<0.0025	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0010	0.0017
Manganese	mg/L	0.845	0.997	1.370	1.080	0.937	0.357	0.902	0.892	0.419	0.816	1.030	0.943	1.210	0.980	1.400	1.340	1.260	1.350	0.974	0.982	0.507	0.842	1.640	1.330	0.635	1.220	1.140
Mercury (dissolved)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																		<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L	0.0020	0.002	0.002	0.0019	0.0017	0.0014	0.0020	0.0017	0.0013	<0.0025	0.0018	0.0017	<0.0025	<0.0025	<0.0025	0.0017	0.0017	0.0018	0.0019	0.0017	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	0.002	0.0022
Selenium	mg/L	0.0027	0.0025	0.0025	<0.002	0.0025	0.0016	<0.0020	<0.0020	<0.0020	<0.0050	<0.0020	0.0022	<0.0050	<0.0050	<0.0050	<0.0020	0.0015	0.0019	0.0020	0.0029	<0.0050	<0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0020	0.0019
Silica (Si02)	mg/L	14.1	15.9	16.2	15.9	14.1	13.2	15.4	14.9	12.2	12.9	13.8	15.7	14.6	14.8	15.4	16.0	15.2	14.5	15.9	14.3	12.7	14.7	15.8	14.7	12.4	14.9	15.2
Silicon	mg/L	6.58	7.42	7.58	7.44	6.6	6.19	7.20	6.96	5.72	6.05	6.43	7.33	6.82	6.91	7.19	7.50	7.13	6.76	7.43	6.69	5.91	6.85	7.37	6.89	5.80	6.96	7.09
Uranium	mg/L	0.0025	0.0024	0.0024	0.0032	0.0036	0.0044	0.0029	0.0023	0.0039	0.0032	0.0024	0.0032	<0.0025	<0.0025	<0.0025	0.0025	0.0022	0.0025	0.0034	0.0035	0.0048	0.0036	0.0026	0.0030	0.0043	0.0031	0.0034
Zinc	mg/L	0.0216	0.0225	0.0214	0.0172	0.0175	0.0128	0.0138	0.0108	0.0122	0.0132	0.0118	0.0098	0.0130	0.0116	0.0311	0.0276	0.0162	0.0180	0.0157	0.0157	0.0156	0.0152	0.0255	0.0164	0.0143	0.0173	0.0290

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis

* sample out of holding time

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-HGA-4																													
Year		2018					2019				2020				2021				2022				2023				2024		
Quarter		Q1		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	5	8	11	2	5	8	11	2	5	8	12	2	5	8	11	2	5	8	12	3	5	8	11	2	6	8
Sample Date		1/3	2/22	5/15	8/9	11/8	2/28	5/23	8/16	11/13	2/13	5/13	8/26	12/14	2/22	5/19	8/12	11/12	2/28	5/9	8/9	12/16	3/28	5/18	8/18	11/29	2/26	6/20	8/20
Lab Analysis (Y/N)		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																													
Purge Flow Rate	gpm	NM	0.1	1.5	2.00	1.00	1.12	1.00	1.00	0.25	1.00	0.25	0.25	0.13	0.25	0.13	0.25	0.25	0.25	0.25	0.25	0.50	0.08	0.23	0.10	0.05	0.08	0.08	0.06
Total Purged	gal	19	21	21	19	21	24	22	21	21	22	21	20	21	21	21	20	22	21	21	22	0.5	0.4	0.5	0.25	0.2	0.2	0.2	0.2
Depth to Water	ft bgs	1.37	0.55	2.60	3.98	1.90	0.49	0.42	1.95	1.15	0.38	2.36	3.80	1.75	0.90	2.91	3.95	2.33	0.95	2.02	1.61	0.92	0.47	1.03	4.05	0.85	0.35	3.05	0.65
Temperature	deg C	8.8	7.8	8.1	8.7	8.8	7.6	7.7	8.5	8.8	7.9	7.4	9.2	8.6	7.8	8.2	8.9	9.2	8.3	8.1	9.2	9.1	8.2	10.0	11.5	8.3	8.8	10.0	13.5
pH	SU	7.33	7.30	7.18	7.27	7.05	7.15	7.18	7.16	7.09	7.12	7.23	7.28	7.31	7.29	7.34	7.37	7.31	7.25	7.28	7.19	6.93	7.62	7.45	7.53	7.49	7.49	7.26	7.29
Specific Conductance	µS/cm	1141	1154	1098	1057	1167	1183	1102	1083	1127	1122	1093	1022	1158	975	1093	1108	1160	1197	1102	1198	970	1003	955	908	993	970	917	909
Oxygen Reduction Potential	mV	-96.6	-157.3	-130.9	-230.8	-190.9	-128.3	-140.7	-130.9	-104.9	-107.8	-86.7	-61.1	-64.7	-67.9	-116.8	-104.9	-105.8	-185.5	-113.0	-273.0	-198.3	-129.2	-125.2	-165.3	-212.7	-216.3	-155.2	-167.8
Lab Analytical Results:																													
Hardness as CaCO3	mg/L		561	555	524	625	613	563	544	624	563	528	571	612	630	582	515	627	598	574	653	328	423	448	467	424	410	430	438
pH (Lab)	SU		7.58	8.15	7.33	7.12	7.2	8.17	6.95	6.88	6.78	6.89	7.07	6.95	7.38	6.89	7.05	7.03	7.22	7.26	7.20	7.63	7.08	7.37	7.33	7.41	7.39	7.38	7.34
Total Dissolved Solids (Lab)	mg/L		740	730	695	770	795	695	695	715	705	685	700	665	685	680	735	790	790	785	745	400	555	545	525	555	570	525	575
Calcium	mg/L		110	108	102	124	122	110	106	123	112	101	111	122	126	114	98.7	125	119	110	130	65.8	78.5	84.9	88.1	79.3	75.3	81.1	81.7
Magnesium	mg/L		69.3	69	65.4	76.5	74.7	70.3	67.9	76.8	68.9	67.0	71.7	74.9	76.8	72	65.2	76.6	72.9	72.5	79.9	39.7	55.1	57.2	59.9	54.9	54.0	55.3	56.8
Sodium	mg/L		26.5	30.4	29.9	27.6	27	28.6	28.3	31.9	27.9	30.3	30.5	26.8	28.4	27.4	26.4	23.1	23.9	28.1	27.1	14.9	36.9	39.4	41.5	38.0	37.3	38.1	38.5
Potassium	mg/L		2.17	2.22	2.33	2.13	2.16	2.00	2.10	2.38	2.05	2.06	2.08	2.11	2.24	2.03	<5.00	<5.00	1.82	2.02	2.13	3.07	2.16	2.40	2.56	2.21	2.14	2.17	2.22
Alkalinity, Total	mg/L		460	425	410	460	455	445	455	432	435	416	485	457	475	465	470	580	470	435	500	245	460	420	361	370	390	410	425
Alkalinity, Bicarbonate	mg/L		460	425	410	460	455	445	455	432	435	416	485	457	475	465	470	580	470	435	500	245	460	420	361	370	390	410	425
Alkalinity, Carbonate	mg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		8.43	7.57	6.47	9.40	10.5	8.06	8.44	9.46	8.39	7.64	8.78	10.1	9.65	9.41	11.1	13.9	12.0	10.2	14.6	28.7	3.40	3.41	3.62	3.56	3.63	3.72	3.58
Fluoride	mg/L		0.496	0.459	0.482	0.487	0.484	0.456	0.443	0.520	0.447	0.449	0.431	0.473	0.424	0.434	<0.500	0.420	0.472	0.413	0.450	0.231	0.397	0.357	0.374	0.331	0.342	0.403	0.403
Sulfate as SO4	mg/L		222	190	169	201	221	186	212	190	193	181	179	187	191	184	194	199	216	183	215	99.5	150	161	158	143	142	146	145
Total Organic Carbon (TOC)	mg/L		4.56	4.57	4.30	4.72	4.82	4.45	4.58	4.35	4.8	4.30	4.56	4.67	4.31	4.36	4.55	4.84	5.47	4.21	4.64	0.964	4.32	6.87	4.55	3.84	4.98	4.00	4.52
Nitrate/Nitrite as N	mg/L		<0.020	<0.020	<0.020	<0.020	0.173	<0.020	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.073	<0.020	<5.00	< 0.100	< 0.020	< 0.020	0.423	< 0.020
Ammonia as N ^	mg/L		NA	NA	NA	NA	NA	NA	NA	0.528	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.100	<0.100	<0.050	<0.050	<0.050	<0.250	<0.250	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050	< 0.100	< 0.100	< 0.050	< 0.100	< 0.050
Arsenic	mg/L		0.0037	0.0034	0.0036	0.0032	0.0031	0.0029	0.0028	0.0033	0.0022	0.0025	0.0026	0.0038	0.0036	0.0033	0.0034	0.0027	0.0036	0.0031	0.0034	0.0005	0.0041	0.0040	0.0040	0.0039	0.0040	0.0027	0.0039
Cadmium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005	< 0.0010	< 0.0010	< 0.0005	< 0.0010	< 0.0005
Copper	mg/L		0.0006	0.0008	0.0004	0.0008	<0.0010	0.0003	0.0004	0.0002	0.0005	<0.0010	<0.0010	<0.0005	0.0006	0.0007	0.0009	<0.0025	<0.0005	0.0010	0.0005	0.0068	<0.0010	0.0027	< 0.0010	< 0.0040	0.0018	< 0.0020	0.0013
Iron	mg/L		7.60	7.92	8.55	8.44	8.35	7.98	8.38	9.76	8.59	8.22	8.95	9.31	9.6	9.29	8.52	8.44	8.25	9.41	9.73	<0.05	9.76	10.5	9.39	9.53	9.07	9.60	10.40
Lead	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005	< 0.0010	< 0.0010	< 0.0005	< 0.0010	< 0.0005
Manganese	mg/L		1.99	1.81	1.58	2.13	2.56	2.12	1.84	1.78	1.77	1.49	1.66	2.36	2.54	2.51	1.79	2.86	3.03	2.29	3.00	0.0622	0.479	0.441	0.422	0.454	0.416	0.437	0.392
Mercury (dissolved)	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																			<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0030	0.0031	0.0038	0.0029	0.0026	0.0027	0.0029	0.0031	0.0025	0.0030	0.0032	0.0029	0.0027	0.003	0.0033	0.0024	0.0026	0.0030	0.0030	0.0011	0.0054	0.0055	0.0057	0.0055	0.0058	0.0058	0.0054
Selenium	mg/L		<0.0010	0.002	0.0016	<0.001	0.001	<0.0010	<0.0010	<0.0010	<0.001	<0.0020	<0.0020	<0.001	<0.0010	0.001	0.0057	0.0017	0.0011	<0.0010	0.0010	0.0011	<0.0020	<0.0010	< 0.0020	< 0.0020	< 0.0010	0.0024	< 0.0010
Silica (Si02)	mg/L		15.8	16.4	15.7	17.3	15.9	14.9	14.9	16.5	15.2	13.9	15.4	18.3	16.9	16.3	14.3	17.7	16.7	16.0	17.8	11.7	12.6	14.1	14.0	13.0	12.5	12.7	13.0
Silicon	mg/L		7.37	7.67	7.34	8.10	7.46	6.96	6.96	7.69	7.09	6.48	7.21	8.56	7.88	7.61	6.68	8.29	7.81	7.50	8.34	5.48	5.89	6.59	6.57	6.06	5.85	5.95	6.10
Uranium	mg/L		0.0004	0.0004	0.0003	0.0005	0.0005	0.0004	0.0004	0.0003	<0.0005	<0.0010	<0.0010	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0010	<0.0005	< 0.0010	< 0.0010	< 0.0005	< 0.0010	< 0.0005
Zinc	mg/L		<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0040	<0.0040	<0.0020	<0.0020	<0.0020	<0.0020	<0.0100	<0.0020	<0.0020	<0.0020	0.0056	<0.0040	<0.0020	< 0.0040	< 0.0040	< 0.0020	< 0.0040	< 0.0020

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-1-A

Year		2018									2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2			Q3		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/1	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16	2/15	5/20	8/23	11/17	3/17	6/14	9/12	12/4	3/18	6/14	8/16	11/14	3/17	6/19	8/6
Lab Analysis (Y/N)		N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																																	
Purge Flow Rate	gpm	NM	0.1	NM	0.1	0.1	***	0.12	0.10	0.09	0.12	0.12	0.06	0.25	0.25	0.25	0.13	0.13	0.13	0.13	0.25	0.25	0.25	0.25	0.15	0.25	0.08	0.10	0.10	0.18	0.10	0.11	0.10
Total Purged	gal	1.5	2	1.5	1	1.3		1.5	1.5	1.6	1.0	1.5	1.1	1.5	1.0	1.0	1.0	1.3	1.0	2.0	1.0	1.3	1.0	1.0	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Depth to Water	ft bgs	216.21	216.47	216.47	216.54	216.54		216.63	216.63	216.65	216.55	216.43	216.33	216.13	216.05	215.85	215.56	215.80	215.60	215.53	215.71	215.65	215.55	216.15	215.65	215.70	215.60	215.20	215.35	215.30	215.25	215.15	215.55
Temperature	deg C	9.5	9.0	8.7	9.6	9.2		9.9	10.0	8.9	7.5	10.3	9.6	9.7	8.1	9.1	9.6	9.4	8.4	9.6	10.1	9.2	9.5	10.2	10.5	9.0	8.6	10.8	11.0	9.0	7.8	10.4	10.0
pH	SU	7.19	7.37	7.28	6.8	6.97		6.99	7.05	7.01	7.13	6.96	7.05	7.00	7.13	7.18	7.22	7.24	7.19	7.30	7.35	7.17	7.22	7.31	7.29	6.82	7.34	7.49	7.37	7.54	7.60	6.97	7.14
Specific Conductance	µS/cm	1700	1723	1735	1647	1761		1734	1815	1781	1776	1681	1757	1737	1797	1855	1664	1670	1550	1647	1691	1792	1707	1717	1770	1733	1780	1676	1745	1738	1754	1656	1722
Oxygen Reduction Potential	mV	-44.6	-52.8	-37.5	142.4	0.4		-26.4	-33.2	101.4	-11.8	25.4	-18.7	3.6	12.7	4.2	-20.1	111.4	23.8	-13.4	-6.5	38.2	-110.5	-51.9	-159.7	-29.9	4.8	93.8	4.0	-32.1	-63.1	-27.3	-59.6
Lab Analytical Results:																																	
Hardness as CaCO3	mg/L		159			156			160	174	159	153	148	150	159	165	161	168	168	150	158	157	152	149	146	172	174	158	150	166	160	171	161
pH (Lab)	SU		7.22			7.45			7.17	7.27	7.13	7.03	7.14	6.92	7.19	6.91	7.23	7.17	7.22	7.13	7.1	7.05	7.30	7.15	7.36	7.37	7.01	7.20	7.38	7.39	6.95	7.24	7.32
Total Dissolved Solids (Lab)	mg/L		1100			1150			1040	1130	1160	1150	1150	1140	1190	1150	1150	1170	1250	1150	1190	1150	1140	1140	1150	1050	1150	1180	1200	1110	1120	1110	1100
Calcium	mg/L		30.5			29.7			30.9	34.0	31.2	29.8	27.9	29.0	30.9	31.6	30.6	32.8	32.1	28.3	29.9	30.0	28.5	28.0	27.4	32.6	33.2	29.9	27.7	31.2	30.4	33.0	30.6
Magnesium	mg/L		20.1			19.9			20.1	21.5	19.7	19.1	18.9	18.8	19.9	20.8	20.6	20.9	21.4	19.2	20.3	20.0	19.7	19.2	18.7	21.9	22.0	20.2	19.6	21.3	20.3	21.5	20.6
Sodium	mg/L		348			327			333	358	357	319	348	333	337	349	348	353	357	314	333	340	321	319	318	361	351	345	333	324	336	358	327
Potassium	mg/L		<5.00			2.12			2.23	2.47	2.34	2.18	2.29	2.12	2.13	<5.00	2.29	<3.00	<5.00	2.18	<5.00	2.34	2.23	2.01	2.12	2.11	<5.00	2.15	< 5.00	< 2.00	2.14	2.22	2.35
Alkalinity, Total	mg/L		415			353			385	395	375	355	368	420	360	340	325	366	400	400	370	440	405	425	410	361	372	391	368	375	370	385	410
Alkalinity, Bicarbonate	mg/L		415			353			385	395	375	355	368	420	360	340	325	366	400	400	370	440	405	425	410	361	372	391	368	375	370	385	410
Alkalinity, Carbonate	mg/L		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		2.19			<5.00			2.12	2.20	2.74	2.33	2.72	2.66	2.74	2.71	2.74	2.88	2.73	2.34	2.78	<5.00	2.80	2.46	2.59	2.40	2.49	2.71	2.55	2.50	2.57	2.59	< 5.00
Fluoride	mg/L		0.240			<0.5			0.260	0.240	0.266	0.242	0.252	0.246	0.234	0.228	0.24	0.264	0.212	0.223	0.24	<0.5	<0.200	0.250	0.254	0.246	0.262	0.198	0.224	< 0.200	0.250	0.248	< 0.500
Sulfate as SO4	mg/L		518			522			515	511	508	494	537	495	506	532	510	508	553	531	507	458	503	516	532	517	562	607	587	510	557	552	493
Total Organic Carbon (TOC)	mg/L		1.51			1.54			1.60	1.75	1.61	1.67	1.59	1.50	1.55	1.55	1.49	1.57	1.58	1.49	1.57	1.51	1.56	1.41	1.39	1.41	1.63	1.76	1.55	1.55	1.66	1.53	1.49
Nitrate/Nitrite as N	mg/L		<0.020			<0.020			<0.020	0.028	<0.020	<0.020	<0.020	0.020	<0.020	0.046	<0.020	<0.020	<0.020	<0.020	0.036	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	< 0.020	< 0.020	< 0.020	< 0.020	0.722
Ammonia as N ^	mg/L		NA			NA			NA	NA	NA	NA	NA	0.387	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA			NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.250			<0.050			<0.050	<0.100	<0.100	<0.050	<0.050	<0.050	<0.100	<0.250	<0.050	<0.050	<0.250	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.100	<0.250	<0.250	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0005	<0.0015	<0.0015	<0.0025	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0020	< 0.0020	< 0.0010
Cadmium	mg/L		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0005	<0.0001	<0.0003	<0.0015	<0.0025	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L		0.0066			0.0041			0.0048	0.0048	0.0075	0.0064	0.0040	0.0147	0.0034	0.0012	0.004	0.0024	0.0026	0.0059	0.0068	0.0086	0.0145	0.0112	0.0096	0.0078	0.0121	0.0193	0.0046	0.0079	0.0130	0.0149	0.0142
Iron	mg/L		0.590			0.614			0.644	0.647	0.581	0.589	0.613	0.510	0.614	0.559	0.637	0.579	0.572	0.61	0.592	0.647	0.533	0.544	0.451	0.406	<0.250	<0.250	< 0.250	0.437	0.155	0.412	< 0.050
Lead	mg/L		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0015	<0.0015	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Manganese	mg/L		0.0279			0.026			0.0242	0.0282	0.0281	0.0235	0.0270	0.0248	0.0303	0.0329	0.032	0.0313	0.0367	0.0316	0.0328	0.0287	0.0289	0.0295	0.0359	0.0260	0.0149	0.0027	0.0128	0.0400	0.0125	0.0306	0.0009
Mercury (dissolved)	mg/L		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																							<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		<0.0025			0.0009			0.0008	0.0007	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0015	<0.0015	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Selenium	mg/L		<0.0050			<0.0010			<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0050	<0.0030	<0.0030	<0.0030	<0.0050	<0.0020	<0.0010	<0.0010	<0.0020	<0.0020	<0.0050	<0.0050	< 0.0050	< 0.0020	< 0.0020	< 0.0020	< 0.0010
Silica (Si02)	mg/L		11.2			11.2			11.4	12.0	11.1	11.2	11.6	11.0	11.1	10.4	11.1	11.5	11.3	10.7	10.7	11.6	11.2	10.8	10.4	11.2	10.6	10.6	9.44	11.3	10.5	10.8	10.8
Silicon	mg/L		5.24			5.25			5.31	5.62	5.2	5.23	5.43	5.13	5.19	4.85	5.17	5.37	5.27	5.00	5.01	5.42	5.25	5.07	4.85	5.24	4.94	4.95	4.41	5.28	4.89	5.05	5.07
Uranium	mg/L		<0.0005			0.0003			0.0002	0.0003	0.0002	0.0001	0.0001	0.0001	<0.0010	<0.0010	<0.0025	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Zinc	mg/L		<0.0100			0.0051			<0.0100	<0.002	<0.0040	0.0022	<0.0040	0.0020	<0.0040	<0.0040	<0.0100	<0.0060	<0.0060	<0.0060	<0.0100	<0.0040	<0.0020	<0.0020	<0.0040	<0.0040	<0.0100	0.0051	< 0.0100	< 0.0040	0.0043	< 0.0040	< 0.0020

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

*** *La Plata County stage 3 fire restrictions prevented sampling activity*

^ one-time analysis

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-1-MI																																	
Year		2018									2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2			Q3		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/1	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16	2/15	5/20	8/23	11/17	3/17	6/14	9/12	12/4	3/18	6/14	8/16	11/14	3/17	6/19	8/6
Lab Analysis (Y/N)		N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																																	
Purge Flow Rate	gpm	dry	dry	dry	dry	dry	***	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	gal																																
Depth to Water	ft bgs																																
Temperature	deg C																																
pH	SU																																
Specific Conductance	µS/cm																																
Oxygen Reduction Potential	mV																																
Lab Analytical Results:																																	
Hardness as CaCO3	mg/L																																
pH (Lab)	SU																																
Total Dissolved Solids (Lab)	mg/L																																
Calcium	mg/L																																
Magnesium	mg/L																																
Sodium	mg/L																																
Potassium	mg/L																																
Alkalinity, Total	mg/L																																
Alkalinity, Bicarbonate	mg/L																																
Alkalinity, Carbonate	mg/L																																
Alkalinity, Hydroxide	mg/L																																
Chloride	mg/L																																
Fluoride	mg/L																																
Sulfate as SO4	mg/L																																
Total Organic Carbon (TOC)	mg/L																																
Nitrate/Nitrite as N	mg/L																																
Aluminum	mg/L																																
Arsenic	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L																																
Lead	mg/L																																
Manganese	mg/L																																
Mercury (dissolved)	mg/L																																
Mercury (dissolved low-level)	ng/L																																
Molybdenum	mg/L																																
Selenium	mg/L																																
Silica (Si02)	mg/L																																
Silicon	mg/L																																
Uranium	mg/L																																
Zinc	mg/L																																

