

Groundwater Data Gap Investigation Technical Memorandum – Transducer Monitoring (November 2017 to August 2019)

NERT Remedial Investigation – Downgradient Study Area
Nevada Environmental Response Trust Site
Henderson, Nevada
Final



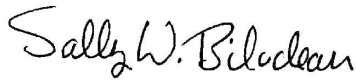
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**Groundwater Data Gap Investigation Technical Memorandum – Transducer Monitoring (November 2017
to August 2019), Revision 0
Nevada Environmental Response Trust
Remedial Investigation – Downgradient Study Area, Henderson, Nevada**

Responsible Certified Environmental Manager (CEM) for this project

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.



11-4-2019

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List of Abbreviations

CSM	Conceptual Site Model
cfs	cubic feet per second
Downgradient Study Area	NERT RI Downgradient Study Area
DGIP	Data Gap Investigation Plan
ECS	Erosion Control Structure
°F	degrees Fahrenheit
kPa	kilopascal
LVW	Las Vegas Wash
memo	Technical Memorandum
NERT	Nevada Environmental Response Trust
OU-3	Operable Unit 3
Reclamation	United States Bureau of Reclamation
RI	Remedial Investigation
SNWA	Southern Nevada Water Authority
Study	transducer study
SWF	Seep Well Field
USGS	U.S. Geological Survey

1.0 Introduction

This technical memorandum (memo) presents the results of the transducer study (Study) conducted between November 2017 and August 2019 as part of the Data Gap Investigation for the Nevada Environmental Response Trust (NERT) Remedial Investigation (RI) - Downgradient Study Area, which is in Operable Unit 3 (OU-3) of the NERT RI Study Area in Henderson, Nevada (**Figure 1**). This memo has been prepared as an interim deliverable in advance of the forthcoming NERT OU-3 RI Report. Except as noted in this memo, the work was conducted per the procedures and methods described in the Data Gap Investigation Plan (DGIP) – Transducer Installation and Monitoring (AECOM 2016a) and DGIP – Phase I Groundwater Monitoring Well Installation (AECOM 2017a) approved by the Nevada Division of Environmental Protection on December 27, 2016, and June 1, 2017, respectively. This memo includes and builds on the data and findings presented in the Groundwater Data Gap Investigation Technical Memorandum – Transducer Installation and Monitoring (AECOM 2018). Consistent with previous Technical Memoranda, **Appendix A** was reserved for the responses to stakeholder comments, however, no comments were received.

The overall objective of the Downgradient Study Area investigation is to identify subsurface pathways within the Downgradient Study Area, which is downgradient and cross-gradient of the NERT Site and Eastside Sub-Area, through which perchlorate-impacted groundwater is entering the Las Vegas Wash (LVW). The objective of the Study is to provide detailed data on water level changes in existing wells near the LVW to address data gaps identified in the historic and the 2016 to 2019 groundwater monitoring data.

The objectives, methods and procedures, and monitoring plan for the Study are described in the DGIP (AECOM 2016a), which was designed to answer the following study questions:

- How do groundwater levels change near the LVW?
- What is the daily and seasonal variation along the LVW?
- Where and when does the LVW influence local groundwater levels?
- What are the statistical groundwater elevation trends?
- How do the data refine the Conceptual Site Model (CSM)?

The initial set of 19 transducer locations was established based on the results of the April-May 2016 groundwater sampling event, during which 61 groundwater samples were collected from wells throughout the Downgradient Study Area. In September 2018, a second set of transducers was installed in nine Phase I wells along the LVW. During July and August 2019, a third set of transducers was installed in the 14 Phase II wells along the LVW. Surface water gages (i.e., transducers) were installed in the LVW in January 2017 as part of the surface water sampling program. The data from the surface water and groundwater transducers has been incorporated into the Phase II Groundwater Assessment to evaluate where the groundwater potentiometric surface is higher than nearby surface water elevations in the LVW. The locations of the transducers and surface water gages as well as land ownership are shown on **Figure 2**. **Figure 3** shows the transducers and surface water gages on the geologic map of the area.

In November 2015, NERT installed transducers in ten monitoring wells (PC-62, PC-68, PC-108, PC-155A/155B, PC-156A/156B, PC-157A/157B, and WMW6.15S) northeast of the Bird Viewing Ponds in the vicinity of the Seep Well Field (SWF). Ramboll provides the transducer information from well WMW6.15S so that it can be included in this study. In August 2017, the transducers in monitoring wells PC-62, PC-68, and PC-108 were removed. One of these transducers was redeployed in monitoring well PC-56, located near the SWF. The former and current locations of these transducers are included on **Figures 2** and **3**. Well WMW5.58SI was destroyed in January 2018 and the transducer from this well was later placed in the replacement well, WMW5.58S. Each well has been equipped with a data logger (In-Situ Aqua TROLL 200) and a cellular network telemetry system (In-Situ Tube 300R). The data logger measures water temperature, electrical conductivity, absolute water pressure, and water level. In addition, the data logger calculates and reports specific conductivity, salinity, total dissolved solids, resistivity, and water density. The in-situ Tube 300R measures absolute barometric pressure and automatically applies a barometric pressure correction to the water level that is reported in the telemetrically

transmitted data. Measurements are taken at 15-minute intervals and tubes typically transmit recent logger and tube data telemetrically to the Ramboll FTP site every 12 hours. The data loggers continue to collect and store data and when the In-Situ Tube 300R fails to transmit, data can be manually downloaded if needed. In November 2017, the data loggers and telemetry tubes in monitoring wells PC-155A/155B, PC-156A/156B, PC-157A/157B, and WMW6.15S were exchanged for In-Situ Rugged TROLL 100s, which measure water temperature and water level (pressure). These wells are no longer equipped with telemetry and are visited quarterly by a NERT field technician.

2.0 Transducer Installation and Data Collection

Data from 44 transducers in groundwater monitoring wells located along the LVW were used in this Study. This includes the 42 transducers installed by AECOM, the data from well WMW5.58SI that was destroyed, and the data from the transducer in well WMW6.15S. The rationale and installation details for the transducers except for WMW6.15S, are provided in **Tables 1** through **3**.

The wells equipped with transducers are shown on **Figures 2** and **3**. Seven wells are located on United States Bureau of Reclamation (Reclamation) and Clark County Wetlands Park properties, 34 wells are located on Clark County Wetlands Park property, and two wells are located on City of Henderson property (**Figure 2**). The wells with transducers extend from Duck Creek Confluence Weir to Rainbow Gardens Weir, spanning the length of the Downgradient Study Area. Groundwater level monitoring activities and data downloads were conducted approximately every other month between March 2018 and January 2019 with the latest download discussed in this memo occurring in August 2019. The transducers currently remain in the wells and continue to record data.

2.1 Pre-field Activities

A site-specific Health and Safety Plan as well as a Quality Assurance Project Plan were developed for the Downgradient Study Area, including the planned field work for the transducer installation and monitoring activities (AECOM 2016b and AECOM 2017b). Property owners were contacted to obtain permission for access to install and monitor the transducers. Access to properties was granted by Reclamation (U.S. Bureau of Reclamation 2016), the City of Henderson, Clark County, and Clark County Wetlands Park. In addition, the Southern Nevada Water Authority (SNWA) and Landwell provided access to their wells equipped with transducers, which are all located on Reclamation property. AECOM provided notification to landowners prior to each mobilization.

Transducers were programmed prior to deploying them in the field for installation. Each transducer was labeled with the well identification in which it was installed. The recording interval, date, time, and well identification were preprogrammed into each transducer using the manufacturer's software. The data recording interval was set for 15 minutes and therefore provided 96 groundwater level readings per instrument per day.