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

*** *La Plata County stage 3 fire restrictions prevented sampling activity*

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-1-C																																
Year		2018									2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2			Q3		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/18	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16	2/15	5/20	8/23	11/17	3/17	6/14	9/12	12/4	3/19	6/14	8/16	11/14	3/17	6/19	8/6
Lab Analysis (Y/N)		N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N
Field Parameters:																																	
Purge Flow Rate	gpm	MM	0.1	NM	0.1	0.1	***	0.05	0.1	0.10	0.06	0.02	0.03	0.01	0.01	0.10	0.05	0.05	0.05	0.05	0.01	0.13	0.13	0.13	0.13	0.15	dry	dry	dry	dry	dry	dry	dry
Total Purged	gal	1	1	1	1	1.25		1	1	1.10	1.00	1.10	1.00	1.00	1.00	0.75	0.80	1.00	1.00	2.00	1.00	1.25	1.00	1.00	1.00	1.00							
Depth to Water	ft bgs	216.38	216.38	216.37	216.35	216.41		216.41	216.05	216.04	216.41	216.20	216.02	216.04	216.12	216.10	216.41	216.66	216.66	216.66	216.66	216.66	216.66	216.66	216.66	216.04							
Temperature	deg C	9.7	9.6	6.7	9.2	10.5		20.0	14.1	9.7	5.4	9.8	10.4	11.1	6.4	9.5	11.2	9.7	7.0	10.7	12.1	10.1	7.7	12.3	12.7	7.4							
pH	SU	7.11	7.19	7.32	7.03	7.05		6.91	6.97	6.93	7.09	6.80	6.65	6.70	6.79	6.85	6.93	6.99	7.40	7.18	7.16	7.15	7.12	7.20	7.23	6.67							
Specific Conductance	µS/cm	2778	2738	2751	2700	2749		2693	2675	2751	2621	3139	3172	3080	3005	3002	2653	2709	2410	2249	2290	2554	2223	2362	2278	2104							
Oxygen Reduction Potential	mV	6.2	-4.3	-29.6	-15.3	-42.3		-41.8	-32.5	-110.0	-23.4	27.6	10.5	51.0	50.7	-57.7	21.8	49.6	57.5	-16.8	0.0	-7.0	-92.9	-49.3	-191.8	-77.0							
Lab Analytical Results:																																	
Hardness as CaCO3	mg/L		1190			1130			1120	1180	1010	1820	1840	1700	1600	1590	1400	1420	1320	953	975	920	750	766	638	640							
pH (Lab)	SU		7.22			7.2			7.20	7.02	7.24	6.93	6.67	6.63	6.80	6.62	6.83	7.12	7.08	6.86	7.04	6.89	7.22	7.06	7.40	6.98							
Total Dissolved Solids (Lab)	mg/L		2360			2340			2170	2200	1960	2880	2890	2750	2610	2460	2420	2450	2330	1910	1850	1840	1680	1770	1640	1490							
Calcium	mg/L		219			203			203	219	188	340	342	318	301	294	248	265	241	175	178	168	142	137	113	117							
Magnesium	mg/L		156			150			148	154	131	237	240	219	207	207	189	183	173	126	129	122	95.7	103	86.6	84.4							
Sodium	mg/L		260			239			239	255	265	146	119	119	143	155	168	194	206	196	214	234	229	240	261	266							
Potassium	mg/L		<5.00			3.07			3.04	2.65	3.13	<5.00	<5.00	<5.00	3.05	<5.00	2.82	<5.00	<5.00	2.68	<5.00	<3.00	2.68	2.48	<5.00	2.27							
Alkalinity, Total	mg/L		570			580			560	410	525	530	518	505	515	490	445	520	580	480	485	640	510	530	570	454							
Alkalinity, Bicarbonate	mg/L		570			580			560	410	525	530	518	505	515	490	445	520	580	480	485	640	510	530	570	454							
Alkalinity, Carbonate	mg/L		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0							
Alkalinity, Hydroxide	mg/L		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0							
Chloride	mg/L		7.78			7.75			5.97	6.22	6.36	10.2	9.31	8.78	8.54	8.20	8.15	7.14	7.13	5.3	5.04	7.12	4.87	5.55	5.59	4.32							
Fluoride	mg/L		1.03			0.96			0.888	0.924	0.975	0.67	0.525	0.565	0.615	0.695	0.705	0.750	0.804	0.654	0.716	0.755	0.712	1.04	1.24	0.916							
Sulfate as SO4	mg/L		1160			1210			1090	1080	1070	1630	1730	1520	1400	1370	1280	1180	1150	940	872	886	805	908	821	728							
Total Organic Carbon (TOC)	mg/L		2.21			2.2			2.35	2.37	2.32	2.62	2.52	2.30	2.30	2.32	2.2	2.13	2.26	1.92	1.93	1.91	1.79	1.80	1.74	1.77							
Nitrate/Nitrite as N	mg/L		<0.020			<0.020			0.036	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020							
Ammonia as N ^	mg/L		NA			NA			NA	NA	NA	NA	NA	0.140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA							
Ortho-Phosphate as P ^	mg/L		NA			NA			NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA							
Aluminum	mg/L		<0.250			<0.05			<0.05	<0.100	<0.100	<0.250	<0.250	<0.250	<0.150	<0.250	<0.050	<0.050	<0.250	<0.100	<0.250	<0.150	<0.050	<0.100	<0.250	<0.100							
Arsenic	mg/L		<0.0025			0.0051			0.0052	0.0035	0.0038	0.0048	0.0034	<0.0025	<0.0025	0.0019	<0.0025	<0.0005	<0.0025	<0.0025	<0.0025	<0.0010	0.0009	0.0024	0.0028	<0.0010							
Cadmium	mg/L		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0002	<0.0005	<0.0005	<0.0003	<0.0005	<0.0001	<0.0005	<0.0025	<0.0025	<0.0010	<0.0005	<0.001	<0.0025	<0.0010							
Copper	mg/L		0.0052			0.003			0.0049	0.0033	0.0054	0.0057	0.0014	0.0096	<0.0025	<0.0015	<0.0025	<0.0005	<0.0025	0.0042	0.0043	0.0064	0.0093	0.0086	0.0104	0.0120							
Iron	mg/L		<0.250			0.643			1.01	1.12	0.988	2.3	0.819	0.543	0.570	0.606	0.619	0.855	0.769	0.552	0.573	0.724	0.630	0.671	0.679	<0.100							
Lead	mg/L		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0010	<0.0025	<0.0025	<0.0015	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0005	<0.0010	<0.0025	<0.0010							
Manganese	mg/L		0.0989			0.153			0.140	0.106	0.0807	0.075	0.0562	0.0512	0.0537	0.0473	0.0445	0.0496	0.0482	0.0419	0.0383	0.0346	0.0362	0.0342	0.0304	0.0295							
Mercury (dissolved)	mg/L		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																							<5.00	<100	<100							
Molybdenum	mg/L		<0.0025			0.0006			<0.0025	<0.0005	<0.0010	<0.0005	<0.0010	<0.0025	<0.0025	<0.0015	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0005	<0.0010	<0.0025	<0.0010							
Selenium	mg/L		<0.0050			<0.001			<0.0050	0.0011	<0.0020	0.0016	0.0023	<0.0050	<0.0050	<0.0030	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0010	<0.0020	<0.005	<0.002							
Silica (Si02)	mg/L		14.8			15.2			14.7	14.5	14	16.6	17.3	16.4	15.7	13.8	14.1	14.8	14.4	15.0	14.5	14.8	14.2	13.0	11.7	13.4							
Silicon	mg/L		6.94			7.09			6.87	6.78	6.55	7.75	8.07	7.65	7.35	6.47	6.6	6.93	6.75	7.00	6.79	6.94	6.66	6.07	5.47	6.26							
Uranium	mg/L		0.0024			0.0025			0.0022	0.0021	0.0016	0.002	0.0025	0.0023	<0.0025	0.0020	<0.0025	<0.0015	<0.0025	<0.0025	<0.0025	0.0010	0.0008	<0.0010	<0.0025	<0.0010							
Zinc	mg/L		<0.0100			0.0062			<0.0100	0.0055	<0.0040	0.0085	0.0077	<0.0100	<0.0100	<0.0060	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0040	0.0021	<0.0040	<0.0100	0.0071							

Notes & Definitions:

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*** *La Plata County stage 3 fire restrictions prevented sampling activity*

^ one-time analysis

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

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GCC Energy Hydrologic Monitoring Data

MW-2-A																															
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	8/7	11/1	2/20	5/29	8/14	11/6	2/11	5/27	9/1	11/24	2/15	5/20	8/24	11/17	3/23	6/14	9/8	12/4	3/31	6/14	8/18	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																															
Purge Flow Rate	*gpm*	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	*gal*																														
Depth to Water	*ft bgs*																														
Temperature	*deg C*																														
pH	*SU*																														
Specific Conductance	*µS/cm*																														
Oxygen Reduction Potential	*mV*																														
Lab Analytical Results:																															
Hardness as CaCO3	*mg/L*																														
pH (Lab)	*SU*																														
Total Dissolved Solids (Lab)	*mg/L*																														
Calcium	*mg/L*																														
Magnesium	*mg/L*																														
Sodium	*mg/L*																														
Potassium	*mg/L*																														
Alkalinity, Total	*mg/L*																														
Alkalinity, Bicarbonate	*mg/L*																														
Alkalinity, Carbonate	*mg/L*																														
Alkalinity, Hydroxide	*mg/L*																														
Chloride	*mg/L*																														
Fluoride	*mg/L*																														
Sulfate as SO4	*mg/L*																														
Total Organic Carbon (TOC)	*mg/L*																														
Nitrate/Nitrite as N	*mg/L*																														
Aluminum	*mg/L*																														
Arsenic	*mg/L*																														
Cadmium	*mg/L*																														
Copper	*mg/L*																														
Iron	*mg/L*																														
Lead	*mg/L*																														
Manganese	*mg/L*																														
Mercury (dissolved)	*mg/L*																														
Mercury (dissolved low-level)	*ng/L*																														
Molybdenum	*mg/L*																														
Selenium	*mg/L*																														
Silica (Si02)	*mg/L*																														
Silicon	*mg/L*																														
Uranium	*mg/L*																														
Zinc	*mg/L*																														

Notes & Definitions:

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Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
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mg/L	milligram per liter
pCi/L	picocuries per liter
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GCC Energy Hydrologic Monitoring Data

MW-2-MI																															
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	8/7	11/1	2/20	5/29	8/14	11/6	2/11	5/27	9/1	11/24	2/15	5/20	8/24	11/17	3/23	6/14	9/8	12/4	3/31	6/14	8/18	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																															
Purge Flow Rate	gpm	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	gal																														
Depth to Water	ft bgs																														
Temperature	deg C																														
pH	SU																														
Specific Conductance	µS/cm																														
Oxygen Reduction Potential	mV																														
Lab Analytical Results:																															
Hardness as CaCO3	mg/L																														
pH (Lab)	SU																														
Total Dissolved Solids (Lab)	mg/L																														
Calcium	mg/L																														
Magnesium	mg/L																														
Sodium	mg/L																														
Potassium	mg/L																														
Alkalinity, Total	mg/L																														
Alkalinity, Bicarbonate	mg/L																														
Alkalinity, Carbonate	mg/L																														
Alkalinity, Hydroxide	mg/L																														
Chloride	mg/L																														
Fluoride	mg/L																														
Sulfate as SO4	mg/L																														
Total Organic Carbon (TOC)	mg/L																														
Nitrate/Nitrite as N	mg/L																														
Aluminum	mg/L																														
Arsenic	mg/L																														
Cadmium	mg/L																														
Copper	mg/L																														
Iron	mg/L																														
Lead	mg/L																														
Manganese	mg/L																														
Mercury (dissolved)	mg/L																														
Mercury (dissolved low-level)	ng/L																														
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Silicon	mg/L																														
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mg/L	milligram per liter
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GCC Energy Hydrologic Monitoring Data

MW-2-C																															
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	8/7	11/1	2/20	5/29	8/14	11/6	2/11	5/27	9/1	11/24	2/15	5/20	8/24	11/17	3/23	6/14	9/8	12/4	3/31	6/14	8/18	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																															
Purge Flow Rate	gpm	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	gal																														
Depth to Water	ft bgs																														
Temperature	deg C																														
pH	SU																														
Specific Conductance	µS/cm																														
Oxygen Reduction Potential	mV																														
Lab Analytical Results:																															
Hardness as CaCO3	mg/L																														
pH (Lab)	SU																														
Total Dissolved Solids (Lab)	mg/L																														
Calcium	mg/L																														
Magnesium	mg/L																														
Sodium	mg/L																														
Potassium	mg/L																														
Alkalinity, Total	mg/L																														
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Mercury (dissolved)	mg/L																														
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GCC Energy Hydrologic Monitoring Data

MW-3-A																														
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	8	12	2	5	8	11	2	5	9	11	3	6	8	11	2	6	8
Sample Date		1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	8/14	11/12	2/4	5/26	8/31	12/1	2/10	5/18	8/10	11/9	2/24	5/11	9/6	11/18	3/16	6/15	8/8	11/16	2/21	6/20	8/13
Lab Analysis (Y/N)		N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																															
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	0.10	0.10	0.12	0.15	0.06	0.25	0.12	0.13	0.13	0.13	0.05	0.13	0.15	0.13	0.25	0.25	0.13	0.04	0.13	0.11	0.15	0.15	0.22	0.31	0.33
Total Purged	gal	1.3	1.5	1.5	1.0	1.3	1.0	1.1	1.5	1.3	1.3	1.5	1.1	1.2	1.5	1.3	1.3	1.5	1.5	1.5	1.5	2.0	1.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Depth to Water	ft bgs	298.37	298.04	297.86	297.76	298.17	298.55	298.27	297.85	296.79	297.27	297.33	296.47	296.87	297.21	297.02	296.97	296.72	297.47	297.46	296.67	296.74	296.96	296.62	295.59	295.32	295.97	295.81	295.22	295.07	295.12
Temperature	deg C	11.8	11.7	12.2	11.9	13.5	13.5	11.9	11.8	12.1	NM	13.1	11.5	13.2	13.1	11.9	12.1	12.4	13.6	12.2	11.4	13.0	15.6	12.2	11.8	12.7	15.2	11.8	11.8	14.0	13.3
pH	SU	8.54	8.52	8.61	8.21	8.38	8.30	8.31	8.28	8.31	8.13	8.51	8.11	8.26	8.23	8.39	8.53	8.46	8.42	8.47	8.35	8.21	8.12	8.66	8.06	7.97	8.63	8.50	8.48	8.37	8.48
Specific Conductance	µS/cm	2528	2506	2458	2415	2253	2336	2391	2355	2309	NM	2204	2211	2249	2112	2192	1930	1525	2091	2127	2121	2055	2066	2057	2094	2050	1374	903	937	560	748
Oxygen Reduction Potential	mV	-120.3	-125.2	-181.6	-135.8	-138.2	-155.8	-164.6	-145.9	-132.3	-138.6	-120.1	-65.7	-156.8	-98.8	-89.3	-101.3	-157.1	-149.0	-156.8	-221.2	-124.2	-269.9	-199.6	-43.5	-91.0	-162.4	-256.7	-162.8	-151.5	-172.6
Lab Analytical Results:																															
Hardness as CaCO3	mg/L		11.5			11.2	12.6	14.1	11.9	10.7	10.4	11.1	10.8	10.3	11.1	9.41	10.5	8.14	8.89	8.68	8.56	9.01	9.33	7.59	8.38	8.76	5.89	9.30	8.16	8.68	9.42
pH (Lab)	SU		8.45			8.36	8.37	8.24	8.28	8.29	8.27	8.39	8.09	7.68	8.16	8.13	8.13	8.22	8.21	8.19	8.17	8.28	8.09	8.15	7.63	7.97	8.40	8.37	8.20	8.44	8.50
Total Dissolved Solids (Lab)	mg/L		1680			1670	1600	1540	1500	1530	1520	1510	1500	1460	1380	1460	1410	1350	1420	1360	1220	1400	1320	1280	1390	1310	1300	1290	1320	1280	1340
Calcium	mg/L		3.33			3.2	3.71	4.15	3.55	3.16	3.08	3.34	3.14	3.07	3.02	2.83	3.07	2.48	2.59	2.53	2.42	2.63	2.59	2.21	2.42	2.51	2.36	2.57	2.25	2.48	2.61
Magnesium	mg/L		0.776			0.774	0.811	0.913	0.739	0.692	0.655	0.680	0.723	0.645	0.866	0.568	0.698	0.475	0.586	0.577	0.610	0.594	0.694	0.503	0.570	0.603	< 0.500	0.702	0.619	0.605	0.705
Sodium	mg/L		562			542	562	605	543	525	553	528	520	507	510	505	536	471	462	448	462	473	476	420	440	456	450	459	436	458	454
Potassium	mg/L		<2.00			1.8	<2.00	2.17	<2.00	1.92	<2.00	<5.00	<3.00	<5.00	<5.00	<5.00	<5.00	<3.00	<5.00	<2.00	1.34	<2.00	<2.00	<5.00	<5.00	<5.00	< 5.00	< 3.00	< 3.00	< 2.00	1.36
Alkalinity, Total	mg/L		430			480	480	475	540	450	459	420	460	430	440	470	520	530	465	485	495	560	500	400	454	458	447	465	465	510	580
Alkalinity, Bicarbonate	mg/L		360			480	420	385	330	430	423	420	460	400	440	450	520	530	465	435	455	480	500	400	454	458	415	455	465	510	580
Alkalinity, Carbonate	mg/L		70.0			<10.0	60.0	90.0	210	20	36.0	<10.0	<10.0	30.0	<10.0	20	<10.0	<10.0	<10.0	50.0	40.0	80.0	<10.0	<10.0	<10.0	<10.0	32.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		16.4			16.1	15.1	16.0	15.2	15	15.0	14.7	13.9	13.9	13.5	14	13.5	14	14.1	14.6	14.2	14.2	15.9	15.4	16.0	16.1	16.9	16.2	17.3	17.5	18.2
Fluoride	mg/L		<0.500			<0.5	NA	0.383	0.406	0.404	0.396	<0.500	0.370	0.374	0.366	0.372	0.336	0.352	0.366	0.314	0.356	0.324	0.362	<0.500	<0.500	0.316	< 0.500	0.284	< 0.500	0.368	0.390
Sulfate as SO4	mg/L		812			756	706	682	716	699	724	633	637	656	624	644	600	601	599	515	584	555	557	565	571	573	560	552	545	545	525
Total Organic Carbon (TOC)	mg/L		5.32			4.7	4.62	4.52	4.15	4.10	3.84	3.81	3.42	3.48	3.39	3.15	3.16	3.18	3.01	3.02	2.96	2.84	3.02	1.54	3.04	<2.5	4.44	2.93	3.25	2.96	3.93
Nitrate/Nitrite as N	mg/L		<0.020			<0.020	<0.020	<0.020	0.266	<0.020	<0.020	<0.020	0.024	0.026	0.039	0.032	<0.020	0.024	<0.020	<0.020	0.022	0.030	<0.020	<0.020	0.117	0.061	< 0.020	< 0.020	< 0.020	< 0.020	0.060
Ammonia as N ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.354	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.0730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.100			<0.050	<0.050	<0.100	<0.100	<0.050	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250	<0.250	<0.150	<0.250	<0.100	<0.050	<0.100	<0.100	<0.250	<0.250	<0.250	< 0.250	< 0.150	< 0.150	< 0.100	< 0.050
Arsenic	mg/L		<0.0025			0.0006	<0.0025	<0.0010	<0.0010	<0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	0.0026	0.0006	0.001	0.0018	0.0009	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0020	< 0.0020	< 0.0010
Cadmium	mg/L		<0.0005			<0.0001	<0.0001	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L		0.0236			0.0063	0.0117	0.0086	0.0137	0.0078	0.0067	0.0039	0.0037	0.0021	0.0051	0.0055	0.0037	0.0157	0.0156	0.0113	0.0088	0.0114	0.0189	0.0106	0.0155	0.0196	0.0065	0.0096	0.0159	0.0180	0.0255
Iron	mg/L		<0.100			<0.05	<0.05	<0.100	<0.100	<0.050	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250	<0.250	<0.150	<0.250	<0.100	<0.050	<0.100	<0.100	<0.250	<0.250	<0.250	< 0.250	< 0.150	< 0.150	< 0.100	< 0.050
Lead	mg/L		<0.0025			<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.001	<0.0010	<0.0010	<0.0005	<0.001	<0.002	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0005
Manganese	mg/L		0.0232			0.018	0.0222	0.0187	0.0172	0.0185	0.0166	0.0140	0.0162	0.0136	0.0120	0.0125	0.0128	0.0121	0.0096	0.0101	0.0113	0.0100	0.0097	0.0108	0.0119	0.0096	0.0098	0.0091	< 0.0010	0.0091	0.0076
Mercury (dissolved)	mg/L		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																					<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0065			0.0046	0.0043	0.0033	0.003	0.003	0.0018	0.0027	0.0022	0.0015	<0.0025	<0.0025	<0.0025	0.0015	0.0013	<0.001	0.0012	<0.001	0.0017	0.0012	<0.0025	<0.0025	< 0.0025	< 0.0025	0.0018	0.0016	0.0009
Selenium	mg/L		<0.0050			0.0109	<0.0050	0.0028	0.0039	<0.005	0.0020	<0.0020	<0.0020	0.0033	0.0086	<0.0050	0.129	0.0276	0.0167	0.0855	0.0162	0.0029	0.0106	<0.0020	0.0236	0.0174	< 0.0050	0.0094	0.0063	0.0427	< 0.0010
Silica (Si02)	mg/L		11.1			11	12.0	12.8	11.7	11	12.7	11.8	11.6	10.5	11.0	11.2	11.3	10.1	10.7	10.9	10.8	10.7	11.1	9.39	9.32	9.89	9.16	10.9	9.34	10.1	10.1
Silicon	mg/L		5.18			5.17	5.62	5.97	5.46	5.16	5.95	5.53	5.43	4.92	5.14	5.22	5.28	4.73	4.98	5.11	5.07	5.01	5.19	4.39	4.36	4.63	4.28	5.09	4.36	4.73	4.72
Uranium	mg/L		0.0030			0.0026	0.0026	0.0027	0.0018	0.0014	0.0012	0.0011	0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010	0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0005
Zinc	mg/L		<0.0100			<0.002	<0.002	<0.0040	<0.0040	<0.0100	<0.0080	<0.0040	<0.0040	<0.0040	<0.0100	<0.0100	<0.0100	<0.0020	<0.0040	<0.0040	<0.0020	<0.0040	<0.0040	0.0041	<0.0100	<0.0100	< 0.0100	< 0.0100	< 0.0040	< 0.0040	0.0028

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-3-MI																														
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	8	12	2	5	8	11	2	5	9	11	3	6	8	11	2	6	8
Sample Date		1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	8/21	11/12	2/4	5/26	8/31	12/1	2/10	5/18	8/10	11/9	2/24	5/11	9/6	11/18	3/16	6/15	8/8	11/16	2/21	6/20	8/13
Lab Analysis (Y/N)		N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																															
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	0.10	0.10	0.12	0.12	0.06	0.25	0.50	0.25	0.13	0.13	0.10	0.13	0.13	0.25	0.25	0.25	0.15	0.10	0.11	0.12	0.26	0.33	0.09	0.17	0.17
Total Purged	gal	1.3	1.5	1.5	1.0	1.3	1.0	1.1	1.5	1.3	2.0	1.0	1.5	1.3	1.8	1.3	1.3	1.5	1.5	1.3	1.5	2.0	1.3	1.3	1.1	1.1	1.1	1.1	1.1	1.3	1.1
Depth to Water	ft bgs	240.73	240.55	240.65	240.84	241.04	241.97	242.13	242.15	242.32	246.55	243.07	242.85	243.05	243.6	243.9	243.93	244.25	244.28	244.15	242.90	244.05	244.65	244.3	243.83	249.55	242.86	242.65	242.35	242.4	242.35
Temperature	deg C	11.9	11.3	11.9	11.8	12.6	13.0	12.4	11.6	11.3	13.2	12.3	11.6	12.6	12.8	11.7	11.5	12.8	13.0	11.9	11.4	13.2	13.7	11.6	11.7	12.5	13.1	12.3	11.7	13.1	12.5
pH	SU	8.84	8.83	8.84	8.51	8.48	8.49	8.46	8.51	8.55	8.71	8.75	8.71	8.92	9.01	9.09	9.03	9.06	9.13	9.11	9.07	9.04	9.03	8.81	9.06	9.03	9.00	8.89	8.97	8.80	8.73
Specific Conductance	µS/cm	1790	1810	1771	1772	1727	1709	1746	1753	1739	1691	1739	1758	1737	1560	1555	1519	1232	1647	1765	1705	1686	1720	1739	1609	1737	1702	1784	1788	1704	1753
Oxygen Reduction Potential	mV	-136.0	-131.4	-160.7	-99.9	-103.9	-127.8	-176.5	-113.0	-84.5	43.9	-130.8	-104.3	-174.5	-111.0	-132.4	-94.6	-120.4	-142.9	-163.3	-207.2	-104.2	-184.3	-158.9	-186.8	-192.3	-213.0	-263.6	-279.2	-222.1	-156.7
Lab Analytical Results:																															
Hardness as CaCO3	mg/L		9.92			8.65	8.63	8.88	7.63	6.84	7.98	6.64	6.50	7.25	6.39	5.94	6.63	5.06	5.39	5.21	5.28	5.13	<3.31	<3.31	<3.31	<3.31	< 3.31	5.20	4.21	5.20	5.63
pH (Lab)	SU		8.66			8.56	8.58	8.34	8.5	8.45	8.58	8.62	8.61	8.59	8.87	8.77	8.72	8.84	8.81	8.88	8.78	8.87	8.76	8.78	8.63	8.71	8.84	8.85	8.76	8.76	8.71
Total Dissolved Solids (Lab)	mg/L		1170			1210	1110	1120	1120	1170	1010	1130	1130	1130	1060	1160	1120	1110	1180	1130	1070	1140	1080	1070	1140	1100	1070	1050	1120	1060	1120
Calcium	mg/L		2.22			1.91	1.95	2.03	1.87	1.7	2.04	1.73	1.63	1.76	1.62	1.42	1.66	1.28	1.34	1.25	1.30	1.32	1.14	1.15	1.24	1.11	1.10	1.34	1.14	1.26	1.39
Magnesium	mg/L		1.07			0.945	0.911	0.926	0.715	0.629	0.703	0.561	0.591	0.694	0.570	0.579	0.606	0.454	0.5	0.508	0.496	0.442	<0.500	<0.500	<0.500	<0.500	< 0.500	0.449	0.332	0.501	0.522
Sodium	mg/L		459			417	446	476	434	419	454	437	437	427	431	431	468	410	403	390	413	415	374	389	397	408	398	405	388	413	411
Potassium	mg/L		<2.00			1.63	<2.00	<2.00	1.39	1.65	<2.00	<5.00	<2.00	<5.00	<3.00	<4.00	<5.00	<2.00	<2.00	<2.00	1.27	<2.00	<5.00	<5.00	<5.00	<5.00	< 5.00	< 2.00	< 2.00	< 2.00	1.23
Alkalinity, Total	mg/L		700			680	730	720	685	755	720	690	705	680	625	770	690	690	705	705	740	740	780	760	680	700	660	630	670	730	700
Alkalinity, Bicarbonate	mg/L		600			500	630	610	485	605	590	610	645	550	465	690	450	550	555	565	580	580	480	540	620	572	590	510	590	630	670
Alkalinity, Carbonate	mg/L		100			180	100	110	200	150	130	80.0	60.0	130	160	80	240	140	150	140	160	160	300	220	60.0	128	70.0	120	80.0	100	30.0
Alkalinity, Hydroxide	mg/L		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		10.7			10.7	8.54	8.83	9.21	9.25	10.2	9.13	9.21	9.61	9.45	10	9.84	10.5	10.4	10.4	10.6	10.2	11.2	10.7	10.9	10.8	10.8	10.7	10.7	10.6	10.3
Fluoride	mg/L		1.30			1.2	1.16	1.19	1.21	1.22	1.19	1.19	1.13	1.13	1.09	1.12	1.03	1.09	1.07	0.980	1.10	0.982	1.11	1.08	1.10	1.02	0.862	0.924	0.940	1.12	1.09
Sulfate as SO4	mg/L		245			250	226	230	232	229	236	224	227	231	222	110	223	227	228	230	233	213	240	238	240	243	242	241	245	255	247
Total Organic Carbon (TOC)	mg/L		9.24			8.67	7.83	7.28	6.73	6.56	6.17	5.78	5.58	6.07	5.79	5.46	5.34	5.33	5.4	5.26	5.14	4.94	5.06	2.89	5.14	4.22	4.72	4.52	5.37	4.49	4.50
Nitrate/Nitrite as N	mg/L		<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.034	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	2.42	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.317	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.348	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.100			<0.050	<0.050	<0.10	<0.050	<0.050	0.167	<0.250	<0.100	<0.250	<0.150	<0.200	<0.250	<0.100	<0.100	<0.100	<0.050	<0.100	<0.250	<0.250	<0.250	<0.250	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L		0.0160			0.0152	0.0127	0.0104	0.0149	0.0107	0.0142	0.0099	0.0093	0.0086	0.0061	0.007	0.0083	0.0091	0.0091	0.0078	0.0095	0.0082	0.0084	0.0085	0.0078	0.0094	0.0076	0.0084	0.0067	0.0049	0.0040
Cadmium	mg/L		<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0005	<0.0001	<0.0002	<0.0002	<0.0005	<0.0005	<0.0004	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L		0.0122			0.0048	0.0071	0.0073	0.0068	0.0063	0.0049	0.0037	0.0024	<0.0025	0.0046	0.0045	0.0031	0.0131	0.0143	0.0097	0.0072	0.0126	0.0170	0.0089	0.0143	0.0187	0.0080	0.0081	0.0136	0.0167	0.0243
Iron	mg/L		<0.100			<0.05	<0.05	<0.1	<0.050	<0.050	<0.100	<0.250	<0.100	<0.250	<0.150	<0.200	<0.250	<0.100	<0.100	<0.100	<0.050	<0.100	<0.250	<0.250	<0.250	<0.250	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Lead	mg/L		<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0025	<0.0005	<0.0010	<0.0010	<0.0025	<0.0025	<0.0020	<0.0025	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0020	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0025	< 0.0010	< 0.0005
Manganese	mg/L		0.0049			0.006	0.0054	0.0072	0.0078	0.0082	0.0079	0.0099	0.0095	0.0102	0.0072	0.007	0.0069	0.0057	0.0058	0.0054	0.0051	0.0049	0.0047	0.0058	0.0063	0.0058	0.0055	0.0059	0.0057	0.0066	0.0064
Mercury (dissolved)	mg/L		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																					<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0170			0.016	0.0149	0.0158	0.0157	0.0167	0.0277	0.0372	0.0204	0.0195	0.0149	0.0163	0.0162	0.016	0.0149	0.0140	0.0148	0.0143	0.0150	0.0150	0.0136	0.0143	0.0125	0.0139	0.0130	0.0135	0.0126
Selenium	mg/L		0.0010			0.0019	<0.0050	<0.002	0.0034	<0.005	<0.0010	<0.0020	<0.0020	<0.0050	<0.0050	<0.004	0.0462	0.0033	<0.0020	0.0091	0.0018	<0.0020	<0.0020	<0.0020	<0.0050	<0.005	< 0.0050	0.0032	0.0023	0.0155	< 0.0010
Silica (Si02)	mg/L		9.33			8.83	9.49	10.2	8.95	8.85	9.73	9.46	8.80	8.24	8.84	9.11	9.64	8.11	8.77	8.82	9.04	8.63	7.45	7.80	7.62	7.81	7.47	9.17	7.98	8.30	8.86
Silicon	mg/L		4.36			4.13	4.44	4.76	4.18	4.14	4.55	4.42	4.11	3.85	4.13	4.26	4.51	3.79	4.1	4.12	4.22	4.03	3.48	3.65	3.56	3.65	3.49	4.29	3.73	3.88	4.14
Uranium	mg/L		0.0125			0.0126	0.0111	0.0110	0.011	0.0085	0.0080	0.0070	0.0063	0.0059	0.0043	0.0049	0.0049	0.0043	0.0041	0.0033	0.0035	0.0032	0.0034	0.0032	0.0025	<0.0025	< 0.0025	0.0026	0.0021	0.0030	0.0022
Zinc	mg/L		<0.0020			0.0023	0.0023	<0.0040	0.0028	<0.0100	0.0070	<0.0040	<0.0040	<0.0100	<0.0100	<0.0080	<0.0100	<0.0020	<0.0040	<0.0040	<0.0020	<0.0040	<0.0040	<0.0040	<0.0100	<0.0100	< 0.0100	< 0.0040	< 0.0040	0.0078	< 0.0020

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-3-C																															
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	9	11	3	5	8	12	2	5	8	11	2	5	9	12	3	6	8	11	2	6	8
Sample Date		1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	9/17	11/12	3/13	5/26	8/31	12/1	2/10	5/18	8/10	11/10	2/24	5/11	9/6	12/13	3/29	6/15	8/8	11/16	2/21	6/20	8/13
Lab Analysis (Y/N)		N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																															
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	0.10	0.10	0.06	0.06	0.13	0.13	0.10	0.03	0.08	0.13	0.13	0.13	0.13	0.13	0.15	0.10	0.15	0.03	0.24	0.09	0.11	0.10	0.12	0.08	0.11
Total Purged	gal	1.5	1.5	1.5	1.0	1.3	1.3	1.1	1.3	1.5	10.0	1.5	11.0	1.1	1.3	1.5	1.3	1.5	1.3	1.5	1.5	1.5	1.5	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1
Depth to Water	ft bgs	297.01	296.66	296.57	296.62	296.78	297.12	296.80	296.39	295.56	295.70	295.50	299.35	294.99	294.60	295.26	295.97	295.25	295.70	295.68	294.45	295.11	295.45	295.10	294.25	293.70	294.46	294.41	293.85	293.66	293.60
Temperature	deg C	11.7	11.4	11.6	12.2	13.0	13.3	11.5	11.0	11.4	13.5	12.5	11.3	13.4	15.0	14.0	9.9	12.3	15.6	9.6	9.4	13.2	14.4	1.9	13.2	12.9	14.6	11.7	12.7	13.8	12.1
pH	SU	8.43	8.43	8.45	8.25	8.28	8.26	8.17	8.28	8.29	8.31	8.20	7.98	8.44	8.45	8.73	8.71	8.50	8.71	8.85	8.62	8.43	8.29	9.15	8.44	8.42	8.37	8.26	8.24	8.17	8.24
Specific Conductance	µS/cm	4923	4864	5063	5019	4916	4953	5127	5155	5184	5144	5144	4921	3143	5039	4251	4426	3755	4571	5244	4564	4694	5306	2397	5300	5353	5283	5584	2560	5377	5484
Oxygen Reduction Potential	mV	-187.9	-183.5	-155.4	-154.7	-161.4	-180.5	-217.6	-185.4	-188.5	-151.8	-184.4	-155.0	-240.5	-174.4	-150.0	-202.7	-149.6	-255.3	-227.4	-325.6	-223.4	-307.9	-277.2	57.8	-199.5	-202.4	-275.0	-231.2	-199.2	-210.9
Lab Analytical Results:																															
Hardness as CaCO3	mg/L		16.1			40.3	17.9	21.7	17.3	16.8	18.6	18.6	18.3	16.0	18.1	16.9	18.5	14.8	16.9	16.7	16.0	17.4	20.4	16.4	17.1	13.7	16.1	17.7	16.3	18.7	19.0
pH (Lab)	SU		8.35			8.34	8.31	8.24	8.2	8.23	8.31	8.12	7.98	8.41	8.36	8.36	8.43	8.38	8.47	8.87	8.44	8.47	8.18	8.49	8.81	8.29	8.21	8.27	8.39	8.20	8.26
Total Dissolved Solids (Lab)	mg/L		3540			3610	3520	3360	3300	3440	3500	3390	3220	3180	3170	3280	3200	3230	3300	3200	3270	3250	3280	3140	3150	2310	3220	3300	3360	3270	3390
Calcium	mg/L		3.81			7.28	4.01	4.70	4.05	3.74	4.30	4.23	4.26	3.81	3.97	3.72	4.25	3.59	3.84	3.76	3.66	4.10	4.49	3.68	3.91	3.32	3.63	3.97	3.74	4.26	4.28
Magnesium	mg/L		1.59			5.38	1.92	2.41	1.75	1.8	1.91	1.94	1.86	1.58	1.98	1.84	1.92	1.42	1.77	1.78	1.67	1.74	2.23	1.75	1.77	1.33	1.70	1.89	1.70	1.97	2.03
Sodium	mg/L		1200			1350	1220	1460	1270	1100	1360	1300	1280	1240	1250	1250	1360	1220	1220	1170	1200	1260	1360	1170	1260	906	1240	1270	1240	1300	1320
Potassium	mg/L		<10.0			<5.00	<5.00	<5.00	<5.00	5.24	<5.00	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<6.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<10.0	<5.00	< 10.0	< 10.0	< 6.00	< 10.0	3.97
Alkalinity, Total	mg/L		1910			1760	1730	2050	2000	2110	2190	2130	2160	2050	1820	2090	2170	2130	2140	2230	2180	2170	2110	2120	2220	1410	2140	2140	2180	2280	2160
Alkalinity, Bicarbonate	mg/L		1810			1600	1670	1900	1830	2000	2020	2070	2000	1800	1690	1970	1710	1910	1950	1950	1820	1870	1990	2120	1920	1410	2070	2060	2060	2040	2000
Alkalinity, Carbonate	mg/L		100			160	60.0	150	170	110	170	60.0	160	250	130	120	460	220	190	280	360	300	120	<10.0	300	<10.0	70.0	80.0	120	240	160
Alkalinity, Hydroxide	mg/L		<10.0			<10.0	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		549			544	524	561	577	575	620	542	549	555	552	578	574	577	582	462	608	605	613	604	622	360	639	644	646	649	634
Fluoride	mg/L		4.15			3.52	3.84	4.04	4.04	3.91	3.78	3.66	3.61	3.51	3.47	3.53	3.37	3.34	3.36	3.16	3.37	3.06	3.51	3.25	3.38	1.96	2.59	2.91	3.14	3.59	3.39
Sulfate as SO4	mg/L		<10.0			<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<10.0	252	< 10.0	< 10.0	< 5.00	2.37	< 10.0
Total Organic Carbon (TOC)	mg/L		337			343	306	141	122	129	132	107	81.9	23.4	17.1	15.7	15.7	16.3	15.7	16.4	17.9	16.2	16.1	10.4	19.2	5.72	18.9	19.2	20.5	19.9	19.9
Nitrate/Nitrite as N	mg/L		<0.020			<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.212	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.500			1.47	<0.500	<0.250	<0.250	<0.500	<0.250	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.300	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.500	<0.250	< 0.500	< 0.500	< 0.300	< 0.500	< 0.050
Arsenic	mg/L		0.0194			0.0168	0.0148	0.0155	0.0218	0.0171	0.0192	0.0188	0.0087	0.0133	0.0106	0.0125	0.0113	0.0163	0.0195	0.0170	0.0157	0.0130	0.0151	0.0146	0.0194	0.0206	0.0149	0.0170	0.0171	0.0211	0.0204
Cadmium	mg/L		<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.001	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.0035	< 0.0050	< 0.0050	< 0.0025	< 0.0050	0.0007
Copper	mg/L		0.0409			0.0183	0.0257	0.0227	0.0223	0.0168	0.0102	0.0109	0.0069	0.0064	0.0136	0.0156	0.0102	0.0499	0.0434	0.0323	0.0287	0.0347	0.0555	0.0268	0.0220	0.0571	0.0185	0.0293	0.0460	0.0522	0.0742
Iron	mg/L		<0.500			0.252	<0.500	<0.250	<0.250	0.344	0.328	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.300	0.464	0.310	0.260	0.305	0.427	<0.250	<0.500	<0.25	< 0.500	< 0.500	< 0.300	< 0.500	0.293
Lead	mg/L		<0.0025			<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.0050	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.0025	<0.005	<0.0035	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0016
Manganese	mg/L		0.0307			0.0275	0.0243	0.0252	0.0483	0.063	0.0378	0.0266	0.0245	0.0175	0.0102	0.0079	0.0052	0.0046	0.0034	0.0032	0.0028	0.0040	0.0025	0.0034	0.0054	0.0065	< 0.0050	< 0.0050	< 0.0025	< 0.0050	0.0023
Mercury (dissolved)	mg/L		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																					<5.00	<500	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0221			0.0189	0.0155	0.0140	0.0134	0.0121	0.0081	0.0075	0.0082	0.0085	0.0076	0.0075	0.008	0.0069	0.0061	0.0061	0.0059	0.0065	0.0058	0.0056	0.0111	0.0093	0.0065	0.0059	0.0057	< 0.0050	0.0052
Selenium	mg/L		0.0383			0.0268	0.0232	0.0261	0.0464	0.0203	0.0203	0.0173	0.0125	0.0129	0.0135	0.0191	0.027	0.0411	0.0372	0.0319	0.0335	0.0185	0.0247	0.0199	0.0259	0.0396	0.0242	0.0282	0.0241	0.0580	0.0355
Silica (Si02)	mg/L		<10.7			9.69	8.68	10.7	8.24	8.35	9.06	<10.7	<10.7	<10.7	<10.7	<10.7	<10.7	7.48	8.4	8.33	7.79	7.59	8.75	7.04	<10.7	8.03	< 10.7	< 10.7	7.28	< 10.7	7.65
Silicon	mg/L		<5.00			4.53	4.06	5.01	3.85	3.9	4.24	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	3.5	3.93	3.89	3.64	3.55	4.09	3.29	<5.00	3.75	< 5.00	< 5.00	3.41	< 5.00	3.58
Uranium	mg/L		0.0091			0.0087	0.0089	0.0113	0.0077	0.0046	0.0053	0.0034	0.0045	0.0033	<0.0050	<0.0050	<0.0050	0.0025	0.0025	<0.0025	<0.0025	<0.0025	0.0025	0.0025	0.0051	0.0044	< 0.0050	< 0.0050	< 0.0025	< 0.0050	0.0029
Zinc	mg/L		<0.0100			<0.0100	0.0664	0.0814	0.123	0.128	0.0567	0.0886	<0.0100	<0.0100	<0.0200	0.0332	0.0294	0.0363	0.0347	0.0377	0.0404	0.0181	0.0385	0.0228	<0.0200	0.0229	< 0.0200	< 0.0200	< 0.0100	< 0.0200	0.0161