2.2 Rationale for Groundwater Transducer Locations

The well locations for the proposed installation of transducers were selected to provide groundwater level data on the north and south sides of the LVW to determine the relationship and response of groundwater levels to the different stages of the water levels in the LVW. In addition, wells present in areas where seeps or springs were observed were selected to determine the relationship, if any, of the potentiometric surface to the surface water features. The wells that were selected for initial transducer installation in 2017 are listed on **Table 1**, which includes the measured well depth, screened interval (if known), water-bearing zone and lithology. Only shallow water-bearing zone wells were selected because the deeper water-bearing zones would not be expected to be influenced significantly by surface water level changes. **Table 1** presents the rationale for selecting the existing wells to have a transducer installed and **Table 2** presents the rationale for the Phase I and Phase II well locations.

2.3 Groundwater Transducer Installation

Transducers were installed in the nine Phase I groundwater wells in September 2018. Installation details for these transducers are provided in the Data Gap Investigation Technical Memorandum – Phase I Groundwater Quality Assessment (AECOM 2019). Transducers were installed in 10 of the 14 Phase II wells in June 2019. Transducers were installed in the remaining four Phase II wells (NERT3.58S1, NERT3.60S1, NERT4.64S1, and NERT4.71S1) in August 2019. A summary of the installation details for the transducers is provided on **Table 3**. The

Phase I and Phase II well locations and well casing elevations were surveyed by a licensed surveyor in June 2018 and May 2019.¹

2.4 Groundwater Transducer Data Collection

Transducers in 19 wells have been recording data since April 2017 to present. Data from the transducer in well WMW6.15S is provided by Ramboll. Transducers in the Phase I wells have been recording data since September 2018 to present. Transducers in 10 of the Phase II wells have been recording since June 2019. Transducers in the other four Phase II wells have been recording since mid-August 2019. Between April 2017 and March 2018, manual groundwater levels were recorded monthly with data downloads occurring quarterly. Starting in March 2018, manual groundwater level measurements and data downloads were collected on a bimonthly (every 2 months) basis through January 2019. After January 2019 the frequency of manual groundwater level measurements was reduced, and measurements were obtained in July and August 2019.

The transducers were set to record changes in pressure (groundwater levels) every 15 minutes (96 times per day). Similarly, a barometer installed in well WMW4.9S recorded barometric pressures at the same frequency as the transducer measurements. Manual water levels were recorded to provide comparison data in case the transducer instrument started to drift. **Table 4** provides the field depth to water measurements obtained from the wells from April 2017 through August 2019.

During data collection, the transducers were brought up to the surface for direct data download. The manufacturer's handheld data reader and software were used to download the data. After data were downloaded, the memory was cleared, the data recording was restarted, and the transducer was reinstalled in the well at its prescribed depth.

Scheduled downloading of data from these wells was completed in August 2019. The transducers remain in the wells and continue to collect and record data. Each transducer has the capacity to collect 120,000 data points. At the set frequency of data point recordings (every 15 minutes), the transducers can record for up to 3 years and 3 months before data is overridden. In addition, per the manufacturer's specifications, the battery life of the transducers is approximately 10 years based on a 1-minute sampling rate. The battery life of each transducer was observed at 100 percent during the January 2019 monitoring event. The most recent data download occurred in August 2019. Future data collection will be performed as needed under the NERT OU-3 RI.

2.4.1 Quality Control

Each time a transducer was brought to the surface, the cable and transducer were inspected for signs of damage. No sign of damage was noted on any of the cables during any of the monitoring events. No issues with data recording were noted in the transducers that were checked.

In addition, the time of data recording was checked for deviations. In general, time deviations between -87 to +111 seconds were noted in some transducers. Fluctuations in surface water levels are expected to cause level fluctuations in groundwater that is in communication with the surface water. The time required for these fluctuations to propagate through the aquifer depends upon distance of the monitoring point from the surface water body, aquifer transmissivity, and porosity, as well as other factors. Although a direct estimate is not feasible, it is expected that this timeframe would be significantly longer than the time deviations encountered in some of the transducers and this deviation is therefore considered acceptable.

The transducer in well WMW5.58SI was removed on January 25, 2018, prior to destruction of the well. A replacement well (WMW5.58S) was installed by SNWA. On September 6, 2018, the transducer that was

¹ Coordinate system: State Plane Coordinate System; Elevations are referenced to the North American Vertical Datum (NAVD) 83 Nevada East Zone (2701) with vertical datum based on NAVD 88 referenced to the City of Henderson Benchmark network.

removed from WMW5.58SI was installed in replacement well WMW5.58S and set to record at the same frequency (every 15 minutes) as the other transducers in the groundwater monitoring program.

2.5 USGS Gaging Station at Pabco Road

Surface water elevation data were reviewed from the United States Geological Survey (USGS) gaging station at Pabco Road Erosion Control Structure (ECS)(USGS 2019). The elevation, based on stage heights from this station versus time, are presented on **Figure 4**. The elevations depicted on **Figure 4** are based on the Pabco Road ECS elevation surveyed on June 29, 2017. The average daily variation of surface water stage is 0.4 foot (4.8 inches). In response to rain storms that occurred from April 2017 through August 2019, the water level in LVW increased up to 2.2 feet. Based on USGS data, flow rates from these storms ranged from about 1,000 to 6,600 cubic feet per second (cfs). The largest flow rate of 6,600 cfs was recorded on January 9, 2018.

2.6 Surface Water Transducers

In January 2017, AECOM installed eight surface water gaging stations (identified as Staff Gaging Locations) along the south shore of LVW as part of the surface water investigation (**Table 5, Figures 2 and 3**). Staff gage and transducer assemblies were similar in design to those used by USGS but modified as appropriate given the temporary nature of the installations. Specific installation points were identified to be reachable from the shore-side access road but generally away from areas frequented by foot traffic. Each assembly consists of a recording pressure transducer mounted inside an L-shaped length of PVC pipe. The transducer head was mounted inside a perforated PVC protective casing. The transducer cable ran back to shore through the PVC pipe into a short standpipe. The standpipe had a secure, lockable cap to allow access to the data retrieval port.

The staff gage assembly was anchored to the southern bank of the LVW using fence posts. The standpipe was located at the water's edge or near shore, depending on the condition of the LVW bottom. The transducer head extended into the channel approximately 10 feet north and was secured with fence posts. Where conditions permitted, the horizontal pipes were laid in a shallow trench to both protect and secure the pipe, and to minimize their profile in the LVW. The staff gages, marked in 0.01-foot increments, were secured to the posts at the channel-end of the pipe assemblies. The gages were located near enough to shore to allow accurate readings from the stream banks and deep enough to cover the range of streamflow variation.

At the time the gages were installed, onshore barometers were placed at three locations to provide reference atmospheric pressure data. By April 2018, two of the barometers (Baro 1 and Baro 3) had been washed away due to stormwater surges. A third barometer (Baro 2) recorded data through September 6, 2018. Between September 6, 2018 and November 5, 2018, Baro 2 disappeared. A comparison of previous barometer data from the LVW and the barometer installed in well WMW4.9S was conducted to evaluate if data from well WMW4.9S could be used to compensate the surface water gage data. The difference between the two datasets is about 0.03 kilopascal (kPa) on average. The margin of error due to the transducer technology is +/- 0.05 kPa (Solinst Canada Ltd. 2016); therefore, the difference between the two datasets is acceptable and the barometer data from well WMW4.9S was used to compensate gage data from September 2018 through August 2019.

Beginning in May 2018, after completion of the surface water study, the surface water level recording interval on the gages was set to 15-minute increments (96 times per day) to match the recording interval of the groundwater transducers. The gages record the changes in water levels that correspond to increases and decreases in flow volume. All of the stations recorded the daily patterns of high and low water levels related to the release of wastewater from upstream wastewater treatment plants. The timing of the high and lows vary from station to station, arriving later in the day with distance downstream. Between the stations at Duck Creek and Rainbow Gardens weirs, the daily highs and lows are separated by approximately 3 hours.

Data was downloaded bimonthly (every 2 months) from the surface water transducers May 2018 through January 2019. Data was also downloaded in August 2019. The gages were surveyed for elevation on May 10, 2018.

3.0 Transducer Monitoring Results

Data collected from the transducers and the barometers were downloaded from August 2017 through August 2019 and the transducer data were compensated to remove the effects of barometric pressure. Barometric pressure was obtained from a barometer installed in well WMW4.9S. The data were also adjusted to correlate with manual water level data. The raw and compensated electronic data files were provided to NERT and are included in **Appendix B** of this memo. Four wells (NERT3.58S1, NERT3.60S1, NERT4.64S1 and NERT4.71N1) did not have transducers installed until August 12-13, 2019. These transducers collected data over two weeks or less because these wells were being used for dye injection tests or were occupied by hornets preventing transducer installation. This report provides data analysis from the 40 transducers along LVW that had recorded more than two weeks of data. Graphs of the adjusted transducer water level and temperature data for the other 40 transducers are provided in **Appendix C**. Daily field reports are provided in **Appendix D**. **Table 6** summarizes the data observed on the graphs.

The transducers' records of water levels and temperatures were affected when transducers were removed from wells for groundwater sampling activities by the well owners or other third parties. Results discussed below eliminate data believed to be compromised due to these activities. These data are highlighted in red in **Appendix B** and have been filtered out of the data set using the filter applied to the "REV GW ELEV" column so that the compromised data is not shown in the hydrographs.

3.1 Groundwater Levels

The groundwater levels in all 40 wells exhibited daily fluctuations (**Table 6** and **Appendix C**). The daily variation of groundwater levels along the LVW is typically between 0.05 foot and 0.2 feet. All of the transducers detected increases in groundwater levels that corresponded to the increased flows in LVW due to seasonal rain storms. Groundwater in wells closer to the LVW generally showed larger water level changes than the groundwater in wells further from the LVW. The largest groundwater level change was 8.2 feet on January 9, 2018, in well WMW5.7N. This coincides with the start of weir construction dewatering activities and a 2.2-foot storm surge recorded on the same date at Pabco Road ECS.

Groundwater levels in 11 wells (AA-30, MW-13, PC-74, PC-77, WMW 4.9N, WMW4.9S, WMW5.5S, WMW5.7N, WMW6.15N, WMW6.55S, and WMW6.9S) exhibit distinct decreases in elevations from January to June 2018 that coincide with the dewatering activities associated with weir construction near Sunrise Mountain and Historical Lateral Expansion weirs (**Table 6** and **Appendix C**). In addition, wells PC-74, PC-77 and WMW6.9S exhibit changes in elevations that may be influenced by nearby extraction wells in the NERT SWF that are withdrawing water associated with remediation activities in the area (**Table 6** and **Appendix C**). Urban irrigation for golf courses and other landscaping may also influence groundwater elevations. **Appendix E** presents hydrographs of seven wells and the Historic Lateral or Sunrise Mountain dewatering pumping rate. Six of the wells (AA-30, MW-13, WMW5.5S, WMW5.7N, WMW6.15N, and WMW6.55S) exhibit lower water levels during dewatering activities and one well (COH-2B1) does not exhibit a change in average water levels.

3.2 Groundwater Temperature

Groundwater temperature in 27 wells was generally between 71- and 75-degrees Fahrenheit (°F) between April 2017 and August 2019 (**Table 6** and **Appendix C**). The variation in temperature in 29 wells was less than 2 °F. Groundwater in four wells exhibited temperatures of 80°F or higher (NERT3.80S1, NERT5.49S1, WMW5.58SI and WMW5.7N). Groundwater from one well (WMW6.9S) exhibited lower temperatures of 68.7 to 69.9°F.

Groundwater from seven wells (NERT3.80S1, NERT 5.49S1, WMW4.9S, WMW5.5S, WMW5.7N, WMW5.58SI, and WMW6.15S) exhibited 5 to 25.4°F changes in temperature between April 2017 and August 2019. Temperature changes in 26 wells exhibited seasonal variations from 1.1 to 25.4 °F For wells that exhibited seasonal variations in temperature, some of the high groundwater temperatures did not coincide with summer months (**Table 6** and **Appendix C**). Temperature changes of 5°F or greater observed in groundwater are attributed to surface water mixing with groundwater.

3.3 Trend Tests

Mann Kendall statistical trend analyses were performed on water level data collected between April 2017 and August 2019 using ProUCL statistical software (U.S. Environmental Protection Agency 2016). In many instances the changes in water levels were small. Statistical trend analyses were not run on the transducer data from well WMW6.15S because the transducer malfunctioned. Statistical trend analyses were not run in this Technical Memorandum on the transducer data from the original well designated as WMW5.58SI because this well was destroyed. Statistical trend results prior to well destruction were presented in the 2018 Transducer Technical Memorandum and are not presented here (AECOM 2018). Groundwater levels in the remaining 38 transducers showed statistically significant increases in 26 wells, statistically significant decreases in 11 wells, and no trend in one well (**Table 6 and Appendix F**).

3.4 Surface Water Levels

Surface water hydrographs and temperature graphs for April 2017 through August 2019 are included in **Appendix G**. The daily elevation change in surface water in the LVW is about 0.4 foot. High storm-related flows in the LVW during November 2018 to August 2019 were reflected in a 6.09-foot change in Station S3.75 on February 14, 2019.

Surface water elevations were compared to groundwater elevations to evaluate where groundwater was likely to be entering the LVW. The surveyed elevations of Pabco Road ECS, Calico Ridge Weir and Three Kids Weir, as well as transducer elevation data and data provided by SNWA were utilized to develop a cross section schematically depicting expected surface water elevations and groundwater elevations (**Figure 5**). Surface water and groundwater transducer data from July 9, 2019, 12:00 am were used for developing the cross section.

As shown on **Figure 5**, for the timeframe selected groundwater elevations appear to be equal to or higher than surface water elevations below Duck Creek Weir to below Sunrise Mountain Weir, below Bostic Weir to below Calico Ridge Weir, below Lower Narrows Weir, below Homestead Weir, and below Three Kids Weir. In the area from below Pabco Road ECS to above Bostic Weir the projected groundwater elevations are below the surface water elevations (**Figure 5**).

3.5 Surface Water Temperature

Surface water hydrographs and temperature graphs for April 2017 through August 2019 are included in **Appendix G**. The seasonal temperature change ranged from a high of 85°F to 90°F in July or August and a low of 55°F to 60°F in January.

4.0 Conclusions

This memo presents the results of the Study, which was performed in accordance with the methods, procedures and monitoring plan described in the DGIP. Following are the Study questions formulated in the DGIP and whether/how the transducer data collected to date addresses these questions:

1. How do groundwater levels change near the LVW?

Groundwater levels in all the wells monitored with transducers exhibit an increase and decrease each day. The magnitude of daily change varies between wells but is generally less than 0.2 foot per day. Groundwater in the following wells exhibits the highest daily change of about 0.25 feet: WMW3.5S, WMW6.15S, and WMW6.55S. In general, the further the well is from the LVW the lower the daily variations.