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*
2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*
3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-4-A																														
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	8	11	2	5	8	11	2	5	9	11	3	6	8	11	2	6	8
Sample Date		1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15	11/12	2/6	5/26	8/27	11/25	2/10	5/18	8/10	11/10	2/23	5/11	9/1	11/17	3/9	6/15	8/7	11/16	2/12	6/20	8/13
Lab Analysis (Y/N)		N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																															
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	0.10	0.10	0.06	0.06	0.06	0.13	0.03	0.03	0.13	0.13	0.05	0.13	0.25	0.20	0.22	0.13	0.13	0.06	0.05	0.03	0.08	0.05	0.06	0.04	0.05
Total Purged	gal	1.3	1.5	1.5	1.0	1.5	1.5	1.1	1.5	1.3	1.1	1.0	1.5	1.2	1.3	1.3	1.3	1.3	1.5	1.3	1.8	1.5	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Depth to Water	ft bgs	334.31	334.73	334.81	335.07	335.58	336.06	336.73	335.6	335.07	335.21	335.16	336.35	337.16	336.88	336.13	335.46	335.72	335.93	336.16	336.01	336.31	336.74	337.16	337.66	330.46	335.36	335.49	335.38	335.96	335.81
Temperature	deg C	10.9	9.8	11.4	10.9	17.8	12.9	11.6	11.1	10.4	13.6	11.6	10.3	12.5	14.0	12.3	10.3	11.2	12.1	11.6	9.4	12.4	15.6	12.4	11.6	15.0	15.2	12.4	10.9	14.1	12.8
pH	SU	8.33	8.37	8.41	8.19	8.20	8.10	8.12	8.15	8.08	8.02	8.11	8.07	8.19	8.27	8.30	8.25	8.30	8.38	8.38	8.35	8.34	8.33	8.77	8.41	8.38	8.33	8.25	8.25	8.12	7.18
Specific Conductance	µS/cm	2259	2267	2207	2214	2183	2192	2246	2205	2237	2201	2211	2271	2273	2165	2249	2052	1618	2205	2268	2294	2244	2236	2236	2090	2246	2171	2298	2291	2212	2249
Oxygen Reduction Potential	mV	-35.2	-75.9	-117.3	-77.9	-81.8	-137.5	-157.6	-92.3	-89.3	-54.3	-19.8	15.3	-71.3	-11.5	-10.6	29.0	-63.4	-48.7	-77.3	-153.2	-78.6	-203.9	-66.6	35.8	-41.9	-76.5	-167.0	-207.3	-80.1	4.7
Lab Analytical Results:																															
Hardness as CaCO3	mg/L		7.73			7.84	7.69	8.81	7.76	7.31	8.62	8.00	8.19	7.46	7.87	7.77	8.87	7.02	5.81	7.54	8.32	7.88	8.44	7.41	7.78	8.02	6.50	7.47	7.88	8.97	8.43
pH (Lab)	SU		8.28			8.31	8.21	8.24	8.05	8.08	8.15	8.02	8.11	7.90	8.19	8.16	8.04	8.15	8.09	8.21	8.24	8.24	8.50	8.29	8.10	8.12	8.23	8.30	8.07	8.21	7.62
Total Dissolved Solids (Lab)	mg/L		1490			1470	1430	1350	1450	1410	1540	1490	1500	1480	1460	1560	1370	1430	1510	1470	1400	1540	1480	1430	1390	1480	1480	1400	1350	1430	1500
Calcium	mg/L		1.81			1.75	1.71	1.92	1.77	1.68	1.94	1.82	1.88	1.67	1.79	1.73	2.04	1.65	1.41	1.76	1.87	1.88	1.95	1.67	1.73	1.83	1.58	1.75	1.83	2.11	1.97
Magnesium	mg/L		0.778			0.846	0.832	0.973	0.809	0.756	0.914	0.837	0.850	0.798	0.826	0.836	0.917	0.704	0.555	0.765	0.890	0.771	0.868	0.783	0.842	0.839	0.616	0.751	0.803	0.897	0.853
Sodium	mg/L		507			528	531	568	535	515	548	529	551	498	533	531	565	507	411	488	504	523	520	482	559	535	503	509	538	520	564
Potassium	mg/L		<2.00			1.5	<2.00	<2.00	<2.00	<2.00	4.75	<5.00	<3.00	<5.00	<5.00	<5.00	<5.00	<3.00	<5.00	<2.00	<2.00	<2.00	<2.00	<5.00	<5.00	1.24	< 5.00	< 5.00	< 3.00	< 2.00	1.53
Alkalinity, Total	mg/L		530			560	575	575	545	565	575	544	560	585	605	538	620	590	580	670	535	605	590	480	569	579	562	515	555	585	615
Alkalinity, Bicarbonate	mg/L		490			560	555	575	505	544	535	528	560	545	565	530	620	530	580	670	485	455	590	480	531	579	524	515	545	585	615
Alkalinity, Carbonate	mg/L		40.0			<10.0	20.0	<10.0	40	32	40.0	16.0	<10.0	40.0	40	<10.0	<10.0	60	<10.0	<10.0	50.0	150	<10.0	<10.0	38.0	<10.0	38.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		10.0			9.94	9.55	8.60	8.93	8.99	8.91	8.76	8.83	8.89	10.1	9.15	8.79	9.15	9.17	9.04	9.04	8.97	9.89	9.61	9.72	10.3	10.6	10.3	11.3	< 25.0	10.1
Fluoride	mg/L		<0.500			<0.500	<0.500	0.143	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.500	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.500	<0.500	0.165	< 0.500	< 0.500	< 1.00	< 2.50	< 0.500
Sulfate as SO4	mg/L		579			561	522	450	567	584	615	559	557	580	542	607	561	577	593	551	581	525	580	590	602	594	571	583	586	576	586
Total Organic Carbon (TOC)	mg/L		3.46			3.59	3.60	3.59	3.47	3.40	3.33	3.25	3.10	3.49	3.48	3.27	3.42	3.42	3.23	3.28	3.31	3.32	3.40	1.99	3.78	3.35	3.44	2.86	3.69	3.34	3.53
Nitrate/Nitrite as N	mg/L		<0.020			<0.02	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.255	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	0.025	< 0.020
Ammonia as N ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.312	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.100			<0.05	<0.05	<0.100	<0.100	<0.100	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250	<0.250	<0.150	<0.250	<0.100	<0.100	<0.100	<0.100	<0.250	<0.250	<0.250	< 0.250	< 0.250	< 0.150	< 0.100	< 0.050
Arsenic	mg/L		0.0019			0.0005	<0.0025	<0.0010	<0.0010	<0.0005	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	0.0005	<0.0010	<0.0010	0.0008	<0.0010	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0050	< 0.0020	< 0.0010
Cadmium	mg/L		<0.0001			<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0005
Copper	mg/L		0.0124			0.0077	0.0105	0.0084	0.0081	0.0061	0.0120	0.0037	0.0034	0.0020	0.0056	0.0053	0.0036	0.0135	0.0161	0.0126	0.0097	0.0133	0.0215	0.0213	0.0207	0.0201	0.0044	0.0108	0.0185	0.0204	0.029
Iron	mg/L		<0.100			<0.050	<0.050	<0.100	<0.100	<0.100	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250	<0.250	<0.150	<0.250	<0.100	<0.100	<0.100	<0.100	<0.250	<0.250	<0.250	< 0.250	< 0.250	< 0.150	< 0.100	< 0.050
Lead	mg/L		<0.0005			<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0005	<0.0010	<0.0010	<0.0005	<0.001	<0.002	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0005
Manganese	mg/L		0.0035			0.0033	<0.0075	0.0034	0.0032	0.0031	0.0026	0.0016	0.0033	0.0031	0.0029	0.0035	0.0029	0.0029	0.003	0.0030	0.0032	0.0033	0.0035	0.0031	0.0036	0.0030	0.0032	0.0029	0.0029	0.0029	0.0027
Mercury (dissolved)	mg/L		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																					<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0005			<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0005
Selenium	mg/L		0.0014			0.0025	<0.0050	<0.0020	0.0036	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0010	<0.0020	<0.0040	0.0010	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0020	< 0.0010
Silica (Si02)	mg/L		9.47			10	10.2	11.2	9.65	9.81	11.0	10.5	10.3	8.55	9.44	9.96	10.4	8.98	8.57	10.0	9.75	9.80	10.3	8.80	10.3	9.55	8.45	9.58	9.79	9.45	9.93
Silicon	mg/L		4.43			4.7	4.77	5.22	4.51	4.59	5.14	4.89	4.79	4.00	4.42	4.65	4.87	4.2	4.01	4.67	4.56	4.58	4.80	4.11	4.82	4.46	3.95	4.48	4.58	4.42	4.64
Uranium	mg/L		0.0003			<0.0001	<0.0005	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0010	< 0.0005
Zinc	mg/L		0.0022			0.0024	<0.0100	<0.0040	<0.0040	0.0033	<0.0020	<0.0040	<0.0040	<0.0040	<0.0100	<0.0100	<0.0100	0.0021	<0.0040	<0.0040	<0.0020	<0.0040	<0.0040	<0.0040	<0.0100	<0.0100	< 0.0100	< 0.0100	< 0.0100	0.0088	0.0058

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-4-MI																														
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	8	11	2	5	8	11	2	5	9	11	3	5	8	11	2	6	8
Sample Date		1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15	11/12	2/6	5/26	8/27	11/25	2/10	5/18	8/10	11/10	2/23	5/11	9/1	11/17	3/9	5/31	8/7	11/16	2/12	6/20	8/13
Lab Analysis (Y/N)		N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																															
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	0.10	0.10	0.06	0.06	0.13	0.25	0.13	0.13	0.13	0.13	0.13	0.13	0.25	0.25	0.25	0.25	0.15	0.09	0.22	0.13	0.91	0.12	0.12	0.14	0.12
Total Purged	gal	1.3	1.5	1.5	1.0	1.3	1.8	1.6	2.0	1.3	1.1	1.0	1.3	1.2	1.3	1.3	1.5	1.3	1.5	1.5	1.3	1.5	1.0	1.3	1.1	1.1	1.1	1.2	1.2	1.2	1.2
Depth to Water	ft bgs	330.52	330.42	330.53	330.50	329.62	331.10	336.57	331.10	331.06	331.92	332.10	332.50	332.87	332.45	333.29	333.22	329.27	333.57	333.65	333.45	333.80	334.22	334.15	334.35	334.85	335.30	335.55	335.18	335.80	335.72
Temperature	deg C	11.2	11.0	10.5	10.9	10.1	11.8	11.3	11.1	10.8	13.3	11.6	11.8	12.2	12.9	11.8	10.8	11.6	12.1	11.7	11.0	12.0	13.0	11.5	11.5	12.9	12.5	12.1	10.9	12.5	12.7
pH	SU	8.62	8.48	8.53	8.01	8.50	8.14	8.25	8.38	8.23	8.14	8.26	8.18	8.42	8.45	8.57	8.57	8.60	8.59	8.59	8.46	8.56	8.51	7.87	8.62	8.62	8.62	8.53	8.08	7.63	7.61
Specific Conductance	µS/cm	1848	1856	1841	1816	1739	1756	1808	1716	1800	1830	1776	1795	1794	1730	1777	1605	1258	1711	1761	1745	1727	1718	1749	1673	1728	1710	1791	1784	1695	1712
Oxygen Reduction Potential	mV	-112.5	-151.3	-145.7	-117.7	-130.0	-178.2	-202.3	-140.4	-154.7	-127.3	-76.8	-50.6	-131.2	-92.0	-87.7	-53.9	-105.9	-97.8	-118.1	-141.5	-128.8	-247.1	-131.9	85.0	-139.7	-81.2	-267.6	-266.9	-140.8	-93.9
Lab Analytical Results:																															
Hardness as CaCO3	mg/L		6.01			5.88	6.06	6.39	5.35	4.93	5.65	3.31	4.70	<3.31	5.19	2.84	4.91	3.79	4.59	4.53	4.17	4.15	4.59	<3.31	3.84	4.11	< 3.31	3.91	3.70	4.92	4.90
pH (Lab)	SU		8.47			8.48	8.31	8.47	8.35	8.3	8.44	8.08	8.33	8.02	8.28	8.38	8.21	8.38	8.28	8.59	8.35	8.42	8.68	8.48	8.25	8.41	8.44	8.59	7.39	8.23	8.26
Total Dissolved Solids (Lab)	mg/L		1220			1140	1120	1100	1130	1130	1140	1120	1110	1110	1070	1170	1130	1100	1130	1090	1100	1140	1070	1060	1030	1030	1060	1050	1000	1030	1120
Calcium	mg/L		1.64			1.55	1.56	1.60	1.440	1.3	1.51	1.32	1.21	1.22	1.32	1.14	1.97	1.05	1.23	1.09	1.05	1.13	1.13	0.971	0.979	1.02	0.838	0.982	0.989	1.350	1.260
Magnesium	mg/L		0.465			0.49	0.524	0.580	0.428	0.408	0.458	<0.500	0.406	<0.500	0.459	<0.400	<0.500	0.285	0.37	0.441	0.372	0.321	0.431	<0.500	0.338	0.381	< 0.500	0.354	0.299	0.380	0.427
Sodium	mg/L		447			471	470	500	462	458	496	477	441	460	459	458	476	431	427	418	430	443	448	384	468	427	428	424	439	427	440
Potassium	mg/L		<2.00			1.39	<2.00	<2.00	1.43	1.77	2.03	<5.00	<2.00	<5.00	<3.00	<4.00	<5.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<5.00	<2.00	<2.00	< 5.00	< 2.00	< 2.00	< 2.00	1.39
Alkalinity, Total	mg/L		965			955	968	995	510	890	970	978	985	1030	1020	1010	990	1020	985	1140	935	1020	1180	920	1040	965	955	985	975	1040	1070
Alkalinity, Bicarbonate	mg/L		875			865	896	885	420	650	880	886	895	935	940	965	910	900	865	1020	825	870	1040	720	980	865	907	945	975	995	1020
Alkalinity, Carbonate	mg/L		90.0			90	72.0	110	90	240	90.0	92.0	90.0	90.0	80	40	80	120	120	120	110	150	140	200	60.0	100	48.0	40.0	< 10.0	40.0	50.0
Alkalinity, Hydroxide	mg/L		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		8.74			7.99	5.68	5.38	5.98	5.98	5.83	5.47	5.37	5.11	5.02	4.97	4.89	4.85	4.91	4.98	4.55	4.36	4.29	<5.00	25.4	3.91	< 5.00	3.62	< 5.00	3.46	3.36
Fluoride	mg/L		5.02			4.82	4.84	4.94	5.49	5.44	5.38	5.31	5.11	5.16	5	5.27	4.92	5.03	5.2	4.78	5.16	4.73	5.42	5.13	5.42	5.31	4.32	4.83	5.08	5.66	5.57
Sulfate as SO4	mg/L		68.6			54.4	48.3	47.6	38.7	34.4	31.9	28.2	24.6	21.9	20	18.7	17.1	16.1	16.4	13.7	13.4	12.4	12.7	11.7	21.8	10.1	< 5.00	8.16	8.52	8.99	8.9
Total Organic Carbon (TOC)	mg/L		9.54			9.25	8.94	8.48	8.37	8.25	7.81	6.42	6.63	6.55	5.93	5.77	5.78	5.36	5.29	5.09	4.80	4.28	4.73	2.31	4.82	4.52	4.06	4.05	4.07	3.57	3.53
Nitrate/Nitrite as N	mg/L		<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.100			<0.050	<0.100	<0.100	<0.050	<0.050	<0.100	<0.250	<0.100	<0.250	<0.150	<0.200	<0.250	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.250	<0.100	<0.100	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L		0.0139			0.0153	0.014	0.0119	0.0164	0.0111	0.0116	0.0107	0.0127	0.0139	0.0084	0.0092	0.0088	0.011	0.0099	0.0093	0.0120	0.0092	0.0094	0.0090	0.0100	0.0074	0.0090	0.0101	0.0079	0.0082	0.0078
Cadmium	mg/L		<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0005	<0.0004	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L		0.0079			0.0063	0.0071	0.0078	0.0087	0.0153	0.0051	0.0027	0.0028	0.0020	0.0052	0.0045	0.004	0.0103	0.0134	0.0107	0.0116	0.0107	0.0177	0.0177	0.0196	0.0049	0.0039	0.0086	0.0159	0.0165	0.0258
Iron	mg/L		<0.100			<0.050	<0.100	<0.100	<0.050	<0.050	<0.100	<0.250	<0.100	<0.250	<0.150	<0.200	<0.250	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.250	<0.100	<0.100	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Lead	mg/L		<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0025	<0.0020	<0.0025	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.002	<0.0010	<0.001	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Manganese	mg/L		0.0080			0.007	0.0068	0.0084	0.0091	0.0084	0.0084	0.0073	0.0085	0.0086	0.0086	0.0092	0.0094	0.0073	0.0075	0.0077	0.0076	0.0080	0.0078	0.0084	0.0076	0.0077	0.0079	0.0074	0.0080	0.0116	0.0079
Mercury (dissolved)	mg/L		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																					<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0151			0.0119	0.0115	0.0129	0.0121	0.0119	0.0108	0.0101	0.0096	0.0091	0.0081	0.0089	0.0082	0.0076	0.0068	0.0065	0.0065	0.0062	0.0064	0.0064	0.0060	0.0052	0.0051	0.0050	0.0048	0.0046	0.0045
Selenium	mg/L		<0.0010			0.0022	0.0113	<0.0020	0.002	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010	<0.005	<0.0040	0.0143	<0.0010	<0.0020	<0.0040	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0050	< 0.0050	< 0.0020	< 0.0020	< 0.0020	< 0.0010
Silica (Si02)	mg/L		8.30			8.90	9.29	10.3	8.86	9.06	10.2	9.51	8.21	7.81	8.39	8.88	9.26	7.82	8.69	8.54	8.49	8.30	8.76	6.89	9.27	8.23	6.72	8.64	8.09	8.08	8.97
Silicon	mg/L		3.88			4.16	4.34	4.81	4.14	4.24	4.76	4.45	3.84	3.65	3.92	4.15	4.33	3.66	4.06	3.99	3.97	3.88	4.09	3.22	4.34	3.85	3.14	4.04	3.78	3.78	4.20
Uranium	mg/L		0.0183			0.0173	0.0151	0.0191	0.0269	0.0176	0.0168	0.0145	0.0163	0.0195	0.0121	0.0139	0.0137	0.0115	0.0112	0.0097	0.0089	0.0086	0.0084	0.0088	0.0075	0.0063	0.0063	0.0070	0.0079	0.0051	0.0065
Zinc	mg/L		<0.0020			<0.0020	<0.0020	<0.0040	<0.0020	<0.0020	<0.0100	<0.0040	<0.0040	<0.0040	<0.0100	<0.0080	<0.0100	<0.0020	<0.0040	<0.0040	<0.0020	<0.0040	<0.0040	<0.0040	0.0044	<0.0100	< 0.0100	< 0.0040	< 0.0040	< 0.0040	< 0.0020

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis
Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)
ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*
2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*
3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-4-C																														
Year		2018							2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	8	11	2	5	8	11	2	5	8	12	2	5	8	11	2	5	9	11	3	5	8	11	2	6	8
Sample Date		1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15	11/12	2/4	5/26	8/27	SQI inst	2/10	5/18	8/10	11/10	2/23	5/11	9/1	11/17	3/9	5/31	8/18	11/16	2/12	6/20	8/13
Lab Analysis (Y/N)		N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																															
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	0.10	0.20	0.12	0.06	0.13	0.13	0.13	0.13	0.13	0.13	0.10	0.13	0.13	0.13	0.25	0.25	0.18	0.08	0.09	0.16	0.08	0.08	0.12	0.11	0.08
Total Purged	gal	1.5	1.5	1.5	1.0	1.5	1.0	1.3	1.5	1.3	1.1	1.0	1.5	1.2	1.5	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Depth to Water	ft bgs	282.35	281.30	303.30	304.05	NM	302.55	302.17	302.45	303.93	304.93	305.73	306.44	304.90	307.80	308.05	308.65	308.58	309.32	309.90	309.80	311.45	310.88	311.37	310.15	311.45	311.85	311.55	311.35	310.24	311.74
Temperature	deg C	11.7	10.8	12.5	11.4	12.4	12.9	11.5	11.3	11.2	12.5	11.7	11.2	12.7	13.0	11.4	10.0	11.4	12.3	11.7	10.3	12.2	13.8	12.1	11.1	13.8	13.7	12.4	11.0	12.8	12.7
pH	SU	7.80	7.88	7.94	7.75	7.79	7.76	7.79	7.87	7.86	7.81	7.85	7.87	7.97	8.00	8.05	8.02	8.05	8.12	8.11	8.06	8.05	8.06	8.28	8.15	8.09	8.17	8.02	8.00	7.91	7.98
Specific Conductance	µS/cm	5834	5903	5628	5792	5592	5583	5775	5710	5712	5930	5636	5729	5636	5429	5665	5106	4047	5454	5687	5698	5645	5589	5649	5116	5678	5560	5842	5792	5580	5751
Oxygen Reduction Potential	mV	-123.8	-154.3	-131.3	-134.9	-129.3	-157.6	-209.0	-160.1	-180.1	-156.8	-148.7	-135.9	-147.7	-132.1	-128.7	-106.2	-100.6	-142.3	-173.0	-255.6	-178.7	-278.7	-161.3	-158.1	-168.9	-182.7	-255.3	-250.2	-190.4	-194.8
Lab Analytical Results:																															
Hardness as CaCO3	mg/L		26.5			26.2	25.9	28.6	23.6	22.5	25.2	24.4	24.0	22.7	23	21.8	25.6	19.6	21.9	20.9	22.2	21.4	26.0	20.1	21.1	21.0	24.3	22.1	23.5	20.9	23.7
pH (Lab)	SU		7.84			7.97	7.96	8.27	7.9	7.92	7.95	7.85	7.95	7.76	7.92	7.94	7.96	7.97	7.96	8.08	8.01	8.07	8.19	8.15	7.98	8.12	8.04	8.13	7.65	8.01	8.05
Total Dissolved Solids (Lab)	mg/L		3730			3660	3650	3590	3580	3590	3610	3610	3580	3570	3510	3610	3720	3540	3600	3630	3520	3580	3670	3530	3620	3450	3390	3560	3420	3490	3590
Calcium	mg/L		6.32			6.15	5.90	6.60	5.5	5.21	5.83	5.61	5.57	5.31	5.3	5.15	5.98	4.64	5.07	4.77	5.04	5.14	6.01	4.65	4.78	4.78	5.69	5.15	5.54	4.89	5.49
Magnesium	mg/L		2.61			2.62	2.72	2.94	2.39	2.3	2.57	2.53	2.44	2.30	2.36	2.18	2.58	1.95	2.25	2.19	2.33	2.07	2.68	2.07	2.22	2.20	2.45	2.23	2.36	2.11	2.42
Sodium	mg/L		1410			1400	1410	1590	1410	1370	1440	1430	1440	1390	1400	1400	1520	1310	1340	1270	1360	1350	1530	1290	1410	1360	1440	1360	1410	1370	1480
Potassium	mg/L		<10.0			<5.00	<5.00	5.36	<5.00	<5.00	5.42	<10.0	<5.00	<10.0	<10.0	<10.0	<10.0	<6.00	<5.00	<5.00	<5.00	<5.00	<5.00	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 6.00	4.13	4.32
Alkalinity, Total	mg/L		2600			2410	2480	2450	2470	2550	2500	2470	2480	2460	2500	2950	2470	2500	2410	2630	2360	2500	2430	2250	2580	2240	2460	2460	2350	2580	2620
Alkalinity, Bicarbonate	mg/L		2600			2330	2480	2450	2470	2350	2390	2410	2420	2340	2390	2880	2430	2360	2290	2410	2180	2300	2430	2250	2490	2240	2330	2420	2330	2380	2280
Alkalinity, Carbonate	mg/L		<10.0			80	<10.0	<10.0	<10.0	200	110	60.0	60.0	120	110	70	40	140	120	220	180	200	<10.0	<10.0	90.0	<10.0	130	40.0	20.0	200	340
Alkalinity, Hydroxide	mg/L		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		592			573	533	590	575	554	580	525	528	555	543	565	557	553	572	561	562	563	570	583	576	581	566	586	575	579	573
Fluoride	mg/L		2.53			2.52	2.48	2.54	2.64	2.62	2.59	2.51	2.41	2.36	2.34	2.37	2.21	2.16	2.28	2.04	2.26	2.02	2.34	2.22	2.23	2.15	2.10	2.02	1.75	2.74	2.37
Sulfate as SO4	mg/L		34.5			27	18.7	11.2	5.07	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<10.0	<10.0	<5.00	< 10.0	< 10.0	11.1	< 10.0	< 10.0
Total Organic Carbon (TOC)	mg/L		3.23			3.23	2.80	3.46	3.24	2.62	2.63	4.18	2.23	2.50	2.31	3.72	4.57	4.92	4.81	4.70	5.93	4.91	4.39	3.19	4.75	5.54	7.10	19.6	6.25	5.89	6.08
Nitrate/Nitrite as N	mg/L		<0.020			<0.020	<0.020	<0.020	0.061	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.100	<0.020	<0.020	<0.02	< 0.020	< 0.020	0.252	< 0.020	< 0.020
Ammonia as N ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.424	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA	NA	NA	NA	NA	NA	0.182	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.500			<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.500	<0.250	<0.500	<0.500	<0.500	<0.500	<0.300	<0.250	<0.250	<0.250	<0.250	<0.250	<0.500	<0.500	<0.500	< 0.500	< 0.500	< 0.300	< 0.100	< 0.050
Arsenic	mg/L		0.0246			0.0195	0.0202	0.0164	0.0211	0.0171	0.0178	0.0179	0.0203	0.0195	0.015	0.0182	0.0177	0.0212	0.0248	0.0213	0.0213	0.0172	0.0219	0.0207	0.0218	0.0155	0.0237	0.0179	0.0181	0.0221	0.0215
Cadmium	mg/L		<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0008
Copper	mg/L		0.0482			0.0389	0.0280	0.0230	0.0249	0.0382	0.0198	0.0107	0.0111	0.0069	0.0151	0.0148	0.0111	0.0464	0.0499	0.0370	0.0302	0.0371	0.0618	0.0573	0.0606	0.0160	0.0731	0.0292	0.0487	0.0566	0.0641
Iron	mg/L		<0.500			0.373	0.397	0.474	0.279	0.391	0.522	0.619	0.591	0.551	<0.500	0.553	0.837	0.355	0.793	0.551	0.598	0.801	0.795	<0.500	0.731	0.572	0.630	0.604	< 0.300	0.604	0.682
Lead	mg/L		<0.0025			<0.0025	<0.0025	<0.0025	<0.0025	<0.0005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.0050	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.0025	<0.0050	<0.005	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0005
Manganese	mg/L		0.0647			0.0529	0.0381	0.0283	0.0268	0.0174	0.0162	0.0096	0.0209	0.0103	0.008	0.0076	0.0059	0.0063	0.005	0.0047	0.0051	0.0046	0.0049	0.0046	<0.0050	<0.005	< 0.0050	< 0.0050	0.0067	< 0.0050	0.0034
Mercury (dissolved)	mg/L		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																					<5.00	<500	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0086			0.0072	0.0071	0.0057	0.0074	0.007	0.0056	0.0047	0.0045	0.0044	<0.005	<0.005	<0.0050	0.0037	0.0031	0.0031	0.0033	0.0031	0.0036	0.0034	<0.0050	<0.005	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0028
Selenium	mg/L		0.0378			0.0317	0.0260	0.0211	0.0339	0.0195	0.0195	0.0156	0.0140	0.0129	0.0112	0.0182	<0.0100	0.0186	0.028	0.0269	0.0219	0.0146	0.0218	0.0256	0.0258	0.0194	0.0119	0.0216	0.0271	0.0303	0.0276
Silica (Si02)	mg/L		<10.7			11.0	11.2	12.8	10.1	10.5	11.3	11.0	9.9	<10.7	<10.7	<10.7	10.8	8.35	9.54	9.37	9.28	8.56	10.4	<10.7	<10.7	<10.7	< 10.7	< 10.7	9.1	8.5	10.9
Silicon	mg/L		<5.00			5.16	5.24	6.00	4.70	4.89	5.29	5.14	4.62	<5.00	<5.00	<5.00	5.06	3.91	4.46	4.38	4.34	4.00	4.87	<5.00	<5.00	<5.00	< 5.00	< 5.00	4.24	3.95	5.10
Uranium	mg/L		0.0311			0.0311	0.0277	0.0246	0.0215	0.0154	0.0086	0.0073	0.0063	0.0039	<0.0050	<0.0050	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0009
Zinc	mg/L		<0.0100			<0.0100	<0.0100	<0.0100	<0.0100	0.0038	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 0.0020