Groundwater levels in most wells show water level responses that correspond to higher stages in the LVW from rainstorms. In general, the further the well is from the LVW the lower the water level rise from the storm event. During the Sunrise Mountain and Historic Lateral Expansion Weir construction activities from January to June 2019, six wells in the area (AA-30, MW-13, WMW5.5S, WMW5.7N, WMW6.15N, and WMW6.55S) appeared to be affected by dewatering activities.

2. What are the daily and seasonal variations along the LVW?

The daily variation of groundwater elevation along the LVW is typically between 0.05 and 0.25 feet per day. The daily variation in stage in the surface water in the LVW is about 0.4 feet. High storm-related flows in the LVW during April 2017 to August 2019 were reflected in up to 8.2 feet rise in groundwater levels in well WMW5.7N, located between Pabco Road ECS and Historical Lateral Expansion Weir. This change occurred near the start of dewatering activities in that area and coincided with a 2.2-foot storm surge at Pabco Road ECS. Based on the USGS data, flows from storms ranged from approximately 1,000 to 6,600 cfs. Seasonal variations in groundwater and surface water levels were not observed.

The variation in groundwater temperature in 29 of 40 wells was generally less than 2°F from April 2017 to August 2019. Seven wells exhibited temperature variations that were higher than 5°F during the same timeframe. Four of these wells exhibited temperature changes greater than 9°F and maximum temperatures exceeding 80°F. This indicates that surface water may be infiltrating and mixing with the groundwater in the area between Pabco Road ECS and Historic Lateral Weir, between Bostic Weir and Calico Weir, and upstream of Three Kids Weir.

As expected, the surface water temperature exhibited obvious seasonal variations ranging from around 90°F in the summer and 55°F to 60°F in the winter. Temperature changes in 26 wells exhibited seasonal variations from 1.1 to 25.4°F. The change in groundwater temperature often does not coincide with the change in surface water temperature.

Stage increases in surface and groundwater from seasonal rains were observed following rain events in summer and winter. Seasonal variations were not observed in surface water or groundwater levels.

3. Where and when does the LVW influence local groundwater levels?

The LVW appears to influence local groundwater levels daily in each of the locations measured. In general, the closer the well is to the LVW the greater the response. Groundwater levels in three wells (PC-74, PC-77, and WMW6.9S) exhibited a different pattern over the observation period and appear to have been influenced by extraction well pumping from the NERT SWF. The schematic cross section provided as **Figure 5** shows areas where the projected groundwater elevations are higher than the surface water elevation and therefore groundwater could potentially be entering LVW (gaining conditions). Conversely where the projected groundwater elevation is lower than the surface water elevation, the surface water could infiltrate (losing conditions), which supports the above observation of seasonally higher temperatures in the groundwater between the Pabco Road ECS and Historical Lateral Weir.

4. What are the statistical groundwater elevation trends?

Between April 2016 and August 2019 groundwater levels exhibited statistically significant increasing trends in 26 wells, statistically significant decreasing trends in 11 wells, and no trend on one well. Trend tests were not run on transducer data from two wells due to transducer malfunction on one well and because the other well was destroyed.

5. How do the data refine the CSM?

Figure 5 depicts the refinement of the CSM by identifying the specific reaches along LVW that are in potential losing conditions and other reaches that are in potential gaining conditions. When compared to the 2018 cross section it is notable that groundwater elevations appear slightly higher and that the areas below Bostic Weir and Lower Narrows Weir are exhibiting gaining conditions.

The data also indicate that there is an area of groundwater and surface water mixing that is evident by the warmer groundwater detected in four wells (NERT3.80S1, NERT5.49S1, WMW5.58S1, and WMW5.7N) along the banks of the LVW. As the Downgradient Study Area is one part of the NERT OU-3 RI, AECOM is responsible for providing data and interpretations that refine the CSM specifically along the LVW while NERT will develop the overall CSM interpretation for OU-3.

5.0 Recommendations

The dynamic relationship between surface water and groundwater along the LVW is complex. Evaluating the data obtained from the transducers sheds light on this relationship; however, additional data are needed to make more effective use of the information. Continuing to collect transducer data can provide additional information on seasonal trends. For these reasons it is recommended the transducers be left in place because they are gathering data close to the LVW which support interpretation of groundwater/surface water interactions. If additional wells are installed in close proximity to the LVW, consideration should be given to adding transducers into a selection of those wells. It is recommended that the transducers are left in place for two additional years so that at least two complete years of data are available for interpretation.

The transducer surface water data and the groundwater transducer data should continue to be collected. Manual water level measurements should be collected when the transducers are downloaded so that adjustments can be made if transducers are not replaced at exactly the same depth each time they are taken out of the wells.

6.0 References

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Tables

Table 1
Rationale for the Selection of the Initial 19 Wells for Installation of Transducers
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Well Owner	Property Owner	Depth to Groundwater (feet) ⁽¹⁾	Measured Well Depth (feet) ⁽¹⁾	Water Column (feet)	Screen Interval (feet, bgs) ⁽²⁾	Water-Bearing Zone ⁽³⁾	Lithology ⁽⁴⁾	Rationale for Selection
AA-30	LandWell Company	USBR	20.44	34.05	13.61	11.7 - 31.7	Shallow	Qal	To evaluate water level changes west of C-1 drainage channel and between the Chimera Golf Course and well WMW 5.5S.
COH-2B1	City of Henderson	USBR	16.98	67	50.02	Unknown	Shallow	Qal	To evaluate water level changes near the Seep Well Field.
LNDMW1	SNWA	CCPCS	36.99	61.56	24.57	Unknown	Shallow	Qal	To evaluate water level changes on the north and south side of LVW between Lower Narrows and Homestead weirs.
LNDMW2	SNWA	CCPCS	34.39	55.05	20.66	Unknown	Shallow	Qal	To evaluate water level changes at the northwest corner of Henderson Landfill and between Henderson Landfill and LVW.
MW-13	City of Henderson	City of Henderson	35.58	49.4	13.82	38 - 48	Shallow	Qal	To evaluate water level changes at the northern part of Henderson Landfill and within the Thumb formation.
MW-20	City of Henderson	City of Henderson	33.05	67.25	34.20	50 - 65	Shallow	Thumb Formation?	To evaluate water level changes at the northern part of Henderson Landfill and within the Thumb formation.
PC-74	NERT	CCPCS	11.59	48.25	36.66	39.5 - 49.5	Shallow	Qal	To evaluate water level changes along a tributary wash between PC-75 and LVW.
PC-77	NERT	CCPCS	7.19	38.87	31.68	29.5 - 39.5	Shallow	Qal	To evaluate water level changes along a tributary wash and upgradient of PC-74.
WMW3.5N	SNWA	CCPCS	35.64	56.6	20.96	Unknown	Shallow	Qal	To evaluate water level changes on the north and south side of LVW and where a seep was observed.
WMW3.5S	SNWA	CCPCS	43.60	59.80	16.20	--	Shallow	Qal	To evaluate water level changes on the north and south side of LVW between Bostick and Calico Ridge weirs.
WMW4.9N	SNWA	CCPCS	31.91	53.00	21.09	Unknown	Shallow	Qal	To evaluate water level changes in a well located within a meander of the LVW that exhibits lower perchlorate concentrations (510 µg/L) than nearby wells potentially due to mixing of lower concentration surface water with groundwater.
WMW4.9S	SNWA	CCPCS	26.58	46.75	20.17	Unknown	Shallow	Qal	To evaluate water level changes in a well that exhibits high perchlorate concentrations (3,200 µg/L) and that is along the C-1 Drainage Channel. In addition, this well is between AA-30 and LVW.
WMW5.58S ⁵	SNWA	USBR	10.48	40.95	30.47	Unknown	Shallow	Qal	To evaluate water level changes on the north side of LVW.
WMW5.5S	SNWA	USBR	15.51	38.3	22.79	Unknown	Shallow	Qal	To evaluate water level changes in a well with high perchlorate concentrations (1,800 µg/L) on the south side of LVW near the Seep Well Field.
WMW5.7N	SNWA	USBR	9.47	21	11.53	Unknown	Shallow	Qal	To evaluate water level data from a well located on the north side of LVW paired with WMW6.15S. WMW6.15S already has a NERT transducer installed.
WMW6.15N	SNWA	CCPCS	23.3	38.4	15.10	Unknown	Shallow	Qal	To evaluate water level changes in a well with high perchlorate concentrations (1,800 µg/L) on the south side of LVW near the Seep Well Field.
WMW6.55S	SNWA	CCPCS	16.03	40.67	24.64	Unknown	Shallow	Qal	To evaluate water level changes on the north and south sides of LVW near Duck Creek Confluence weir.
WMW6.9N	SNWA	CCPCS	18.42	48.55	30.13	--	Shallow	Qal	
WMW6.9S	SNWA	CCPCS	11.43	51.55	40.12	--	Shallow	Qal	

Notes:

bgs = below ground surface

LVW = Las Vegas Wash

Qal = Alluvium

µg/L = micrograms per liter

SNWA = Southern Nevada Water Authority

USBR = United States Bureau of Reclamation

NERT = Nevada Environmental Response Trust

CCPCS = Clark County Parks and Community Services

(1) Depth to groundwater and total well depth were measured in April 2016 by AECOM.

(2) Screened interval was obtained from the NERT All Wells Database.

(3) Water-bearing zone was obtained from the NERT All Wells Database and from the assumption that the shallow water-bearing zone may be present from 0 to 90 feet bgs.

(4) Lithology was obtained from the NERT All Wells Database, from geotechnical investigations conducted for the weirs, and from the 1980 Bell and Smith Geologic map of the Henderson Quadrangle.

(5) WMW5.58S replaced well WMW5.58SI after WMW5.58SI was destroyed. The transducer in WMW5.58S was installed on 9/6/2018. The transducer record in WMW5.58SI ends January 25, 2018.

Table 2
Rational for Phase I and Phase II Groundwater Monitoring Wells
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Borehole depth ⁽¹⁾	Well Depth in feet bgs	Well Diameter in inches	Well Screen in feet bgs	Rationale Based on Perchlorate Concentrations Detected in Groundwater and Surface Water Samples ⁽²⁾
Phase I Monitoring Wells					
NERT5.91S1	70	50	4	40 - 50	Determine perchlorate concentrations between COH2B1 (total well depth of 67 feet bgs and 5,600 µg/L) and WMW5.5S (total well depth of 38.3 feet bgs and 3,200 µg/L) to further characterize this area of perchlorate impact east of the Seep Well Field. Surface water concentrations are 15 to 17 µg/L.
NERT5.49S1	60	40	4	30 - 40	Determine concentrations between WMW5.58S1 (total well depth of 40.95 feet bgs and 510 µg/L) and WMW5.5S (total well depth of 38.3 feet bgs and 3,200 µg/L). There is a significant drop off of concentration. This is an area identified as a paleochannel and there is a layer of coarse-grained sediment, wash gravels, present. Placing a well in this area will help evaluate the significance of the wash gravels and further characterize perchlorate impacts. Surface water concentrations are 19 to 23 µg/L.
NERT5.11S1	60	45	4	35 - 45	Determine concentrations between proposed wells NERT5.49S1 and NERT4.93S1. Surface water concentrations are 19 to 23 µg/L.
NERT4.93S1	60	50	4	40-50	Determine concentrations between MW-13 (total well depth of 49.4 feet bgs at 3,800 µg/L) and WMW4.9S (total well depth of 46.75 feet bgs at 270 µg/L) to obtain additional data on the paleochannel and perchlorate impacts in the area. Surface water concentrations are 15 to 23 µg/L.
NERT4.71S1	60	50	4	40-50	Determine concentrations between WMW4.9S (total well depth of 46.75 feet bgs at 270 µg/L) and proposed well NERT4.9-51S1 to obtain additional data on the paleochannel and perchlorate impacts in the area. Surface water concentrations are 15 to 44 µg/L.
NERT4.51S1	60	50	4	40-50	Determine concentrations between proposed well NERT4.71S1 and LNDMW1 (total well depth of 61 feet bgs at 1,900 µg/L) to obtain additional data on the paleochannel and perchlorate impacts in the area. Surface water concentrations increase from 15 to 44 µg/L in this area.
NERT4.38N1	60	55	4	45-55	Determine concentrations west of LNDMW2 (total well depth of 55.05 feet bgs at 1,500 µg/L) to further characterize perchlorate concentrations on the north side of LVW. Surface water concentrations increase from 15 to 44 µg/L in this area.
NERT4.21N1	60	55	4	45-55	Determine concentrations southeast of LNDMW2 (total well depth of 55.05 feet bgs at 1,500 µg/L) to further characterize perchlorate impacts on the north side of LVW. Surface water concentrations increase from 15 to 44 µg/L in this area.
NERT3.80S1	60	60	4	50-60	Determine concentrations between LNDMW1 (total well depth of 61 feet bgs at 1,900 µg/L) and WMW3.5S (total well depth of 59.8 feet bgs at 1,400 µg/L) on the south side of LVW to further characterize perchlorate impacts in the area. This well may also provide additional data regarding faulting in the area. Surface water concentrations are 35 to 50 µg/L.
Phase II Monitoring Wells					
NERT3.35S1	57	55.5	4	35 - 55	Determine concentrations about 280 feet east northeast of Phase II Well NERT3.40S1 on the south side of LVW to further characterize perchlorate impacts in groundwater between Three Kids weir and Rainbow Gardens Weir. This well may also provide additional information on faulting in the area. Surface water concentrations are 89 to 96 µg/L.
NERT3.40S1	65	55.5	4	35 - 55	Determine concentrations south of the warm anomaly that was identified 180 feet east northeast of transect T3.5. Surface water concentrations are 90 µg/L in this area.
NERT3.58N1	62	60.5	4	40 - 60	Determine concentrations about 200 feet northeast of Phase II Well NERT3.60N1 on the north side of LVW. Surface water concentrations are 200 µg/L.
NERT3.58S1	70	55.5	4	35 - 55	Determine concentrations upgradient and on the south side of Three Kids Weir, west-southwest of WMW3.5S (total well depth of 59.8 feet bgs at 1,500 µg/L) on the south side of LVW to further characterize perchlorate impacts in groundwater near the former K67 seep. To also evaluate groundwater/surface water interactions in this area. This well may also provide additional data regarding faulting in the area. Surface water concentrations are 53 and 980 µg/L. The concentration in the channel near the former seep is 1600 µg/L.
NERT3.60N1	90	52.5	4	32 - 52	Determine concentrations on the south side of Homestead Weir to obtain additional data on perchlorate impacts between wells LVWPS-MW216 (total depth 20.6 feet bgs and 1,200 µg/L) and NERT3.80S1 (total well depth 20 feet bgs and 1,100 µg/L). Surface water concentrations are 44 µg/L.
NERT3.60S1	90	55.5	4	35 - 55	Determine concentrations upgradient and on the south side of Three Kids Weir, south-southwest of WMW3.5S (total well depth of 59.8 feet bgs at 1,500 µg/L) on the south side of LVW to further characterize perchlorate impacts in groundwater. This well may also provide additional data regarding faulting in the area. Surface water concentrations are 32 and 36 µg/L.