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

^ one-time analysis

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

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2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-5-A																																		
Year		2018									2019				2020				2021				2022				2023				2024			
Quarter		Q1			Q2			Q3		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	
Month		1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8	
Sample Date		1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/26	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16	2/15	5/20	8/23	11/17	3/17	6/16	9/8	12/4	3/18	6/14	8/16	11/14	3/17	6/19	8/6	
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Field Parameters:																																		
Purge Flow Rate	gpm	dry	dry	dry	dry	dry	***	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	
Total Purged	gal																																	
Depth to Water	ft bgs																																	
Temperature	deg C																																	
pH	SU																																	
Specific Conductance	µS/cm																																	
Oxygen Reduction Potential	mV																																	
Lab Analytical Results:																																		
Hardness as CaCO3	mg/L																																	
pH (Lab)	SU																																	
Total Dissolved Solids (Lab)	mg/L																																	
Calcium	mg/L																																	
Magnesium	mg/L																																	
Sodium	mg/L																																	
Potassium	mg/L																																	
Alkalinity, Total	mg/L																																	
Alkalinity, Bicarbonate	mg/L																																	
Alkalinity, Carbonate	mg/L																																	
Alkalinity, Hydroxide	mg/L																																	
Chloride	mg/L																																	
Fluoride	mg/L																																	
Sulfate as SO4	mg/L																																	
Total Organic Carbon (TOC)	mg/L																																	
Nitrate/Nitrite as N	mg/L																																	
Ammonia as N ^	mg/L																																	
Ortho-Phosphate as P ^	mg/L																																	
Aluminum	mg/L																																	
Arsenic	mg/L																																	
Cadmium	mg/L																																	
Copper	mg/L																																	
Iron	mg/L																																	
Lead	mg/L																																	
Manganese	mg/L																																	
Mercury (total)	mg/L																																	
Mercury (total low-level)	ng/L																																	
Molybdenum	mg/L																																	
Selenium	mg/L																																	
Silica (Si02)	mg/L																																	
Silicon	mg/L																																	
Uranium	mg/L																																	
Zinc	mg/L																																	

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

*** *La Plata County stage 3 fire restrictions prevented sampling activity*

^ one-time analysis

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

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3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-5-MI																																	
Year		2018									2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2			Q3		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/5-6	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16	2/15	5/20	8/23	11/17	3/17	6/16	9/12	12/4	3/18	6/14	8/16	11/14	3/17	6/19	8/6
Lab Analysis (Y/N)		N	Y	NM	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																																	
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	***	0.10	0.10	0.10	0.12	0.12	0.06	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.20	0.20	0.25	0.13	0.15	0.20	0.05	0.04	0.10	0.04	0.08	0.06	0.05
Total Purged	gal	1.0	1.5	1.5	1.0	1.3		1.3	1.0	1.1	1.3	1.3	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.3	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Depth to Water	ft bgs	263.77	263.67	263.65	263.69	263.74		263.90	263.92	264.68	263.45	263.70	263.92	263.93	263.82	262.72	264.31	264.39	265.57	265.87	265.22	265.48	265.12	265.17	265.18	265.02	264.77	264.92	265.15	265.27	264.82	264.92	265.22
Temperature	deg C	9.3	9.9	9.5	9.5	10.1		12.5	11.7	9.6	6.7	10.2	11.1	10.6	9.2	10.6	11.8	10.5	8.3	12.3	11.7	10.3	9.0	12.7	12.7	9.1	8.8	11.9	13.0	10.0	6.9	13.0	10.8
pH	SU	8.84	8.83	8.87	8.59	8.55		8.56	8.61	8.54	8.62	8.36	8.45	8.42	8.30	8.55	8.62	8.65	8.58	8.51	8.61	8.58	8.43	8.15	8.51	8.11	8.53	8.51	8.38	8.50	8.55	8.18	8.23
Specific Conductance	µS/cm	1664	1622	1610	1592	1596		1553	1558	1570	1607	1527	1572	1572	1546	1592	1518	1561	1425	~	1527	1589	1601	1552	1574	1615	1650	1619	1563	1606	1683	1590	1633
Oxygen Reduction Potential	mV	12.6	12.0	-33.8	5.7	-21.3		-44.7	14.5	-38.2	-39.7	-12.1	-16.0	10.5	39.0	-90.5	-25.4	21.0	-27.1	-0.8	-26.7	-12.8	-95.3	44.8	-36.1	-29.0	9.1	-17.3	35.2	-38.6	-103.8	-86.5	-77.2
Lab Analytical Results:																																	
Hardness as CaCO3	mg/L		10.5			9.11			9.34	9.48	8.79	8.47	8.74	7.97	8.89	8.72	9.18	9.1	9.45	8.96	7.88	9.30	9.16	9.33	8.38	8.38	8.73	9.10	8.29	9.05	8.53	8.85	11.3
pH (Lab)	SU		8.62			8.67			8.60	8.50	8.54	8.14	8.37	8.35	8.28	8.17	8.34	8.38	8.37	8.28	8.31	8.20	8.37	8.23	8.41	8.29	8.17	8.21	7.38	8.30	8.19	8.28	8.13
Total Dissolved Solids (Lab)	mg/L		1030			1010			990	975	1050	975	1010	945	980	950	980	900	955	945	1010	945	1010	1000	1040	980	995	990	1030	990	1070	1010	965
Calcium	mg/L		2.74			2.36			2.37	2.39	2.25	2.16	2.20	2.00	2.17	2.24	2.3	2.36	2.42	2.28	2.13	2.30	2.34	2.41	2.13	2.19	2.25	2.30	2.03	2.29	2.25	2.29	2.95
Magnesium	mg/L		0.880			0.78			0.829	0.854	0.769	0.748	0.787	0.724	0.842	0.758	0.837	0.779	0.826	0.791	0.623	0.863	0.806	0.808	0.743	0.705	0.757	0.813	0.779	0.808	0.708	0.762	0.966
Sodium	mg/L		416			398			404	417	416	384	392	392	405	407	405	413	435	380	402	391	389	379	386	408	421	412	393	386	396	411	400
Potassium	mg/L		1.68			1.25			<2.00	<2.00	1.9	1.29	1.35	1.05	<2.00	<5.00	1.21	<3.00	<3.00	1.16	<5.00	<2.00	1.19	1.01	<2.00	<2.00	<5.00	0.795	< 5.00	< 2.00	< 2.00	< 2.00	1.26
Alkalinity, Total	mg/L		1000			900			940	900	860	945	905	935	885	865	760	935	935	935	930	1000	965	935	980	935	925	960	904	920	925	965	975
Alkalinity, Bicarbonate	mg/L		820			780			760	810	720	805	775	825	805	775	680	845	825	825	820	920	875	845	980	935	895	960	858	900	905	895	975
Alkalinity, Carbonate	mg/L		180			120			180	90.0	140	140	130	110	80	90.0	80	90	110	110	110	80.0	90.0	90.0	<10.0	<10.0	30.0	<10.0	46.0	20.0	20.0	70	< 10.0
Alkalinity, Hydroxide	mg/L		<10.0			<10			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L		5.93			7.48			5.23	4.98	5.17	5.3	5.11	5.43	5.47	5.30	5.4	5.23	5.27	4.93	4.78	6.80	5.19	5.32	5.66	5.32	5.42	5.47	5.23	5.40	5.50	5.43	5.69
Fluoride	mg/L		0.535			0.565			0.536	0.340	0.367	0.404	0.327	0.440	0.34	0.308	0.278	0.274	0.25	0.272	0.304	<0.500	0.248	0.262	<0.500	0.340	0.318	0.286	0.256	< 0.200	0.310	0.284	< 0.500
Sulfate as SO4	mg/L		21.6			17.3			13.3	9.01	7.39	7.62	6.48	6.36	6.47	5.99	5.86	5.71	6.8	6.37	6.31	6.94	7.30	7.51	7.69	7.40	7.98	7.52	6.53	5.71	7.17	7.16	7.25
Total Organic Carbon (TOC)	mg/L		3.65			3.82			3.78	3.68	3.46	3.46	3.24	2.78	2.73	2.72	2.78	2.57	2.64	2.50	2.66	2.40	2.49	2.42	2.51	1.33	2.15	2.15	2.70	2.40	3.49	2.65	2.71
Nitrate/Nitrite as N	mg/L		<0.020			<0.02			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.042	0.039	0.104	0.085	0.093	<0.020	<0.020	0.056	0.020	0.052	0.141	< 0.020	< 0.020	0.030
Ammonia as N ^	mg/L		NA			NA			NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA			NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L		<0.050			<0.050			<0.100	<0.100	<0.050	<0.050	<0.050	<0.050	<0.100	<0.250	<0.050	<0.150	<0.150	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.100	<0.250	<0.250	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L		0.0192			0.0232			0.0234	0.0165	0.0177	0.0176	0.0194	0.0147	0.0133	0.0126	0.0139	0.0145	0.0143	0.0142	0.0117	0.0076	0.0104	0.0103	0.0101	0.0100	0.0108	0.0085	0.0080	0.0108	0.0087	0.0109	0.0087
Cadmium	mg/L		<0.0001			<0.0001			<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0025	<0.0025	<0.0005	<0.0005	<0.0010	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L		0.0076			0.0049			0.0072	0.0074	0.0103	0.0148	0.0054	0.0056	0.0041	<0.0025	0.0048	0.0028	0.003	0.0088	0.0083	0.0095	0.0105	0.0173	0.0138	0.0135	0.0113	0.0174	0.0041	0.0090	0.0171	0.0181	0.0178
Iron	mg/L		<0.050			<0.050			<0.100	<0.100	<0.050	<0.050	<0.050	<0.050	<0.100	<0.250	<0.050	<0.150	<0.150	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.100	<0.250	< 0.250	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Lead	mg/L		<0.0005			<0.0005			<0.0005	<0.001	<0.0010	<0.0005	<0.0005	<0.0010	<0.001	<0.0025	<0.0025	<0.0015	<0.0015	<0.0005	<0.0025	<0.0025	<0.0005	<0.0005	<0.001	<0.001	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Manganese	mg/L		0.0082			0.0104			0.0121	0.0155	0.017	0.0146	0.0158	0.0156	0.019	0.0169	0.0203	0.0225	0.0215	0.0188	0.0187	0.0181	0.0163	0.0160	0.0172	0.0129	0.0129	0.0139	0.0143	0.0155	0.0170	0.023	0.0123
Mercury (total)	mg/L		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (total low-level)	ng/L																							<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L		0.0158			0.0113			0.0114	0.0078	0.0066	0.0053	0.0051	0.0038	0.0038	0.0031	0.0027	0.0028	0.0028	0.0026	<0.0025	<0.0025	0.0023	0.0023	0.0022	0.0029	<0.0025	0.0025	< 0.0025	0.0019	0.0025	0.0023	0.0018
Selenium	mg/L		<0.0010			<0.001			0.0010	<0.002	<0.0020	<0.001	<0.0010	<0.0010	<0.0020	<0.0050	<0.0050	<0.0030	0.0039	0.001	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020	<0.0020	<0.0050	<0.0050	< 0.0050	< 0.0020	< 0.0020	< 0.0020	< 0.0010
Silica (Si02)	mg/L		8.66			8.17			8.28	9.20	8.37	8.4	9.18	7.76	8.07	7.36	8.54	8.45	8.91	8.2	7.7	8.12	8.33	7.92	7.33	7.82	7.20	7.33	6.40	8.05	7.40	7.54	7.84
Silicon	mg/L		4.05			3.82			3.87	4.30	3.91	3.93	4.29	3.63	3.77	3.44	3.99	3.95	4.17	3.83	3.6	3.80	3.89	3.70	3.43	3.65	3.37	3.43	2.99	3.76	3.46	3.53	3.67
Uranium	mg/L		0.0095			0.0089			0.0112	0.0099	0.0103	0.0085	0.0093	0.0098	0.0082	0.0068	0.0068	0.0071	0.0079	0.0066	0.0063	0.0053	0.0065	0.0061	0.0066	0.0068	0.0064	0.0074	0.0067	0.0063	0.0058	0.0068	0.0050
Zinc	mg/L		0.0933			0.0816			0.0801	0.0919	0.115	0.0576	0.0567	0.0561	0.0698	0.0641	0.0746	0.0854	0.0831	0.0607	0.0693	0.0782	0.0738	0.0756	0.0889	0.0721	0.0685	0.0712	0.0716	0.0750	0.0523	0.0684	0.0827

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

*** *La Plata County stage 3 fire restrictions prevented sampling activity*

^ one-time analysis

~ instrument error

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

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mg/L milligram per liter

pCi/L picocuries per liter

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GCC Energy Hydrologic Monitoring Data

MW-5-C																																
Year		2018									2019				2020				2021				2022				2023				2024		
Quarter		Q1			Q2			Q3		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11	2	5	8	11	3	6	9	12	3	6	8	11	3	6	8
Sample Date		1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/1	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16	2/15	5/20	8/23	11/17	3/17	6/16	9/12	12/4	3/18	6/14	8/16	11/14	3/17	6/19	8/6
Lab Analysis (Y/N)		N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y
Field Parameters:																																	
Purge Flow Rate	gpm	NM	0.10	NM	0.10	0.10	***	0.10	0.10	0.10	0.12	0.12	0.06	0.25	0.13	0.25	0.13	0.13	0.25	0.15	0.25	0.28	0.25	0.25	0.15	0.20	0.09					0.16	0.09
Total Purged	gal	1.5	2.0	1.5	1.0	1.3		1.3	1.5	1.6	1.3	1.5	1.3	1.1	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.0	1.0	1.0	1.0	0.9					0.8	0.8
Depth to Water	ft bgs	225.40	222.46	219.31	218.22	216.04		210.87	210.50	205.10	198.44	193.20	191.11	189.20	187.50	187.70	189.72	192.15	195.08	197.82	200.27	202.00	204.14	205.57	206.15	207.75	208.90					210.40	211.40
Temperature	deg C	9.3	9.4	9.6	9.7	10.1		10.7	10.7	9.4	8.6	10.1	10.9	10.3	8.8	10.9	10.9	10.0	9.1	10.5	10.8	9.6	9.6	NM	10.8	9.2	9.1	dry	dry	dry	dry	10.9	9.8
pH	SU	7.65	7.68	7.77	7.56	7.60		7.52	7.61	7.55	7.72	7.72	7.74	7.77	7.87	7.83	7.93	7.91	7.93	8.01	8.05	8.03	7.86	7.84	7.85	7.81	7.84					7.53	7.57
Specific Conductance	µS/cm	4974	4958	4285	4787	4772		4674	4687	4768	4623	4418	4355	4359	4230	4152	3677	4013	3625	3206	3685	3835	3695	3540	3565	3723	3782					3731	3866
Oxygen Reduction Potential	mV	-99.8	-90.5	-84.6	-49.6	-51.3		-59.5	-66.4	-138.0	-56.2	-29.9	-88.2	-58.7	-45.5	-128.2	-88.6	-52.8	-49.8	-116.6	-104.5	-101.3	-187.4	-84.5	-180.7	-39.2	8.3					-103.2	-80.0
Lab Analytical Results:																																	
Hardness as CaCO3	mg/L		61.3			50.3			51.2	51.4	43	41.1	38.8	34.9	34.8	33.2	30.8	31.7	29.4	28.0	23.9	26.0	26.8	28.1	32.6	29.1	31.5					34.8	36.1
pH (Lab)	SU		7.74			7.79			7.64	7.69	7.72	7.46	7.75	7.66	7.74	7.73	7.8	7.92	8.03	7.82	7.87	7.81	7.88	7.65	7.85	7.98	7.67					7.67	7.70
Total Dissolved Solids (Lab)	mg/L		3480			3430			3290	3260	3160	3090	3130	3010	2970	2800	2750	2640	2710	2590	2670	2520	2530	2400	2400	2160	4910					2550	2580
Calcium	mg/L		13.7			11.1			11.4	11.5	9.78	9.34	8.69	7.70	7.73	7.50	6.78	7.02	6.7	6.28	5.54	5.78	6.45	7.10	8.22	7.38	8.15					8.72	9.28
Magnesium	mg/L		6.57			5.46			5.52	5.50	4.51	4.32	4.14	3.81	3.78	3.51	3.37	3.43	3.08	2.98	2.43	2.82	2.59	2.51	2.93	2.59	2.70					3.16	3.14
Sodium	mg/L		1250			1200			1230	1250	1220	1070	1120	1050	1050	1060	1010	1030	1070	999	942	922	875	857	1020	916	939					971	953
Potassium	mg/L		<5.00			3.6			<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<10.0	2.75	<10.0	<10.0	2.63	<10.0	<5.00	2.59	<4.00	<5.00	<5.00	<10.0					< 5.00	2.90
Alkalinity, Total	mg/L		1590			1490			1520	1540	1560	1630	1620	1580	1550	1520	1590	1570	1610	1580	1540	1690	1630	1670	1680	1600	1790					1790	1840
Alkalinity, Bicarbonate	mg/L		1590			1490			1520	1540	1560	1630	1620	1520	1550	1470	1480	1510	1550	1580	1540	1450	1590	1670	1680	1600	1690					1790	1840
Alkalinity, Carbonate	mg/L		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	60.0	<10.0	50.0	110	60	60	<10.0	<10.0	240	40.0	<10.0	<10.0	<10.0	100					< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0					< 10.0	< 10.0
Chloride	mg/L		10.1			<10.0			7.15	7.08	7.1	7.02	6.62	6.32	6.58	6.12	6.02	6.04	5.84	4.05	5.95	5.93	5.78	<4.00	3.75	<5.00	<5.00					< 5.00	< 5.00
Fluoride	mg/L		1.89			1.79			1.74	1.80	1.95	2.01	1.95	1.98	1.96	2.01	2.01	2.03	1.99	2.09	2.09	1.96	2.00	2.32	2.42	2.28	2.44					2.46	2.34
Sulfate as SO4	mg/L		1190			1220			1130	1070	1040	975	948	836	799	721	679	686	693	700	607	560	553	479	466	475	493					503	485
Total Organic Carbon (TOC)	mg/L		3.24			3.06			3.28	3.64	3.05	3.00	3.03	2.62	2.7	2.73	2.87	2.69	2.7	2.46	2.8	2.54	2.38	2.16	2.39	1.56	2.35					2.46	1.88
Nitrate/Nitrite as N	mg/L		<0.020			<0.02			0.026	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020					< 0.020	< 0.020
Ammonia as N ^	mg/L		NA			NA			NA	NA	NA	NA	NA	0.369	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					NA	NA
Ortho-Phosphate as P ^	mg/L		NA			NA			NA	NA	NA	NA	NA	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					NA	NA
Aluminum	mg/L		<0.250			<0.050			<0.250	<0.250	<0.250	<0.25	<0.250	<0.250	<0.250	<0.500	<0.050	<0.050	<0.500	<0.500	<0.500	<0.250	<0.100	<0.200	<0.250	<0.250	<0.050					< 0.250	< 0.050
Arsenic	mg/L		<0.0025			0.0044			0.0046	0.0036	0.004	0.0013	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.005	<0.0050	<0.0005	<0.0050	<0.0025	<0.0015	<0.0020	<0.0025	<0.0025	<0.0050					< 0.0050	0.0014
Cadmium	mg/L		<0.0005			<0.0005			<0.0005	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0010	<0.0005	<0.0050	<0.0025	<0.0015	<0.0020	<0.0025	<0.0025	<0.0050					< 0.0025	< 0.0005
Copper	mg/L		0.0342			0.0171			0.0226	0.0178	0.0294	0.01	0.0138	0.0303	0.0165	0.0040	0.0101	0.0078	0.0066	0.0296	0.0202	0.0242	0.0313	0.0823	0.0355	0.0250	0.0130					0.0411	0.0407
Iron	mg/L		0.399			0.237			<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.500	0.113	<0.500	<0.500	0.223	<0.500	0.273	0.130	<0.200	<0.250	<0.250	<0.500					< 0.250	0.420
Lead	mg/L		<0.0025			<0.0025			<0.0025	<0.0025	<0.0025	<0.0005	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.005	<0.0050	<0.0005	<0.0050	<0.0025	<0.0015	<0.0020	<0.0025	<0.0025	<0.0050					< 0.0025	< 0.0005
Manganese	mg/L		0.0138			0.0128			0.0131	0.0117	0.0115	0.0079	0.0078	0.0076	0.0081	0.0059	<0.0050	0.0053	<0.0050	0.0035	<0.0050	0.0029	0.0049	0.0139	0.0099	0.0074	0.0078					0.012	0.0087
Mercury (total)	mg/L		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (total low-level)	ng/L																							<5.00	<500	<100	<100					< 100	< 100
Molybdenum	mg/L		0.0154			0.0142			0.0127	0.0109	0.0096	0.0054	0.0041	0.0035	0.0033	0.0031	<0.0050	<0.0050	<0.0050	0.0026	<0.0050	0.0032	0.0017	0.0024	<0.0025	<0.0025	<0.0050					< 0.0025	0.0022
Selenium	mg/L		<0.0050			<0.0050			<0.0050	<0.0050	<0.0050	0.0015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0100	<0.0100	0.0142	<0.0010	<0.0100	<0.0050	<0.0030	<0.004	<0.0050	<0.0050	<0.0100					< 0.0050	< 0.0010
Silica (Si02)	mg/L		7.64			7.65			8.18	8.94	7.84	8.00	8.00	7.33	7.01	<10.7	7.44	<10.7	<10.7	7.15	<10.7	7.79	7.12	5.92	7.19	5.97	<10.7					6.61	7.13
Silicon	mg/L		3.57			3.58			3.83	4.18	3.67	3.74	3.74	3.43	3.28	<5.00	3.48	<5.00	<5.00	3.34	<5.00	3.64	3.33	2.77	3.36	2.79	<5.00					3.09	3.33
Uranium	mg/L		0.0048			0.0047			0.0036	0.0035	0.0029	0.0021	0.0018	0.0017	<0.0025	<0.0025	<0.0050	<0.0050	<0.0050	0.0012	<0.0050	<0.0025	<0.0015	<0.0020	<0.0025	<0.0025	<0.0050					< 0.0025	< 0.0010
Zinc	mg/L		<0.0100			<0.0100			<0.0100	<0.0100	<0.0100	<0.002	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	<0.0200	<0.0020	<0.0200	<0.0100	<0.0060	<0.0080	<0.0100	<0.0100	<0.0200					< 0.0100	0.0078

Notes & Definitions:

Historical data prior to 2018 can be found in earlier posted versions of this table

*** *La Plata County stage 3 fire restrictions prevented sampling activity*

^ one-time analysis

Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)
ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-6-A																																
Year		2018	2019										2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	11	2	5	8	11	2	5	8	11	2	5	8	11	3	5	8	11	2	6	8
Sample Date		12/28	1/31	2/21	3/21	4/23	5/20	6/19	7/23	8/15	9/24	11/7	2/5	5/14	8/11	11/25	2/9	5/17	8/9	11/9	2/15	5/10	8/31	11/25	3/13	5/18	8/8	11/16	2/5	6/19	8/13
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N
Field Parameters:																																
Purge Flow Rate	*gpm*	NM	NM	0.10	2.00	0.03	0.03	0.03	0.06	0.03	0.02	0.01	0.05	0.13	0.05	0.05	0.05	0.02	0.13	0.02	0.05	0.10										
Total Purged	*gal*	36.3	0.5	0.5	2.0	2.0	1.3	1.0	1.3	1.1	1.3	1.5	1.1	1.0	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0										
Depth to Water	*ft bgs*	304.33	306.41	307.40	309.60	311.05	312.50	314.20	315.75	316.43	NM	318.70	315.46	319.63	319.64	319.65	319.66	319.66	319.64	319.66	320.30	320.68										
Temperature	*deg C*	7.4	10.7	8.1	7.5	9.6	7.3	12.5	12.3	11.9	10.4	10.4	7.8	9.8	19.5	8.0	9.7	12.6	19.4	10.7	11.5	17.3	dry	dry	dry	dry	dry	dry	dry	dry	dry	
pH	*SU*	7.32	6.64	6.66	6.74	6.65	6.73	6.76	6.75	6.76	6.80	6.79	6.89	6.95	6.97	7.10	7.03	7.10	7.11	7.11	7.02	7.05										
Specific Conductance	*µS/cm*	6573	6053	6072	6107	6012	6057	5725	5598	5562	5451	5108	5043	4779	4339	4656	4051	3198	4238	4465	4486	4477										
Oxygen Reduction Potential	*mV*	-22.8	19.4	24.6	12.6	11.8	34.8	86.6	25.8	6.5	29.2	20.5	36.7	51.7	62.3	55.2	73.5	83.5	5.2	26.5	-56.1	2.4										
Lab Analytical Results:																																
Hardness as CaCO3	*mg/L*	4360		4190			3920			3540		3070	3200	2780	2690	2710	2660	2550	2740	2510	2440	2490										
pH (Lab)	*SU*	7.10		6.85			6.77			6.85		6.87	6.9	6.93	6.66	7.04	7.20	6.93	7.1	6.98	7.19	7.26										
Total Dissolved Solids (Lab)	*mg/L*	6520		6520			120*			6080		5210	4980	4670	4490	4570	4480	4390	4440	4310	4440	4450										
Calcium	*mg/L*	615		559			553			492		431	467	400	398	406	398	378	415	370	359	365										
Magnesium	*mg/L*	687		678			617			560		484	495	431	411	413	404	390	413	385	374	383										
Sodium	*mg/L*	294		283			296			304		276	296	274	261	273	272	266	263	254	257	268										
Potassium	*mg/L*	15.0		14.4			12.4			12.8		11.1	<20.0	10.6	10.3	10.5	11.1	10.7	11	10.4	10.7	10.6										
Alkalinity, Total	*mg/L*	160		160			143			183		220	215	233	236	246	245	290	255	295	285	270										
Alkalinity, Bicarbonate	*mg/L*	160		160			143			183		220	215	233	236	246	245	290	255	295	285	270										
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<10.0		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0										
Alkalinity, Hydroxide	*mg/L*	<10.0		<10.0			<10.0			<10.0		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0										
Chloride	*mg/L*	97.4		28.6			27.3			29.9		29.6	28.4	29.0	26.0	26.6	24.9	25.8	26	26.6	26.2	26.1										
Fluoride	*mg/L*	2.83		<0.500			<0.500			<0.500		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500										
Sulfate as SO4	*mg/L*	205		4300			4280			4260		3460	3080	3020	3160	2890	2620	2740	2780	2790	2870	2820										
Total Organic Carbon (TOC)	*mg/L*	3.45		3.08			2.91			3.57		3.10	3.16	3.39	3.31	3.26	1.71	3.82	3.33	3.25	3.26	3.14										
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020		<0.020	0.049	0.154	0.117	0.093	0.039	0.156	0.118	0.096	0.131	0.103										
Ammonia as N ^	*mg/L*	NA		NA			NA			NA		2.72	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA										
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA		<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA										
Aluminum	*mg/L*	<0.500		<0.250			<0.250			<0.250		<0.250	<1.00	<0.500	<0.250	<0.500	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250										
Arsenic	*mg/L*	<0.0025		<0.0025			0.0009			<0.0025		<0.0025	<0.0025	<0.0050	<0.0025	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0020	<0.0025										
Cadmium	*mg/L*	<0.0005		<0.0005			0.0001			<0.0005		<0.0005	<0.0005	<0.0010	<0.0005	<0.0010	<0.0005	<0.0025	<0.0025	<0.0025	<0.0020	<0.0025										
Copper	*mg/L*	0.0116		0.0081			0.0035			0.0039		0.0017	0.0028	<0.0050	<0.0025	<0.0050	<0.0025	0.0068	0.0082	0.0063	0.0065	0.0093										
Iron	*mg/L*	1.37		3.75			3.93			3.22		2.72	1.95	1.38	1.10	1.24	1.17	0.890	1.48	1.15	1.41	1.37										
Lead	*mg/L*	<0.0025		<0.0025			<0.0005			<0.0025		<0.0025	<0.0025	<0.0050	<0.0025	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0020	<0.0025										
Manganese	*mg/L*	0.788		0.802			0.724			0.690		0.585	0.551	0.526	0.520	0.454	0.437	0.397	0.407	0.391	0.420	0.431										
Mercury (dissolved)	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002											
Mercury (dissolved low-level)	*ng/L*																					<5.00										
Molybdenum	*mg/L*	<0.0025		<0.0025			<0.0005			<0.0025		<0.0025	<0.0025	<0.0050	<0.0025	<0.005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0020	<0.0025										
Selenium	*mg/L*	<0.0050		<0.0050			0.0028			<0.0050		<0.0050	<0.005	<0.0100	<0.0050	<0.0100	<0.0050	<0.0050	<0.0050	<0.0100	<0.0040	<0.0050										
Silica (Si02)	*mg/L*	12.3		11.9			14.3			13.4		12.5	<21.4	11.0	11.4	12.3	11.9	13.2	14.3	13.6	12.7	12.3										
Silicon	*mg/L*	5.77		5.57			6.69			6.28		5.83	<10.00	5.17	5.35	5.76	5.58	6.17	6.67	6.36	5.96	5.73										
Uranium	*mg/L*	<0.0005		<0.0005			<0.0001			<0.0005		<0.0005	<0.0025	<0.0050	<0.0025	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0020	<0.0025										
Zinc	*mg/L*	0.0689		<0.0100			0.0082			0.0108		0.0117	0.0107	<0.0200	0.0159	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0080	<0.0100										

Notes & Definitions:

*	Anomalous value under review
^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-6-MI																																
Year		2018	2019											2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2				Q3			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	5	6	7	8	9	11	2	5	8	11	2	5	8	11	2	5	8	11	3	5	8	11	2	6	8
Sample Date		12/29	1/31	2/25	3/21	4/19	5/20	5/30	6/19	7/23	8/15	9/24	11/7	2/5	5/14	8/11	11/24	2/9	5/17	8/9	11/9	2/15	5/10	8/1	11/25	3/13	5/31	8/8	11/16	2/5	6/19	8/13
Lab Analysis (Y/N)		Y	N	Y	N	N	N[#]	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																																
Purge Flow Rate	*gpm*	NM	NM	NM	0.5	0.1	0.015	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	*gal*	11.3	0.5	1.5	0.5	1.0	0.9																									
Depth to Water	*ft bgs*	374.49	368.09	367.92	370.49	369.50	371.00																									
Temperature	*deg C*	14.3	13.6	10.8	9.7	16.7	3.9																									
pH	*SU*	8.26	7.43	7.21	7.55	7.97	7.84																									
Specific Conductance	*µS/cm*	3390	3620	3132	2619	2202	2527																									
Oxygen Reduction Potential	*mV*	103.0	-80.2	77.6	59.8	38.3	64.9																									
Lab Analytical Results:																																
Hardness as CaCO3	*mg/L*	679		147																												
pH (Lab)	*SU*	8.18		8.35																												
Total Dissolved Solids (Lab)	*mg/L*	2480		1880																												
Calcium	*mg/L*	104		23.4																												
Magnesium	*mg/L*	102		21.6																												
Sodium	*mg/L*	646		565																												
Potassium	*mg/L*	12.0		5.30																												
Alkalinity, Total	*mg/L*	395		615																												
Alkalinity, Bicarbonate	*mg/L*	345		615																												
Alkalinity, Carbonate	*mg/L*	50.0		<10.0																												
Alkalinity, Hydroxide	*mg/L*	<10.0		<10.0																												
Chloride	*mg/L*	175		178																												
Fluoride	*mg/L*	2.06		2.46																												
Sulfate as SO4	*mg/L*	1210		585																												
Total Organic Carbon (TOC)	*mg/L*	3.63		4.55																												
Nitrate/Nitrite as N	*mg/L*	0.023		<0.020																												
Aluminum	*mg/L*	<0.100		<0.100																												
Arsenic	*mg/L*	0.0084		0.0144																												
Cadmium	*mg/L*	<0.0001		<0.0002																												
Copper	*mg/L*	0.0113		0.0112																												
Iron	*mg/L*	<0.100		<0.100																												
Lead	*mg/L*	<0.0005		<0.0010																												
Manganese	*mg/L*	0.0500		0.0224																												
Mercury (dissolved)	*mg/L*	<0.0002		<0.0002																												
Molybdenum	*mg/L*	0.0558		0.0690																												
Selenium	*mg/L*	0.0098		0.0127																												
Silica (Si02)	*mg/L*	9.93		9.05																												
Silicon	*mg/L*	4.64		4.23																												
Uranium	*mg/L*	0.0200		0.0118																												
Zinc	*mg/L*	0.0092		0.0143																												

Notes & Definitions:

**No sample collected, due to low yield, insufficient volume for lab sample after field parameters we measured**

Y/N **yes or no**
gpm **gallons per minute**
deg C **degrees Celsius**
SU **standard pH units**
µS/cm **microsiemens per centimeter**
mV **millivolts**
mg/L **milligram per liter**
pCi/L **picocuries per liter**
NM **not measured (field)**
NA **not analyzed (lab)**
ng/L **nanogram per liter**

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-6-C																														
Year		2018	2019										2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	11	2	5	8	11	2	5	8	11	2	5	8	11	3	5	8	11	2	6	8
Sample Date		12/24	1/30	2/21	3/21	4/23	5/20	6/19	7/23	8/15	9/24	11/7	2/5	5/12	8/11	11/24	2/9	5/17	8/9	11/9	2/15	5/10	8/1	11/25	3/13	5/18	8/8	11/16	2/5	6/19	8/13
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																															
Purge Flow Rate	gpm	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	gal																														
Depth to Water	ft bgs																														
Temperature	deg C																														
pH	SU																														
Specific Conductance	µS/cm																														
Oxygen Reduction Potential	mV																														
Lab Analytical Results:																															
Hardness as CaCO3	mg/L																														
pH (Lab)	SU																														
Total Dissolved Solids (Lab)	mg/L																														
Calcium	mg/L																														
Magnesium	mg/L																														
Sodium	mg/L																														
Potassium	mg/L																														
Alkalinity, Total	mg/L																														
Alkalinity, Bicarbonate	mg/L																														
Alkalinity, Carbonate	mg/L																														
Alkalinity, Hydroxide	mg/L																														
Chloride	mg/L																														
Fluoride	mg/L																														
Sulfate as SO4	mg/L																														
Total Organic Carbon (TOC)	mg/L																														
Nitrate/Nitrite as N	mg/L																														
Aluminum	mg/L																														
Arsenic	mg/L																														
Cadmium	mg/L																														
Copper	mg/L																														
Iron	mg/L																														
Lead	mg/L																														
Manganese	mg/L																														
Mercury (dissolved)	mg/L																														
Mercury (dissolved low-level)	ng/L																														
Molybdenum	mg/L																														
Selenium	mg/L																														
Silica (Si02)	mg/L																														
Silicon	mg/L																														
Uranium	mg/L																														
Zinc	mg/L																														

Notes & Definitions:

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-6-LM																																
Year		2018	2019											2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11	2	5	8	11	2	5	8	11	3	5	8	11	2	6	8
Sample Date		12/30	1/31	2/25	3/21	4/23	5/20	6/19	7/23	8/15	9/24	10/28	11/7	2/5	5/14	8/11	11/25	2/9	5/17	8/9	11/9	2/15	5/10	8/31	11/25	3/13	5/31	8/8	11/16	2/12	6/19	8/13
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																																
Purge Flow Rate	gpm	NM	NM	0.06	2.00	0.03	0.03	0.10	0.06	0.03	0.02	0.01	0.03	0.01	0.13	0.01	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.20	0.06	0.03	0.05	0.05	0.19	0.03	0.02
Total Purged	gal	0.5	0.5	1.5	2.0	2.0	2.3	1.3	1.3	1.8	2.0	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.5	1.0	1.2	1.0	1.5	1.4	1.4	1.4	1.4	1.4
Depth to Water	ft bgs	535.72	538.73	539.34	540.64	539.98	537.58	540.00	540.35	540.24	540.17	539.80	540.18	539.70	539.45	539.98	540.30	539.78	540.20	541.25	541.34	541.00	541.30	542.20	541.30	541.37	541.50	541.88	541.85	541.65	541.65	541.97
Temperature	deg C	7.9	14.3	7.8	8.1	9.1	9.3	11.7	14.0	13.4	11.6	10.1	12.4	10.5	11.3	14.8	11.4	10.2	11.6	14.4	11.1	11.0	11.8	13.1	10.4	8.7	14.4	13.5	10.9	8.7	12.2	16.0
pH	SU	7.64	7.38	7.51	7.54	7.49	7.54	7.67	7.80	7.65	7.43	7.45	7.37	7.39	7.54	7.44	7.47	7.44	7.54	7.52	7.49	7.46	7.56	7.64	7.70	7.77	7.58	7.67	7.55	7.65	7.36	7.49
Specific Conductance	µS/cm	6011	3784	3503	1461	1164	1296	1400	1272	1532	2104	2267	2113	2283	2287	2442	2495	2136	1629	2531	2478	2362	2297	2053	1889	1599	1321	1525	1655	1498	1153	1030
Oxygen Reduction Potential	mV	185.3	10.7	40.9	-32.8	-35.8	-111.0	-194.5	-163.6	-67.2	6.4	-48.0	19.9	-128.9	-222.9	32.1	21.8	3.5	-188.8	-2.6	-36.6	-135.8	-112.6	-181.6	-132.5	-80.3	-41.7	-75.3	-173.0	-249.9	-122.1	-77.2
Lab Analytical Results:																																
Hardness as CaCO3	mg/L	2260		1270			431			621			843	1060	965	1130	1160	1120	1010	1280	1130	1030	954	971	870	687	456	573	621	535	414	335
pH (Lab)	SU	7.60		7.52			7.47			7.59			7.32	7.43	7.18	6.95	7.45	7.49	7.45	7.37	7.57	7.54	7.60	7.90	7.60	7.75	7.58	7.79	7.76	7.48	7.24	7.73
Total Dissolved Solids (Lab)	mg/L	5100		2840			875			1150			1630	1840	1840	2040	2020	1990	1830	2290	2050	1990	1840	1870	1620	1290	940	1030	1060	940	755	680
Calcium	mg/L	367		216			75.9			103			136	173	150	179	184	176	154	201	174	159	145	152	133	109	76.8	91.5	99.1	86.9	70.5	58.1
Magnesium	mg/L	325		177			58.7			88.3			122	153	143	165	171	166	152	189	170	154	144	143	131	101	64.2	83.5	90.6	77.2	57.8	46.2
Sodium	mg/L	459		248			129			153			172	203	188	194	194	188	169	177	166	162	158	163	150	139	125	128	132	131	123	122
Potassium	mg/L	173		64.5			14.0			13.7			11.3	11	7.82	7.20	6.04	5.96	5.22	5.69	4.99	5.22	<5.00	4.84	4.34	4.04	3.14	< 5.00	3.34	3.47	3.11	2.89
Alkalinity, Total	mg/L	205		315			371			381			355	320	353	335	329	336	346	330	380	365	365	337	310	368	470	390	355	355	360	430
Alkalinity, Bicarbonate	mg/L	205		315			371			381			355	320	353	335	329	336	346	330	380	365	365	337	310	368	470	390	355	355	360	430
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	256		43.7			5.73			8.70			11.4	11	11.7	12.2	12.4	11	10.5	12.6	11.1	10.5	10.9	10.7	9.29	6.75	5.09	5.75	6.09	6.04	4.47	3.61
Fluoride	mg/L	0.530		<0.500			0.324			<0.500			<0.500	0.352	<0.500	0.346	0.356	0.318	0.340	0.418	0.306	0.328	<0.500	0.310	0.322	0.328	0.254	< 0.200	0.240	< 0.500	0.306	0.316
Sulfate as SO4	mg/L	3050		1790			338			492			830	951	904	1260	1170	1020	978	1300	1100	555	931	1010	848	563	366	500	534	451	298	209
Total Organic Carbon (TOC)	mg/L	3.46		2.61			1.57			1.78			1.85	1.76	1.84	1.87	1.93	3.17	1.81	1.91	1.94	1.83	1.74	2.08	1.29	2.13	<2.5	1.66	0.764	1.70	1.74	1.36
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.022	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L	NA		NA			NA			NA			1.99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.250		<0.250			<0.050			<0.050			<0.100	<0.250	<0.250	<0.150	<0.250	<0.250	<0.150	<0.100	<0.100	<0.250	<0.250	<0.100	<0.100	<0.100	<0.100	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L	0.0039		0.0049			0.0036			0.0038			0.0035	0.0044	0.0034	0.0038	0.0036	0.0038	0.0038	0.0039	0.0038	0.0042	0.0034	0.0034	0.0043	0.0054	0.0030	< 0.0025	0.0040	0.0052	0.003	0.0030
Cadmium	mg/L	<0.0005		<0.0005			<0.0001			<0.0001			<0.0002	<0.0002	<0.0005	<0.0003	<0.0005	<0.0005	<0.0015	<0.0010	<0.0010	<0.0010	<0.0025	<0.001	<0.0010	<0.0025	<0.0010	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L	0.0135		0.0064			0.0017			0.0018			0.0069	0.0014	<0.0025	<0.0015	<0.0025	<0.0025	0.0042	0.0046	0.0040	0.0044	0.0038	0.0054	0.0030	0.0100	0.0016	< 0.0025	0.0032	0.0060	0.005	0.0135
Iron	mg/L	<0.250		<0.250			<0.050			<0.050			<0.100	<0.250	<0.250	<0.150	<0.250	<0.250	<0.150	<0.100	<0.100	<0.250	<0.250	<0.100	<0.100	0.152	<0.1	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Lead	mg/L	<0.0025		<0.0025			<0.0005			<0.0005			<0.0010	<0.001	<0.0025	<0.0015	<0.0025	<0.0025	<0.0015	<0.0010	<0.0010	<0.0010	<0.0025	<0.001	<0.0010	<0.0025	<0.001	< 0.0025	< 0.0010	< 0.0025	< 0.0010	< 0.0005
Manganese	mg/L	0.383		0.223			0.0692			0.148			0.166	0.184	0.171	0.267	0.292	0.253	0.203	0.257	0.263	0.339	0.249	0.174	0.220	0.221	0.0961	0.111	0.0727	0.215	0.082	0.0359
Mercury (dissolved)	mg/L	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																					<5.00	<100	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L	0.0490		0.0169			0.0037			0.0025			0.0022	0.002	<0.0025	0.0023	<0.0025	<0.0025	<0.0015	0.0016	0.0013	0.0013	<0.0025	0.0014	0.0011	<0.0025	<0.0010	< 0.0025	< 0.0010	< 0.0010	< 0.0010	0.0007
Selenium	mg/L	0.0080		<0.0050			<0.0010			<0.0010			<0.0020	<0.002	<0.0050	<0.0030	<0.0050	0.0151	<0.0030	<0.0020	<0.0040	<0.0020	<0.0050	0.0028	0.0026	0.0060	0.0028	< 0.0050	0.0031	< 0.0020	0.0241	< 0.0010
Silica (Si02)	mg/L	10.5		13.5			17.0			17.4			15.9	17.1	15.1	14.7	16.0	15.6	16.4	16.8	16.6	16.0	15.5	17.3	16.7	16.8	17.4	16.3	17.2	16.4	17.2	18.2
Silicon	mg/L	4.91		6.29			7.96			8.12			7.43	7.97	7.07	6.88	7.47	7.3	7.68	7.85	7.75	7.49	7.24	8.07	7.80	7.84	8.12	7.64	8.06	7.68	8.02	8.52
Uranium	mg/L	0.0230		0.0075			0.0039			0.0054			0.0047	0.0055	0.0043	0.0046	0.0042	0.0039	0.0030	0.0037	0.0032	0.0028	0.0025	0.0026	0.0025	<0.0025	0.0011	< 0.0025	0.0020	< 0.0025	0.0012	0.0009
Zinc	mg/L	0.0323		<0.0100			<0.0020			<0.0040			<0.0040	<0.004	<0.0100	0.0069	<0.0100	<0.0100	<0.0060	<0.0040	<0.0040	<0.0040	<0.0100	<0.0040	<0.0040	<0.0100	<0.0040	< 0.0100	< 0.0040	< 0.0040	< 0.0040	< 0.0020