Table 2
Rational for Phase I and Phase II Groundwater Monitoring Wells
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Borehole depth ⁽¹⁾	Well Depth in feet bgs	Well Diameter in inches	Well Screen in feet bgs	Rationale Based on Perchlorate Concentrations Detected in Groundwater and Surface Water Samples ⁽²⁾
NERT3.63S1	60	35.5	4	15 - 35	Determine concentrations east-northeast of well WMW3.5N (56 feet bgs at 320 µg/L) on the north side of LVW adjacent to Three Kids weir. Surface water concentrations are 200 µg/L.
NERT3.98S1	55	35.5	4	15 - 35	Determine concentrations on the north side of Calico Ridge Weir to obtain additional data on perchlorate impacts in the area. Surface water concentrations are 93 µg/L.
NERT4.64N1	90	45.5	4	25 - 45	Determine concentrations on the north side of Calico Ridge Weir between WMW4.9N (total well depth of 53 feet bgs at 680 µg/L) and well NERT4.38.N1 (total well depth 40.9 bgs and 1,400 µg/L) to obtain additional data on perchlorate impacts in the area. Surface water concentrations are 31 µg/L.
NERT4.64S1	56	55.5	4	35 - 55	Determine concentrations on the north side and upgradient of Calico Ridge Weir to obtain additional data on perchlorate impacts in the area.
NERT4.65N1	90	45.5	4	25 - 45	Determine perchlorate concentrations north of LVW and about 450 feet west and upgradient of Calico Ridge weir and south of well WMW4.9N (total well depth of 53 feet bgs and 680 µg/L).
NERT4.70N1	82	45.5	4	25 - 45	Determine concentrations southeast of Phase II Well NERT3.60S1 on the south side of LVW to further characterize perchlorate impacts. This well may also provide additional information on faulting in the area. Surface water concentrations are 53 and 980 µg/L. The concentration in the channel by the former seep is 1600 µg/L.
NERT4.71N1	90	45.5	4	25 - 45	Determine perchlorate concentrations between LVWPS-MW210A (total well depth of 55 feet bgs and 4,400 µg/L) and LVWPS-MM219 to further characterize this area of perchlorate impact south of Calico Ridge Weir. To evaluate surface water/groundwater interactions in this area. Surface water concentrations are 1,500 to 3,100 µg/L.
NERT4.71S2	55	55	4	34.5 - 54.5	Determine perchlorate concentrations between LVWPS-205B (total well depth of 84 feet and 2,800 µg/L) and LVWPS-MW210A (total well depth of 55 feet bgs and 4,400 µg/L) to further characterize this area of perchlorate impact south and about 400 feet upstream of Calico Ridge Weir. To evaluate groundwater concentrations in this area.

Notes:

µg/L = micrograms per liter

LVW = Las Vegas Wash

bgs = below ground surface

⁽¹⁾ Borehole depth was to intercept UMCf or other bedrock and was adjusted based on field conditions

⁽²⁾ Surface water concentrations are from May 2018 and groundwater concentrations for Phase I wells are from April and May 2016, groundwater concentrations for Phase II wells are from July 2018.

Table 3
Transducer Installation Information
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Easting ⁽¹⁾	Northing ⁽¹⁾	Elevation ⁽¹⁾ (feet amsl, TOC)	Transducer Serial Number	Date Installed	Time Installed	Depth to Water Pre-Install (feet, TOC)	Depth to Water Post-Install (feet, TOC)	Groundwater Elevation (feet amsl)	Measured Depth of Well (feet, TOC)	Total Depth of Well ⁽²⁾ (feet, TOC)	Depth of Transducer (feet, TOC)	Elevation of Transducer (feet amsl)	Depth of Transducer Below Groundwater (feet)
WMW6.9S	828430.55	26734539.19	1570.60	0042067219	4/30/2017	9:55	11.04	11.04	1559.56	51.36	51.63	31.03	1539.57	19.99

Notes:

(1) Well coordinates and elevations surveyed by licensed surveyor (Stanley) April 4 through 8, 2016. Coordinate system: State Plane Coordinate System; Elevations are referenced to the North American Datum (NAD) 83 Nevada East Zone (2701) with vertical datum based on NAVD 88 referenced to the City of Henderson Benchmark network.

(2) Total well depth accounts for an additional 0.27 feet from the tip of the sounder to the end of the probe.

amsl = above mean sea level

(3) Transducer initially installed with nylon rope. Second installation readings taken after nylon rope was replaced by Kevlar rope.

TOC = top of casing (measurements were obtained from the reference mark on the casing or from the north side of the casing if a mark was not present)