Notes & Definitions:

^ one-time analysis
Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)
ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-7-EAA

Year		2018	2019											2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11	2	5	8	11	3	6	9	11	3	6	8	11	3	6	8
Sample Date		12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11	2/16	5/24	8/24	11/30	3/23	6/7	9/8	11/28	3/18	6/14	8/8	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																																
Purge Flow Rate	*gpm*	1.10	1.10	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.25	0.13	0.25	0.25	0.13	0.25	0.25	0.25	0.25	0.25	0.25	0.20	0.11	0.16	0.17	0.10	0.07	0.06
Total Purged	*gal*	15.0	18.0	15.0	3.0	15.0	16.0	15.3	15.3	17.0	15.0	15.0	15.0	36.5	15.0	16.0	17.0	15.0	17.0	17.0	18.0	18.0	17.0	17.0	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Depth to Water	*ft bgs*	36.13	36.27	36.45	36.52	36.70	36.25	36.22	36.48	36.49	36.88	36.85	36.85	36.72	35.40	36.35	37.10	36.20	35.33	36.91	35.92	35.90	35.70	36.71	36.40	35.85	29.10	28.40	25.60	27.45	25.40	26.30
Temperature	*deg C*	10.0	10.0	10.0	9.9	10.1	10.4	10.4	10.6	10.5	10.3	10.4	10.6	10.4	12.1	10.3	10.3	10.1	10.5	10.9	10.6	10.5	10.7	10.8	11.1	13.1	11.7	11.8	11.4	10.1	12.9	11.6
pH	*SU*	6.99	7.01	7.04	6.93	7.00	7.06	7.07	6.28	6.95	7.06	7.03	7.06	6.91	7.17	7.09	7.12	7.14	7.19	7.24	7.23	7.12	7.15	7.14	6.28	7.28	7.16	7.11	7.16	7.24	6.90	6.89
Specific Conductance	*µS/cm*	2001	1910	1910	1926	1912	1767	1836	1885	1890	1913	1936	1922	1993	1890	1772	1628	1672	1805	1814	1878	1882	1896	1880	1808	1754	1785	1831	1966	2082	1905	1932
Oxygen Reduction Potential	*mV*	-68.0	-36.7	-41.4	-38.1	-48.8	14.1	-13.8	-33.9	-37.8	-29.5	-25.6	-21.3	0.9	-49.2	17.6	-8.6	2.2	-55.8	-41.9	-20.4	-133.6	-73.8	-196.7	-86.9	-10.9	-32.4	-60.3	-117.9	-133.9	-102.0	-59.0
Lab Analytical Results:																																
Hardness as CaCO3	*mg/L*	936		1030			982			997			1020	963	1020	1080	939	1090	958	986	957	1040	958	916	962	1020	952	902	1010	1080	1080	1030
pH (Lab)	*SU*	7.2		7.37			7.17			7.09			6.99	6.92	6.89	7.23	7.06	6.99	6.92	7.03	7.01	7.11	7.12	7.24	7.18	6.95	6.95	7.25	7.16	6.84	7.07	7.1
Total Dissolved Solids (Lab)	*mg/L*	1460		1480			1490			1480			1530	1520	1430	1480	1450	1590	1460	1510	1580	1500	1500	1490	1420	1500	1400	1450	1560	1570	1550	1550
Calcium	*mg/L*	170		179			171			173			162	165	175	183	157	186	167	167	164	173	166	154	165	174	161	151	173	184	186	177
Magnesium	*mg/L*	124		142			135			137			144	134	142	150	133	152	131	138	133	149	132	129	134	143	134	127	141	150	149	141
Sodium	*mg/L*	75.3		81.3			75.0			75.2			74.9	73.7	76.0	80.9	73.4	81.4	75	74.6	72.0	77.8	71.9	71.6	72.3	76.3	75.6	69.2	77.1	80.6	80.5	77.1
Potassium	*mg/L*	3.87		3.9			<5.00			3.74			3.74	3.82	<5.00	<5.00	<5.00	4.25	<5.00	<5.00	3.69	3.88	3.59	3.71	3.66	<5.00	3.63	< 5.00	3.46	3.62	3.84	3.78
Alkalinity, Total	*mg/L*	380		367			405			392			350	357	355	268	430	420	395	340	440	425	425	400	310	378	410	437	425	440	455	437
Alkalinity, Bicarbonate	*mg/L*	380		367			405			392			425	357	355	268	430	420	395	340	440	425	425	400	310	378	410	437	425	440	455	437
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	*mg/L*	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	*mg/L*	11.9		10.7			10.8			10.9			11.6	10.3	10.7	10.2	10.1	10.4	10.1	10.5	10.3	10.1	10.3	11.2	11.0	11.1	10.8	11.8	11.9	11.5	11.4	11.6
Fluoride	*mg/L*	<0.500		0.332			0.322			0.322			<0.500	0.354	0.330	0.322	0.322	0.300	0.304	0.312	0.260	0.292	<0.200	0.310	0.306	0.340	0.262	< 0.200	0.238	0.282	0.298	< 0.500
Sulfate as SO4	*mg/L*	732		736			733			844			746	774	803	767	742	757	746	796	751	755	743	759	761	827	709	719	828	842	821	790
Total Organic Carbon (TOC)	*mg/L*	3.72		3.57			3.73			3.70			3.45	3.42	3.63	4.01	3.39	3.00	3.42	3.63	3.38	3.50	3.42	3.38	2.12	3.68	3.31	5.57	4.24	5.38	5.12	4.40
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			0.178	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	*mg/L*	<0.050		<0.100			<0.250			<0.100			<0.050	<0.100	<0.250	<0.250	<0.250	<0.150	<0.250	<0.250	<0.100	<0.050	<0.050	<0.100	<0.100	<0.250	<0.250	< 0.250	< 0.100	< 0.150	< 0.100	< 0.050
Arsenic	*mg/L*	0.0014		0.0015			0.0013			0.0016			0.0013	0.0013	0.0011	<0.0015	<0.0025	0.0016	<0.0025	<0.0025	0.0011	0.0009	0.0014	<0.0025	0.0013	<0.0025	<0.0025	< 0.0025	0.0010	< 0.0020	< 0.0020	< 0.0010
Cadmium	*mg/L*	<0.0001		<0.0002			<0.0001			<0.0001			<0.0002	<0.0002	<0.0002	<0.0003	<0.0005	<0.0001	<0.0025	<0.0025	<0.0010	<0.0005	<0.0005	<0.0025	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	*mg/L*	0.0003		0.0018			0.0011			0.0008			0.0006	<0.0010	<0.0010	<0.0015	<0.0025	0.0007	<0.0025	<0.0025	0.0018	0.0021	0.0036	<0.0025	0.0030	<0.0025	0.0028	0.0032	0.0018	0.0048	0.0044	0.0045
Iron	*mg/L*	1.82		1.95			1.81			2.12			2.00	1.84	1.71	2.16	2.15	2.08	1.92	1.75	1.63	2.05	1.69	1.75	1.57	1.99	0.265	< 0.250	0.251	0.259	0.421	0.379
Lead	*mg/L*	<0.0005		<0.0010			<0.0005			<0.0005			<0.0010	<0.001	<0.0010	<0.0015	<0.0025	<0.0005	<0.0025	<0.0025	<0.0010	<0.0025	<0.0005	<0.0025	<0.0025	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Manganese	*mg/L*	3.72		4.49			4.01			4.22			4.76	4.86	3.63	4.49	4.42	5.22	4.21	4.39	4.66	4.48	4.58	4.61	4.75	4.69	4.22	4.46	4.40	4.65	4.61	4.65
Mercury (dissolved)	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	*ng/L*																						<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	*mg/L*	0.0008		0.0011			0.0007			0.0009			<0.0010	0.001	<0.0010	<0.0015	<0.0025	0.0006	<0.0025	<0.0025	<0.0010	0.0007	0.0007	<0.0025	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	0.0008
Selenium	*mg/L*	<0.0020		<0.0020			<0.0010			0.0011			<0.0020	<0.002	<0.0020	<0.0030	<0.0050	<0.0010	<0.0050	<0.0050	<0.0020	<0.0010	0.0012	<0.0050	<0.0020	<0.0050	<0.0050	< 0.0050	< 0.0020	< 0.0020	< 0.0020	0.0010
Silica (Si02)	*mg/L*	16.6		16.1			16.1			16.9			16.8	16.4	15.8	16.9	14.9	17.7	17.1	16.7	17.2	18.3	16.8	16.1	16.9	17.5	17.0	15.2	16.5	16.3	17.1	16.5
Silicon	*mg/L*	7.75		7.52			7.55			7.90			7.83	7.67	7.37	7.91	6.96	8.28	7.97	7.81	8.03	8.57	7.86	7.54	7.92	8.16	7.95	7.11	7.72	7.60	8.00	7.7
Uranium	*mg/L*	0.0021		0.0018			0.0017			0.0018			0.0020	0.0019	0.0016	0.0018	<0.0025	0.0018	<0.0025	<0.0025	0.0015	<0.0025	0.0018	<0.0025	0.0016	<0.0025	0.0018	< 0.0025	0.0025	0.0025	0.0025	0.0025
Zinc	*mg/L*	<0.0050		<0.0040			0.0021			0.0020			<0.0040	<0.004	<0.0040	<0.0060	<0.0100	0.0022	<0.0100	<0.0100	<0.0040	<0.0020	0.0041	<0.0100	<0.0040	<0.0100	<0.0100	< 0.0100	< 0.0040	< 0.0040	< 0.0040	0.0033

Notes & Definitions:

^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*
2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*
3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-8-EAA																																
Year		2018	2019											2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11	2	5	8	11	3	6	9	11	3	6	8	11	3	6	8
Sample Date		12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11	2/16	5/24	8/24	11/30	3/23	6/7	9/8	11/28	3/18	6/14	8/8	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																																
Purge Flow Rate	gpm	0.85	1.10	0.50	3.00	0.50	0.75	1.00	1.00	0.75	0.50	1.00	0.25	1.00	0.25	0.13	0.13	0.13	0.13	0.25	0.25	0.25	0.25	0.25	0.25	0.33	0.11	0.09	0.38	0.15	0.60	0.06
Total Purged	gal	18.0	14.0	15.0	3.0	15.0	17.0	15.3	15.3	18.0	15.3	15.5	15.0	15.2	15.0	16.0	15.0	15.0	16.0	15.0	14.0	15.0	15.0	16.0	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Depth to Water	ft bgs	40.00	39.95	40.10	43.45	40.44	40.05	39.94	40.10	40.08	40.25	40.31	40.22	40.40	40.45	34.50	40.83	41.22	41.00	40.98	48.04	40.95	41.00	41.30	41.30	41.50	37.19	37.40	34.90	36.45	31.78	32.91
Temperature	deg C	10.3	10.2	10.0	9.9	10.3	10.5	10.6	10.5	10.6	10.3	10.2	11.2	10.5	11.0	11.1	11.0	10.9	11.0	11.2	10.7	10.7	10.8	10.7	9.7	11.0	11.6	12.2	12.3	9.8	11.7	12.2
pH	SU	7.12	7.09	7.13	7.17	7.09	7.02	7.17	7.09	7.05	7.03	6.99	6.99	6.99	7.14	7.19	7.19	7.20	7.27	7.31	7.30	7.18	7.23	7.23	6.59	7.20	7.27	7.23	7.07	7.35	6.97	7.02
Specific Conductance	µS/cm	1781	1696	1720	1725	1729	1628	1676	1699	172	1739	1774	1739	1758	1760	1675	1716	1570	1642	1671	1746	1750	1763	1763	1793	1665	1766	1742	1761	1955	1849	1851
Oxygen Reduction Potential	mV	-65.0	-52.8	-51.8	-53.0	-59.7	11.0	-29.5	-46.6	-44.8	-33.5	-38.8	-39.2	-18.2	-72.4	1.4	-14.7	-20.2	-63.3	-57.4	-37.2	-156.9	-111.7	-230.9	-23.9	182.6	-81.5	-86.6	-103.6	-175.8	-96.2	-99.4
Lab Analytical Results:																																
Hardness as CaCO3	mg/L	870		861			864			883			867	861	907	937	810	914	838	859	859	937	867	831	871	940	932	887	901	962	975	957
pH (Lab)	SU	7.28		7.36			7.13			7.05			7.01	7.11	6.96	7.18	7.1	7.03	6.97	7.06	6.81	7.19	7.16	7.27	7.25	7.05	7.03	7.33	7.43	7.02	7.2	7.17
Total Dissolved Solids (Lab)	mg/L	1220		1290			1240			1280			1380	1290	1260	1280	1310	1400	1320	1320	1340	1380	1330	1360	1300	1320	1350	1400	1430	1480	1420	1460
Calcium	mg/L	152		151			148			154			143	149	153	160	134	156	146	146	149	158	150	143	149	163	159	152	156	168	169	167
Magnesium	mg/L	119		118			120			121			124	119	127	130	115	127	115	120	118	131	119	115	121	130	130	123	125	132	134	131
Sodium	mg/L	81.7		82.6			77.2			78.6			77.1	77.2	77.7	82.9	74.3	80.9	76.1	75.8	74.9	81.2	75.0	75.0	75.3	80.5	79.8	75.5	77.4	79.4	80.3	78.8
Potassium	mg/L	3.80		3.27			3.55			3.18			3.52	3.8	<5.00	<5.00	<5.00	3.63	3.49	<5.00	3.36	3.65	3.35	3.45	3.42	<5.00	3.73	< 5.00	3.24	3.58	3.61	3.69
Alkalinity, Total	mg/L	400		435			450			431			445	404	385	288	480	450	445	385	490	460	465	480	430	417	448	417	415	435	475	480
Alkalinity, Bicarbonate	mg/L	400		435			450			431			445	404	385	288	480	450	445	385	490	460	465	480	430	417	448	417	415	435	475	480
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	9.83		10.5			10.3			11.1			11.0	10.2	10.3	10.1	11.3	10.4	10.2	10.3	10.5	10.5	10.6	11.7	11.4	11.6	11.8	12.2	12.2	12.3	11.8	12.2
Fluoride	mg/L	0.380		0.370			0.338			0.342			<0.500	0.33	0.346	0.336	0.334	0.292	0.306	0.35	0.272	0.304	0.204	0.332	0.316	0.358	0.284	< 0.200	0.266	0.330	0.312	< 0.500
Sulfate as SO4	mg/L	533		559			606			643			577	602	625	605	582	609	595	615	599	608	597	627	619	686	675	685	748	768	731	713
Total Organic Carbon (TOC)	mg/L	3.77		3.59			3.77			3.68			3.52	3.49	3.56	3.82	3.54	3.04	3.65	3.71	3.48	3.49	3.56	3.64	1.82	3.63	3.25	5.64	3.64	4.76	4.00	4.20
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.493	<0.020	< 0.020	<0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L	NA		NA			NA			NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA		NA			NA			NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.100		<0.100			<0.050			<0.100			<0.050	<0.100	<0.250	<0.250	<0.250	<0.150	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.100	<0.250	<0.250	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	mg/L	0.0020		0.0018			0.0018			0.0021			0.0018	0.0017	0.0017	0.0018	<0.0025	0.0018	0.0018	<0.0025	0.0017	0.0015	0.0019	<0.0025	0.0020	0.0027	<0.0025	< 0.0025	0.0020	< 0.0020	< 0.0020	0.0015
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0002	<0.0002	<0.0003	<0.0005	<0.0003	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.0025	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L	0.0004		0.0024			0.0023			0.0008			0.0010	0.001	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	0.0017	0.0021	0.0031	<0.0025	0.0021	<0.0025	0.0084	< 0.0025	0.0020	0.0048	0.003	0.0033
Iron	mg/L	2.12		2.13			2.42			2.46			2.30	2.28	2.29	2.31	0.762	2.33	2.25	2.2	2.22	2.52	2.22	2.28	2.27	2.43	2.43	2.19	2.24	2.34	2.37	2.32
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.001	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Manganese	mg/L	3.17		3.52			3.06			3.37			3.39	3.7	3.36	3.54	3.81	3.55	3.5	3.6	3.66	3.77	3.70	3.77	3.87	3.98	3.85	3.91	4.16	3.88	4.26	4.23
Mercury (dissolved)	mg/L	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																						<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L	0.0009		0.0011			0.0008			0.0011			0.0008	<0.0010	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	0.0009	0.0009	<0.0025	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	0.0009
Selenium	mg/L	<0.0020		<0.0020			0.0010			0.0013			<0.0010	<0.0020	<0.0020	<0.0030	<0.0050	0.0046	<0.0030	<0.0050	0.0035	<0.0010	0.0015	<0.0050	<0.0020	<0.0050	<0.0050	< 0.0050	< 0.0020	< 0.0020	0.0037	< 0.0010
Silica (Si02)	mg/L	16.3		15.3			15.7			16.1			15.9	15.7	15.0	16.1	14.2	16.0	16.5	15.5	16.4	17.3	16.0	15.4	16.2	16.9	16.6	15.4	16.5	15.9	16.3	16.1
Silicon	mg/L	7.63		7.15			7.32			7.52			7.42	7.32	7.02	7.53	6.63	7.48	7.72	7.24	7.68	8.10	7.47	7.18	7.60	7.89	7.75	7.22	7.72	7.44	7.61	7.54
Uranium	mg/L	0.0021		0.0017			0.0016			0.0018			0.0019	0.0019	0.0017	0.0017	<0.0025	0.0016	0.0016	<0.0025	0.0015	<0.0025	<0.0025	<0.0025	0.0016	<0.0025	0.0017	< 0.0025	0.0019	0.0019	0.0020	0.0021
Zinc	mg/L	<0.0050		<0.0040			<0.0020			<0.0020			<0.0020	<0.0040	<0.0040	<0.0060	<0.0100	<0.0060	<0.0060	<0.0100	<0.0040	<0.0020	0.0021	<0.0100	<0.0040	<0.0100	0.0063	< 0.0100	< 0.0040	< 0.0040	< 0.0040	0.0024

Notes & Definitions:

^ one-time analysis
Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)
ng/L nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-8-MI