Table 4
Depth to Water Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Easting ⁽¹⁾	Northing ⁽¹⁾	Elevation ⁽¹⁾ (feet amsl, TOC)	Date Gauged	Time Gauged	Depth to Water (feet, TOC) ⁽²⁾	Groundwater Elevation (feet amsl)
AA-30	836125.80	26733691.92	1532.35	4/29/2017	9:30	19.64	1512.71
AA-30	836125.80	26733691.92	1532.35	6/1/2017	10:01	19.68	1512.67
AA-30	836125.80	26733691.92	1532.35	7/11/2017	12:04	19.71	1512.64
AA-30	836125.80	26733691.92	1532.35	8/2/2017	11:08	19.49	1512.86
AA-30	836125.80	26733691.92	1532.35	9/6/2017	11:10	19.50	1512.85
AA-30	836125.80	26733691.92	1532.35	10/3/2017	11:55	19.33	1513.02
AA-30	836125.80	26733691.92	1532.35	11/1/2017	13:08	19.41	1512.94
AA-30	836125.80	26733691.92	1532.35	3/20/2018	13:17	20.58	1511.77
AA-30	836125.80	26733691.92	1532.35	5/9/2018	15:25	21.02	1511.33
AA-30	836125.80	26733691.92	1532.35	7/13/2018	8:32	18.55	1513.80
AA-30	836125.80	26733691.92	1532.35	9/5/2018	13:58	19.19	1513.16
AA-30	836125.80	26733691.92	1532.35	11/9/2018	9:43	19.06	1513.29
AA-30	836125.80	26733691.92	1532.35	1/9/2019	11:42	19.39	1512.96
AA-30	836125.80	26733691.92	1532.35	7/8/2019	9:55	19.08	1513.27
AA-30	836125.80	26733691.92	1532.35	8/13/2019	10:35	19.01	1513.34
COH-2B1	832598.59	26733593.69	1546.95	4/29/2017	16:18	16.37	1530.58
COH-2B1	832598.59	26733593.69	1546.95	6/2/2017	8:32	16.52	1530.43
COH-2B1	832598.59	26733593.69	1546.95	7/11/2017	15:01	16.56	1530.39
COH-2B1	832598.59	26733593.69	1546.95	8/2/2017	11:55	16.57	1530.38
COH-2B1	832598.59	26733593.69	1546.95	9/6/2017	12:16	16.71	1530.24
COH-2B1	832598.59	26733593.69	1546.95	10/3/2017	12:36	16.66	1530.29
COH-2B1	832598.59	26733593.69	1546.95	11/1/2017	13:23	16.72	1530.23
COH-2B1	832598.59	26733593.69	1546.95	3/20/2018	13:53	16.15	1530.80
COH-2B1	832598.59	26733593.69	1546.95	5/9/2018	15:10	16.32	1530.63
COH-2B1	832598.59	26733593.69	1546.95	7/13/2018	6:51	16.21	1530.74
COH-2B1	832598.59	26733593.69	1546.95	9/5/2018	12:36	16.34	1530.61
COH-2B1	832598.59	26733593.69	1546.95	11/7/2018	10:06	16.36	1530.59
COH-2B1	832598.59	26733593.69	1546.95	1/10/2019	13:16	16.59	1530.36
COH-2B1	832598.59	26733593.69	1546.95	7/3/2019		16.73	1530.22
COH-2B1	832598.59	26733593.69	1546.95	8/12/2019	15:00	16.74	1530.21
LNDMW1	841145.67	26736145.45	1511.19	4/30/2017	16:00	36.99	1474.20
LNDMW1	841145.67	26736145.45	1511.19	6/1/2017	9:02	37.00	1474.19
LNDMW1	841145.67	26736145.45	1511.19	7/11/2017	10:46	37.01	1474.18
LNDMW1	841145.67	26736145.45	1511.19	8/2/2017	10:12	36.98	1474.21
LNDMW1	841145.67	26736145.45	1511.19	9/6/2017	9:50	37.00	1474.19
LNDMW1	841145.67	26736145.45	1511.19	10/3/2017	9:49	37.03	1474.16
LNDMW1	841145.67	26736145.45	1511.19	11/1/2017	11:41	37.03	1474.16
LNDMW1	841145.67	26736145.45	1511.19	3/20/2018	11:57	36.89	1474.30
LNDMW1	841145.67	26736145.45	1511.19	5/10/2018	12:26	36.92	1474.27
LNDMW1	841145.67	26736145.45	1511.19	7/11/2018	9:46	36.68	1474.51
LNDMW1	841145.67	26736145.45	1511.19	9/5/2018	14:38	36.94	1474.25
LNDMW1	841145.67	26736145.45	1511.19	11/6/2018	14:39	36.89	1474.30
LNDMW1	841145.67	26736145.45	1511.19	1/9/2019	13:04	36.79	1474.40
LNDMW1	841145.67	26736145.45	1511.19	6/28/2019		36.81	1474.38
LNDMW1	841145.67	26736145.45	1511.19	8/12/2019	10:20	36.73	1474.46
LNDMW2	840864.28	26737125.16	1501.98	5/1/2017	12:54	34.46	1467.52
LNDMW2	840864.28	26737125.16	1501.98	6/1/2017	11:46	34.44	1467.54
LNDMW2	840864.28	26737125.16	1501.98	7/12/2017	9:49	34.39	1467.59
LNDMW2	840864.28	26737125.16	1501.98	8/3/2017	9:16	34.39	1467.59
LNDMW2	840864.28	26737125.16	1501.98	9/7/2017	9:16	34.43	1467.55
LNDMW2	840864.28	26737125.16	1501.98	10/4/2017	9:32	34.49	1467.49
LNDMW2	840864.28	26737125.16	1501.98	11/2/2017	9:36	34.52	1467.46
LNDMW2	840864.28	26737125.16	1501.98	3/21/2018	Well Locked	--	--
LNDMW2	840864.28	26737125.16	1501.98	5/9/2018	7:18	34.43	1467.55
LNDMW2	840864.28	26737125.16	1501.98	7/17/2018	10:16	34.22	1467.76
LNDMW2	840864.28	26737125.16	1501.98	9/5/2018	7:50	34.41	1467.57
LNDMW2	840864.28	26737125.16	1501.98	11/6/2018	9:34	34.43	1467.55
LNDMW2	840864.28	26737125.16	1501.98	1/10/2019	8:57	34.41	1467.57
LNDMW2	840864.28	26737125.16	1501.98	7/5/2019		34.31	1467.67
LNDMW2	840864.28	26737125.16	1501.98	8/13/2019	13:05	34.19	1467.79
MW-13	838306.91	26734740.22	1529.84	5/1/2017	8:58	35.31	1494.53
MW-13	838306.91	26734740.22	1529.84	6/1/2017	8:17	35.29	1494.55
MW-13	838306.91	26734740.22	1529.84	7/11/2017	9:31	35.26	1494.58
MW-13	838306.91	26734740.22	1529.84	8/2/2017	8:37	35.17	1494.67
MW-13	838306.91	26734740.22	1529.84	9/6/2017	8:40	35.13	1494.71
MW-13	838306.91	26734740.22	1529.84	10/3/2017	8:40	35.13	1494.71
MW-13	838306.91	26734740.22	1529.84	11/1/2017	10:01	35.16	1494.68
MW-13	838306.91	26734740.22	1529.84	3/21/2018	No Access	--	--
MW-13	838306.91	26734740.22	1529.84	5/10/2018	7:40	35.87	1493.97
MW-13	838306.91	26734740.22	1529.84	7/12/2018	8:01	34.92	1494.92
MW-13	838306.91	26734740.22	1529.84	9/6/2018	11:18	35.19	1494.65
MW-13	838306.91	26734740.22	1529.84	11/9/2018	11:50	35.20	1494.64
MW-13	838306.91	26734740.22	1529.84	1/9/2019	13:46	35.24	1494.60
MW-13	838306.91	26734740.22	1529.84	6/28/2019		35.24	1494.60
MW-13	838306.91	26734740.22	1529.84	8/13/2019	11:15	35.10	1494.74
MW-20	840590.41	26735460.67	1512.54	4/28/2017	11:20	33.00	1479.54
MW-20	840590.41	26735460.67	1512.54	6/1/2017	8:39	32.99	1479.55
MW-20	840590.41	26735460.67	1512.54	7/11/2017	10:05	33.05	1479.49