Year		2018	2019											2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11	2	5	8	11	3	6	9	11	3	6	8	11	3	6	8
Sample Date		12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11	2/16	5/24	8/24	11/30	3/23	6/7	9/8	11/28	3/18	6/14	8/8	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																																
Purge Flow Rate	*gpm*	1.10	1.00	0.50	3.00	0.50	0.50	0.25	0.50	0.75	0.50	1.00	0.25	0.25	0.13	0.10	0.25	0.25	0.13	0.25	0.25	0.25	0.13	0.15	0.50	0.12	0.13	0.23	0.19	0.11	0.18	0.17
Total Purged	*gal*	27.5	18.0	1.0	3.0	1.5	2.5	2.5	2.3	3.0	2.0	2.5	1.0	1.0	1.0	2.0	1.0	2.0	3.0	1.0	1.0	1.0	0.8	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Depth to Water	*ft bgs*	45.75	43.48	43.50	44.30	44.47	44.10	44.24	44.45	44.59	44.90	45.12	45.10	45.20	45.42	45.84	46.24	46.38	46.54	47.27	46.84	47.69	48.00	48.00	48.25	47.75	44.65	44.52	42.85	43.51	39.90	40.52
Temperature	*deg C*	10.8	10.8	10.6	11.2	10.4	11.1	11.4	11.0	11.4	10.9	10.3	11.4	10.2	11.3	13.1	11.3	10.0	11.6	11.9	11.1	10.9	12.5	14.3	9.9	11.7	11.5	11.9	12.1	10.3	12.3	12.6
pH	*SU*	7.57	7.50	7.48	7.47	7.34	7.31	7.48	7.42	7.38	7.30	7.23	7.15	7.08	7.44	7.44	7.43	7.47	7.59	7.55	7.56	7.41	7.54	7.59	6.92	7.52	7.54	7.51	7.52	7.66	7.33	7.28
Specific Conductance	*µS/cm*	1786	1667	1651	1658	1643	1595	1639	1645	1658	1637	1689	1642	1651	1659	1598	1628	1468	1616	1554	1629	1596	1575	1505	1631	1632	1607	1538	1544	1642	1526	1580
Oxygen Reduction Potential	*mV*	-84.4	-177.1	-122.1	-113.3	-87.2	-54.4	-97.1	-116.4	-119.4	-88.4	-82.0	-59.3	-136.6	-184.9	-107.0	-112.2	-72.0	-131.9	-123.1	-115.9	-195.3	-150.6	-262.2	-172.4	-79.7	-134.6	-148.3	-178.2	-22.8	-160.5	-118.0
Lab Analytical Results:																																
Hardness as CaCO3	*mg/L*	167		249			273			253			267	254	309	355	339	376	288	377	317	406	378	374	390	405	388	363	361	366	388	389
pH (Lab)	*SU*	7.73		7.54			7.24			7.46			7.44	7.53	7.25	7.34	7.27	7.33	7.36	7.31	7.06	7.36	7.38	7.70	7.45	7.30	7.36	7.67	7.66	7.11	7.47	7.44
Total Dissolved Solids (Lab)	*mg/L*	1050		1030			1100			1110			1050	1060	1040	1010	1040	1060	1040	1000	1100	1050	1040	1050	990	1050	995	1060	1050	995	985	1030
Calcium	*mg/L*	34.0		48.5			52.4			49.7			51.3	48.7	58.5	65.9	62.6	69.7	54	70.3	59.8	75.5	71.2	69.2	72.3	76.0	72.1	67.4	66.3	68.4	72.9	73.5
Magnesium	*mg/L*	19.9		31.0			34.5			31.4			33.8	32.1	39.6	46.2	44.4	49.1	37.2	48.9	40.8	52.7	48.7	48.8	50.8	52.3	50.4	47.1	47.5	47.4	50.1	50.0
Sodium	*mg/L*	344		312			289			289			275	269	272	260	232	237	256	229	238	226	220	213	210	230	236	216	215	219	221	228
Potassium	*mg/L*	4.47		5.25			<5.00			4.55			5.07	4.71	5.00	5.56	5.22	5.88	5.05	5.69	5.14	5.98	5.47	5.59	5.63	5.44	6.18	5.09	5.12	5.38	5.65	5.73
Alkalinity, Total	*mg/L*	500		565			560			573			585	543	545	448	590	590	575	570	605	590	590	500	540	550	568	553	560	555	595	580
Alkalinity, Bicarbonate	*mg/L*	500		565			560			573			585	543	545	448	590	590	575	570	605	590	590	500	540	550	568	553	560	555	595	580
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	*mg/L*	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	*mg/L*	12.7		10.0			9.33			9.06			9.66	8.19	8.23	8.12	7.91	7.96	8.07	7.85	7.91	7.70	8.36	8.88	8.60	8.56	8.39	8.80	8.35	8.67	8.73	9.13
Fluoride	*mg/L*	<0.500		<0.200			<0.200			<0.200			<0.500	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	0.112	< 0.200	< 0.200	< 0.200	< 0.200	< 0.500
Sulfate as SO4	*mg/L*	347		353			343			366			317	314	316	335	319	326	314	324	312	325	322	352	351	335	327	323	320	329	329	356
Total Organic Carbon (TOC)	*mg/L*	2.73		2.83			2.81			2.74			2.65	2.6	2.94	2.87	2.76	2.6	2.74	2.97	2.66	2.77	2.77	2.96	1.66	2.75	2.62	4.25	2.76	3.44	2.70	2.80
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			1.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	*mg/L*	<0.050		<0.100			<0.250			<0.100			<0.050	<0.100	<0.250	<0.250	<0.250	<0.150	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.100	<0.250	<0.250	< 0.250	< 0.100	< 0.100	< 0.100	< 0.050
Arsenic	*mg/L*	0.0008		<0.0010			0.0006			0.0005			0.0005	<0.0010	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0005	0.0006	<0.0025	0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0020	< 0.0020	< 0.0010
Cadmium	*mg/L*	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0002	<0.0002	<0.0003	<0.0005	<0.0003	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.0025	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	*mg/L*	0.0031		0.0066			0.0036			0.0035			0.0037	0.0027	<0.0010	<0.0015	<0.0025	0.0015	0.0046	0.0047	0.0054	0.0055	0.0087	0.0038	0.0044	0.0025	0.0104	0.0031	0.0044	0.0088	0.0083	0.0081
Iron	*mg/L*	0.137		0.162			<0.250			0.129			0.130	0.108	<0.250	<0.250	<0.250	<0.150	0.113	<0.250	0.168	0.113	0.090	<0.100	<0.100	<0.250	0.082	< 0.250	< 0.100	0.135	0.127	0.078
Lead	*mg/L*	<0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.0010	<0.0025	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Manganese	*mg/L*	0.0495		0.0383			0.0327			0.0351			0.0377	0.0391	0.0393	0.0551	0.0546	0.0579	0.0412	0.0544	0.0443	0.0603	0.0553	0.0597	0.0693	0.0569	0.0560	0.0562	0.0562	0.0595	0.0632	0.0521
Mercury (dissolved)	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	*ng/L*																						<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	*mg/L*	0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.001	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.0025	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Selenium	*mg/L*	<0.0020		<0.0020			0.0010			0.0010			<0.0010	<0.0020	0.0020	<0.0030	<0.0050	0.0425	0.0037	0.0072	0.0264	0.0016	0.0040	<0.0050	0.0183	0.0119	0.0049	0.0050	0.0076	0.0057	0.0274	0.0023
Silica (Si02)	*mg/L*	12.1		12.4			12.8			12.5			12.6	12.2	11.9	12.9	12.1	13.5	13.2	13.6	13.7	15.2	14.0	13.6	14.0	13.7	13.9	12.5	13.8	13.2	13.8	14.0
Silicon	*mg/L*	5.65		5.78			5.99			5.83			5.88	5.71	5.55	6.05	5.67	6.32	6.17	6.35	6.39	7.08	6.57	6.35	6.52	6.42	6.48	5.85	6.45	6.16	6.45	6.54
Uranium	*mg/L*	0.0002		0.0002			0.0002			0.0001			0.0001	<0.0010	<0.0025	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0025	<0.0025	<0.0025	<0.0010	<0.0025	<0.0025	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Zinc	*mg/L*	<0.0050		<0.0040			<0.0020			<0.0020			<0.0020	<0.0040	<0.0040	<0.0060	<0.0100	<0.0060	<0.0060	<0.0100	<0.0040	<0.0020	<0.0020	<0.0100	<0.0040	<0.0100	0.0047	< 0.0100	< 0.0040	< 0.0040	< 0.0040	< 0.0020

Notes & Definitions:

^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-8-LM

Year		2018	2019											2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11	2	5	8	11	3	6	9	11	3	6	8	11	3	6	8
Sample Date		12/28	1/29	2/19	3/21	4/16	5/29	6/18	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11	2/16	5/24	8/24	11/30	3/23	6/7	9/8	11/28	3/18	6/14	8/8	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Purge Flow Rate	gpm	NM	1.00	0.25	1.00	0.50	0.10	0.25	0.25	0.50	0.25	0.12	0.25	0.25	0.25	0.13	0.13	0.13	0.13	0.25	0.25	0.25	0.25	0.15	NM	0.14	0.03	0.16	0.20	0.15	0.20	0.18
Total Purged	gal	30	4.0	1.5	1.0	2.0	1.3	6.8	2.0	2.0	1.0	1.0	1.5	1.0	1.0	2.0	1.0	2.0	1.5	1.0	1.0	1.0	1.0	1.0	NM	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Depth to Water	ft bgs	136.39	130.52	134.30	144.03	140.03	137.48	142.23	144.15	138.06	137.50	137.60	137.34	139.15	129.70	127.90	125.75	126.72	126.13	125.25	123.55	124.10	123.75	126.81	NM	126.10	125.80	126.12	125.92	124.95	125.05	125.12
Temperature	deg C	4.1	13.9	13.2	8.7	13.6	13.9	12.8	13.7	13.4	13.0	11.7	13.3	11.4	13.4	13.6	8.8	12.1	12.8	13.5	12.5	12.3	14.1	13.4	11.9	12.7	13.0	13.1	13.2	11.5	12.8	13.8
pH	SU	8.37	8.70	8.71	8.41	8.70	8.50	8.66	8.64	8.58	8.44	8.44	8.47	7.98	8.76	8.83	8.81	8.82	8.90	8.90	8.91	8.79	8.84	8.82	8.29	8.88	8.88	8.83	8.84	8.94	8.66	8.67
Specific Conductance	µS/cm	2306	1274	1265	1310	1262	1234	1264	1226	1269	1252	1299	1255	1294	1282	1055	1117	1132	1121	1196	1262	1260	1232	1255	1276	1233	1252	1241	1224	1305	1229	1227
Oxygen Reduction Potential	mV	37.5	-114.3	112.8	77.0	-36.2	33.2	-63.9	-93.5	-103.0	-115.9	-94.4	-47.4	-106.6	-204.5	-106.9	-93.6	-87.8	-164.1	-106.1	-99.3	-241.3	-149.4	-247.4	-66.9	-58.6	-137.0	-147.9	-210.0	-26.4	-149.5	-106.3
Lab Analytical Results:																																
Hardness as CaCO3	mg/L	45.0		7.29			16.9			6.67			6.38	6.79	7.76	7.53	6.35	6.93	7.23	4.65	7.11	7.29	6.61	6.43	6.29	4.01	6.22	4.01	7.08	6.62	6.92	7.96
pH (Lab)	SU	8.57		8.63			8.02			8.56			8.52	8.55	8.41	8.45	8.48	8.54	8.57	8.48	8.31	8.61	8.63	8.99	8.59	8.47	8.51	8.71	8.84	8.42	8.66	8.70
Total Dissolved Solids (Lab)	mg/L	1420		770			780			785			780	840	730	740	700	795	720	740	760	740	795	755	685	765	745	805	755	755	760	760
Calcium	mg/L	10.8		1.93			3.84			1.78			1.68	1.77	2.09	2.05	1.71	1.87	1.92	1.86	1.88	1.96	1.77	1.70	1.65	1.61	1.71	1.61	1.87	1.77	1.84	2.11
Magnesium	mg/L	4.39		0.600			1.77			0.541			0.528	0.574	0.620	0.587	0.502	0.550	0.592	<0.500	0.587	0.580	0.530	0.532	0.524	<0.500	0.473	< 0.500	0.583	0.534	0.563	0.655
Sodium	mg/L	382		341			317			306			305	309	315	337	304	319	315	308	291	316	298	298	301	287	315	289	299	304	311	304
Potassium	mg/L	45.7		3.49			<5.00			2.27			2.18	2.06	<5.00	<5.00	<5.00	<3.00	2.24	<5.00	2.12	2.31	2.06	<2.00	2.12	<5.00	1.85	< 5.00	2.07	2.00	2.13	2.22
Alkalinity, Total	mg/L	615		720			745			731			745	685	630	675	780	730	755	750	770	780	765	760	750	714	732	714	700	690	760	745
Alkalinity, Bicarbonate	mg/L	535		610			645			645			685	595	530	585	680	630	645	650	620	640	655	580	510	666	732	646	620	640	640	665
Alkalinity, Carbonate	mg/L	80.0		110			100			86.0			60.0	90	100	90	100	100	110	100	150	140	110	180	240	48.0	<10.0	68.0	80.0	50.0	120	80.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	175		5.11			6.80			2.63			2.48	3.04	3.01	2.98	2.47	2.5	2.48	2.55	2.47	2.47	2.49	2.64	2.65	2.66	2.76	2.67	2.75	2.66	2.64	2.57
Fluoride	mg/L	2.06		3.91			3.95			3.97			3.88	3.61	3.63	3.53	3.66	3.58	3.48	3.67	3.40	3.44	3.25	3.79	3.73	3.84	3.65	3.15	3.42	3.93	3.94	3.86
Sulfate as SO4	mg/L	190		3.79			9.58			1.02			<1.00	<2.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	<2.00	<2.00	0.886	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Total Organic Carbon (TOC)	mg/L	2.80		1.80			3.33			1.94			1.69	1.69	1.92	1.82	1.66	1.2	1.71	1.79	1.60	1.70	1.72	1.77	1.13	1.73	1.43	1.89	1.70	2.43	1.70	1.72
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L	NA		NA			NA			NA			0.282	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.050		<0.100			<0.250			<0.050			<0.050	<0.100	<0.250	<0.250	<0.250	<0.150	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.050	<0.250	<0.250	< 0.250	< 0.050	< 0.100	< 0.100	< 0.050
Arsenic	mg/L	0.0106		<0.0010			0.0006			0.0007			0.0006	<0.0005	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	0.0008	0.0008	<0.0025	<0.0005	<0.0025	<0.0015	< 0.0025	< 0.0010	< 0.0020	< 0.0020	< 0.0010
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0001	<0.0002	<0.0003	<0.0005	<0.0003	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.0025	<0.0005	<0.0025	<0.0015	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Copper	mg/L	0.0337		0.0077			0.0047			0.0041			0.0051	0.0033	0.0012	0.0017	<0.0025	0.0025	0.0057	0.0068	0.0065	0.0075	0.0167	0.0052	0.0079	0.0043	0.0155	0.0040	0.0068	0.0128	0.0132	0.0130
Iron	mg/L	<0.050		<0.100			<0.250			<0.050			<0.050	<0.100	<0.250	<0.250	<0.250	<0.150	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.050	<0.250	<0.250	< 0.250	< 0.050	< 0.100	< 0.100	< 0.050
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005			<0.0010	<0.0005	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0025	<0.0025	<0.0025	<0.0005	<0.0025	0.0002	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Manganese	mg/L	0.0258		0.0038			0.0150			0.0020			0.0026	0.0025	0.0029	0.0026	0.0028	0.0024	0.0021	0.0025	0.0023	0.0022	0.0027	<0.0025	0.0027	0.0028	0.0027	0.0028	0.0027	0.0034	0.0031	0.0029
Mercury (dissolved)	mg/L	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																						<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L	0.0142		<0.0010			0.0009			<0.0005			<0.0005	<0.0005	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0005	<0.0005	<0.0025	<0.0005	<0.0025	<0.0015	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0005
Selenium	mg/L	0.0020		<0.0020			<0.0010			<0.0010			<0.0010	<0.0010	<0.0020	<0.0030	<0.0050	0.0031	<0.0030	<0.0050	<0.0020	<0.0010	<0.0010	<0.0050	<0.0010	<0.0050	<0.0030	< 0.0050	< 0.0020	< 0.0020	< 0.0020	0.0013
Silica (Si02)	mg/L	9.09		8.45			8.68			8.28			7.77	7.62	7.40	7.84	7.4	8.17	8.21	7.82	8.28	8.44	8.13	7.63	8.45	6.83	7.53	6.17	8.14	7.52	7.80	7.80
Silicon	mg/L	4.25		3.95			4.06			3.87			3.63	3.56	3.46	3.67	3.46	3.82	3.84	3.66	3.87	3.95	3.80	3.56	3.95	3.19	3.52	2.89	3.80	3.51	3.65	3.65
Uranium	mg/L	0.0044		<0.0002			0.0001			0.0001			<0.0002	<0.0005	<0.0010	<0.0015	<0.0025	<0.0015	<0.0015	<0.0025	<0.0010	<0.0025	<0.0025	<0.0025	<0.0005	<0.0025	<0.0015	< 0.0025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Zinc	mg/L	0.0080		<0.0040			0.0023			<0.0020			<0.0020	<0.002	<0.0040	<0.0060	<0.0100	<0.0060	<0.0060	<0.0100	<0.0040	<0.0020	0.0079	<0.0100	0.0022	<0.0100	0.0032	< 0.0100	< 0.0040	< 0.0040	< 0.0040	< 0.0020

Notes & Definitions:

^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*

2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*

3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*

GCC Energy Hydrologic Monitoring Data

MW-8-PL																																
Year		2018	2019											2020				2021				2022				2023				2024		
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11	2	5	8	11	3	6	9	11	3	6	8	11	3	6	8
Sample Date		12/27	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11	2/16	5/24	8/24	11/30	3/23	6/7	9/8	11/28	3/18	6/14	8/8	11/13	3/17	6/19	8/6
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																																
Purge Flow Rate	gpm	0.25	1.00	0.50	3.00	0.50	0.25	0.50	1.00	0.50	0.50	0.75	0.25	0.25	0.25	0.25	0.25	0.75	0.25	0.25	0.25	0.25	0.25	0.13	1.00	0.22	0.18	0.13	0.16	0.22	0.13	0.13
Total Purged	gal	20.0	5.0	2.0	3.0	2.0	3.0	2.5	2.3	2.5	2.0	2.5	1.3	2.0	2.0	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Depth to Water	ft bgs	125.97	126.29	126.40	127.10	126.98	126.70	126.82	127.25	127.38	127.42	127.48	127.59	127.32	127.34	128.00	127.31	127.50	127.83	127.89	127.90	128.30	128.40	128.53	128.75	128.10	128.05	128.48	128.50	128.25	128.19	128.36
Temperature	deg C	10.3	14.2	13.4	12.9	13.2	14.2	14.8	14.7	14.9	14.0	13.2	14.9	13.8	14.8	14.9	14.1	12.9	14.6	14.8	13.4	14.1	14.1	14.3	12.8	13.2	14.2	13.4	13.3	12.2	13.1	13.5
pH	SU	7.50	7.30	7.49	7.30	7.29	7.31	7.57	7.56	7.52	7.45	7.47	7.52	7.55	7.47	7.52	7.52	7.53	7.58	7.55	7.57	7.43	7.49	7.44	7.67	7.61	7.56	7.53	7.57	7.69	7.33	7.34
Specific Conductance	µS/cm	1690	1531	1571	1558	1554	1411	1326	1165	1083	947	940	900	862	844	792	827	760	813	816	836	817	826	822	848	853	825	814	815	854	813	824
	mV	30.2	-116.5	97.9	-108.7	-110.6	34.2	-57.6	-74.0	-79.5	-51.3	-52.5	-30.8	-59.9	-101.9	-38.0	-37.3	-11.5	-76.6	-64.4	-53.5	-161.9	-94.6	-215.9	-104.0	-36.3	-87.6	-113.8	-140.3	-210.9	-141.2	-101.5
Lab Analytical Results:																																
Hardness as CaCO3	mg/L	617		644			596			411			294	278	298	292	268	281	283	280	272	292	276	275	274	303	282	274	269	279	282	296
pH (Lab)	SU	7.28		7.40			7.26			7.22			7.39	7.47	7.19	7.16	7.41	7.36	7.41	7.29	7.16	7.42	7.47	7.88	7.39	7.33	7.36	7.51	7.70	7.26	7.52	7.56
Total Dissolved Solids (Lab)	mg/L	1150		1090			995			705			620	500	490	525	465	525	505	475	465	485	505	500	430	500	465	540	505	460	490	480
Calcium	mg/L	112		120			105			73.1			52.1	49.3	53.8	53.3	49.1	52.2	53.3	53	51.1	55.7	53.1	52.4	52.0	57.9	53.3	52.4	51.4	53.5	55.1	57.7
Magnesium	mg/L	82.1		83.8			81.4			55.4			39.7	37.6	39.7	38.5	35.4	36.6	36.5	35.9	35.0	37.1	34.9	35.1	34.9	38.4	36.1	34.8	34.1	35.4	35.2	36.9
Sodium	mg/L	106		124			102			91.7			83.3	78.5	80.4	81.6	77.2	78.6	79.7	77.8	73.7	80.8	75.4	76.3	75.0	81.7	77.4	75.3	75.1	76.0	78.2	77.5
Potassium	mg/L	5.14		5.62			<5.00			2.80			2.35	2.32	2.11	<2.00	<2.00	1.78	1.73	<2.00	1.54	1.71	1.48	1.53	1.55	<2.00	1.59	< 2.00	1.46	1.54	< 2.00	1.67
Alkalinity, Total	mg/L	370		415			435			393			390	339	340	315	410	370	385	360	385	362	380	356	410	350	388	350	335	370	375	375
Alkalinity, Bicarbonate	mg/L	370		415			435			393			390	339	340	315	410	370	385	360	385	362	380	340	410	338	388	350	335	370	375	375
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	16.0	<10.0	12.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Chloride	mg/L	18.8		18.5			9.03			5.61			5.66	3.51	3.38	3.33	3.32	3.39	3.30	3.33	3.38	3.33	3.34	3.66	3.51	3.70	3.61	3.67	3.58	3.56	3.56	3.48
Fluoride	mg/L	0.505		0.474			0.290			0.291			<0.500	0.258	0.240	0.233	0.224	0.219	0.200	0.222	0.196	0.195	0.159	0.198	0.187	0.218	0.175	0.126	0.159	0.206	0.201	0.211
Sulfate as SO4	mg/L	478		471			390			232			127	109	103	99.2	99	101	96.3	102	98.4	100	94.7	106	107	107	106	104	104	106	107	106
Total Organic Carbon (TOC)	mg/L	4.17		4.02			2.92			2.21			1.75	1.63	1.63	1.61	1.44	0.928	1.42	1.54	1.40	1.54	1.36	1.60	0.774	1.44	1.15	1.59	< 1.00	1.45	1.46	1.40
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.052	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ammonia as N ^	mg/L	NA		NA			NA			NA			0.199	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	mg/L	<0.050		<0.100			<0.250			<0.050			<0.050	<0.050	<0.100	<0.100	<0.100	<0.050	<0.050	<0.100	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050	< 0.100	< 0.050	< 0.050	< 0.100	< 0.050
Arsenic	mg/L	0.0074		0.0124			0.0190			0.0156			0.0104	0.0073	0.0075	0.0064	0.0058	0.0074	0.0055	0.0017	0.0051	0.0046	0.0047	0.0042	0.0037	0.0033	0.0036	0.0029	0.0030	0.0029	0.0029	0.0030
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0002	<0.0001	<0.0002	<0.0002	<0.0001	<0.0010	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005	<0.0025	<0.0005	< 0.0010	< 0.0005	< 0.0005	< 0.0010	< 0.0005
Copper	mg/L	0.0016		0.0025			0.0017			0.0011			0.0004	0.001	<0.0025	<0.001	0.0014	0.0005	0.0013	<0.0010	0.0015	0.0023	0.0040	0.0014	0.0015	0.0028	0.0027	0.0020	0.0026	0.0030	0.0038	0.0039
Iron	mg/L	<0.050		0.352			<0.250			0.129			0.075	0.054	<0.100	<0.100	<0.100	<0.050	<0.050	<0.100	0.070	0.079	<0.050	0.063	0.057	<0.100	0.062	< 0.100	0.051	0.066	< 0.100	0.064
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0005	<0.0005	<0.0025	<0.0010	<0.0025	<0.0025	<0.0005	< 0.0010	< 0.0005	< 0.0005	< 0.0010	< 0.0005
Manganese	mg/L	1.31		1.22			0.697			0.505			0.313	0.303	0.307	0.259	0.219	0.196	0.175	0.0772	0.161	0.163	0.150	0.145	0.134	0.122	0.111	0.120	0.105	0.0976	0.111	0.0906
Mercury (dissolved)	mg/L	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002										
Mercury (dissolved low-level)	ng/L																						<5.00	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
Molybdenum	mg/L	0.0090		0.0068			0.0020			0.0021			0.0017	0.0008	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005	<0.0025	<0.0005	< 0.0010	< 0.0005	< 0.0005	< 0.0010	< 0.0005
Selenium	mg/L	0.0012		<0.0020			<0.0010			<0.0010			<0.0010	<0.001	<0.0010	<0.0020	<0.0020	0.0038	<0.0020	<0.0020	0.0031	<0.0010	0.0014	<0.0020	0.0012	<0.0050	0.0006	< 0.0020	< 0.0010	0.0019	< 0.0020	0.0026
Silica (Si02)	mg/L	14.1		16.3			17.7			18.5			18.0	18.9	18.7	19.9	18.5	20.1	21.5	20	20.8	22.2	20.4	20.8	20.9	22.6	21.5	20.6	20.8	20.4	20.0	20.5
Silicon	mg/L	6.58		7.64			8.28			8.67			8.42	8.82	8.75	9.28	8.66	9.40	10.00	9.37	9.71	10.4	9.54	9.75	9.75	10.6	10.0	9.61	9.71	9.55	9.36	9.59
Uranium	mg/L	0.0052		0.0040			0.0010			0.0009			0.0004	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.001	<0.0010	<0.0005	<0.0005	<0.0025	<0.0010	<0.0005	<0.0025	0.0001	< 0.0010	< 0.0005	< 0.0005	< 0.0010	< 0.0010
Zinc	mg/L	0.0344		<0.0040			<0.0020			<0.0080			<0.0020	<0.0020	<0.0100	<0.0040	<0.0040	<0.0020	<0.004	<0.0040	<0.0020	<0.0020	<0.0020	<0.0040	<0.0020	<0.0100	0.0009	< 0.0040	< 0.0020	0.0046	< 0.0040	< 0.0020

Notes & Definitions:

^	one-time analysis
Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
ng/L	nanogram per liter

1. *"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.*
2. *Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.*
3. *Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.*