Table 4
Depth to Water Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Easting ⁽¹⁾	Northing ⁽¹⁾	Elevation ⁽¹⁾ (feet amsl, TOC)	Date Gauged	Time Gauged	Depth to Water (feet, TOC) ⁽²⁾	Groundwater Elevation (feet amsl)
MW-20	840590.41	26735460.67	1512.54	8/2/2017	9:35	32.95	1479.59
MW-20	840590.41	26735460.67	1512.54	9/6/2017	9:20	32.39	1480.15
MW-20	840590.41	26735460.67	1512.54	10/3/2017	9:16	32.88	1479.66
MW-20	840590.41	26735460.67	1512.54	11/1/2017	9:16	32.94	1479.60
MW-20	840590.41	26735460.67	1512.54	3/21/2018	No Access	--	--
MW-20	840590.41	26735460.67	1512.54	5/10/2018	8:05	32.81	1479.73
MW-20	840590.41	26735460.67	1512.54	7/12/2018	14:03	32.70	1479.84
MW-20	840590.41	26735460.67	1512.54	9/6/2018	11:44	32.85	1479.69
MW-20	840590.41	26735460.67	1512.54	11/9/2018	11:36	32.85	1479.69
MW-20	840590.41	26735460.67	1512.54	1/9/2019	13:27	32.68	1479.86
MW-20	840590.41	26735460.67	1512.54	6/28/2019		32.64	1479.90
MW-20	840590.41	26735460.67	1512.54	8/13/2019	10:55	32.66	1479.88
NERT3.35S1	845391.59	26738372.78	1470.44	6/10/2019	12:30	16.16	1454.28
NERT3.35S1	845391.59	26738372.78	1470.44	8/12/2019	7:50	15.60	1454.84
NERT3.40S1	845198.15	26738206.49	1474.58	6/10/2019	13:00	38.23	1436.35
NERT3.40S1	845198.15	26738206.49	1474.58	6/26/2019		38.25	1436.33
NERT3.40S1	845198.15	26738206.49	1474.58	8/12/2019	8:05	38.12	1436.46
NERT3.58N1	844188.45	26738048.58	1476.50	6/10/2019	14:35	39.60	1436.90
NERT3.58N1	844188.45	26738048.58	1476.50	7/2/2019	8:50	39.51	1436.99
NERT3.58N1	844188.45	26738048.58	1476.50	8/13/2019	11:55	39.89	1436.61
NERT3.58S1	844695.30	26737583.50	1474.30	8/12/2019	8:45	38.58	1435.72
NERT3.58S1	844695.30	26737583.50	1474.30	8/15/2019	9:05	34.88	1439.42
NERT3.60N1	844016.02	26737827.79	1483.08	6/10/2019	14:00	38.09	1444.99
NERT3.60N1	844016.02	26737827.79	1483.08	7/2/2019	9:50	38.58	1444.50
NERT3.60N1	844016.02	26737827.79	1483.08	8/13/2019	12:05	38.04	1445.04
NERT3.60S1	844579.55	26737409.27	1478.23	8/15/2019	9:00	38.58	1439.65
NERT3.63S1	844152.61	26737071.55	1461.78	6/10/2019	13:20	18.71	1443.07
NERT3.63S1	844152.61	26737071.55	1461.78	6/27/2019	10:50	18.68	1443.10
NERT3.63S1	844152.61	26737071.55	1461.78	8/12/2019	9:35	18.59	1443.19
NERT3.80S1	843700.76	26736780.10	1460.54	9/7/2018	9:55	10.62	1449.92
NERT3.80S1	843700.76	26736780.10	1460.54	11/6/2018	14:21	10.61	1449.93
NERT3.80S1	843700.76	26736780.10	1460.54	1/9/2019	14:50	10.31	1450.23
NERT3.80S1	843700.76	26736780.10	1460.54	6/27/2019		10.48	1450.06
NERT3.80S1	843700.76	26736780.10	1460.54	8/12/2019	9:50	10.41	1450.13
NERT3.98S1	842522.48	26736678.95	1466.27	6/10/2019	14:05	10.61	1455.66
NERT3.98S1	842522.48	26736678.95	1466.27	6/27/2019		10.67	1455.60
NERT3.98S1	842522.48	26736678.95	1466.27	6/29/2019	13:05	10.66	1455.61
NERT3.98S1	842522.48	26736678.95	1466.27	8/12/2019	10:00	10.58	1455.69
NERT4.21N1	841309.13	26736954.70	1502.07	9/7/2018	8:10	35.54	1466.53
NERT4.21N1	841309.13	26736954.70	1502.07	11/6/2018	9:08	35.54	1466.53
NERT4.21N1	841309.13	26736954.70	1502.07	1/9/2019	8:16	35.53	1466.54
NERT4.21N1	841309.13	26736954.70	1502.07	7/2/2019		35.38	1466.69
NERT4.21N1	841309.13	26736954.70	1502.07	8/13/2019	12:25	35.30	1466.77
NERT4.38N1	840337.59	26737140.64	1505.04	9/7/2018	7:15	32.85	1472.19
NERT4.38N1	840337.59	26737140.64	1505.04	11/7/2018	7:09	32.82	1472.22
NERT4.38N1	840337.59	26737140.64	1505.04	1/9/2019	8:41	32.72	1472.32
NERT4.38N1	840337.59	26737140.64	1505.04	7/2/2019		32.61	1472.43
NERT4.38N1	840337.59	26737140.64	1505.04	8/13/2019	12:45	32.55	1472.49
NERT4.51S1	840138.03	26735857.15	1506.24	9/7/2018	10:25	26.31	1479.93
NERT4.51S1	840138.03	26735857.15	1506.24	11/9/2018	10:57	26.30	1479.94
NERT4.51S1	840138.03	26735857.15	1506.24	1/9/2019	12:50	26.18	1480.06
NERT4.51S1	840138.03	26735857.15	1506.24	6/27/2019		26.17	1480.07
NERT4.51S1	840138.03	26735857.15	1506.24	8/12/2019	12:25	26.12	1480.12
NERT4.64N1	839271.62	26736269.47	1511.58	6/10/2019	15:00	23.18	1488.40
NERT4.64N1	839271.62	26736269.47	1511.58	7/2/2019	13:50	23.20	1488.38
NERT4.64N1	839271.62	26736269.47	1511.58	8/13/2019	13:25	23.09	1488.49
NERT4.64S1	839508.39	26735740.74	1513.00	8/12/2019	12:45	27.06	1485.94
NERT4.64S1	839508.39	26735740.74	1513.00	8/15/2019	8:45	27.08	1485.92
NERT4.65N1	839107.82	26736244.72	1513.01	6/10/2019	15:30	24.17	1488.84
NERT4.65N1	839107.82	26736244.72	1513.01	7/8/2019	12:40	24.19	1488.82
NERT4.65N1	839107.82	26736244.72	1513.01	8/13/2019	13:35	24.11	1488.90
NERT4.70N1	838871.67	26736143.64	1514.91	8/13/2019	13:45	24.94	1489.97
NERT4.71N1	838600.29	26736123.87	1518.72	8/13/2019	13:55	27.80	1490.92
NERT4.71S1	838991.63	26735349.66	1519.29	9/7/2018	11:10	28.86	1490.43
NERT4.71S1	838991.63	26735349.66	1519.29	11/9/2018	10:45	28.86	1490.43
NERT4.71S1	838991.63	26735349.66	1519.29	1/9/2019	12:37	28.81	1490.48
NERT4.71S1	838991.63	26735349.66	1519.29	7/1/2019		28.83	1490.46
NERT4.71S1	838991.63	26735349.66	1519.29	8/12/2019	13:00	28.72	1490.57
NERT4.71S2	838770.32	26735408.27	1518.22	8/12/2019	13:10	27.20	1491.02
NERT4.93S1	837979.18	26734990.31	1523.33	9/7/2018	11:50	27.57	1495.76
NERT4.93S1	837979.18	26734990.31	1523.33	11/9/2018	10:21	28.59	1494.74
NERT4.93S1	837979.18	26734990.31	1523.33	1/9/2019	12:25	27.66	1495.67
NERT4.93S1	837979.18	26734990.31	1523.33	7/1/2019		27.60	1495.73
NERT4.93S1	837979.18	26734990.31	1523.33	8/12/2019	13:25	27.46	1495.87
NERT5.11S1	837144.38	26734881.04	1522.88	9/7/2018	12:15	20.80	1502.08
NERT5.11S1	837144.38	26734881.04	1522.88	11/9/2018	10:06	20.92	1501.96
NERT5.11S1	837144.38	26734881.04	1522.88	1/9/2019	12:10	21.04	1501.84
NERT5.11S1	837144.38	26734881.04	1522.88	7/1/2019		20.81	1502.07

Table 4
Depth to Water Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Easting ⁽¹⁾	Northing ⁽¹⁾	Elevation ⁽¹⁾ (feet amsl, TOC)	Date Gauged	Time Gauged	Depth to Water (feet, TOC) ⁽²⁾	Groundwater Elevation (feet amsl)
NERT5.11S1	837144.38	26734881.04	1522.88	8/12/2019	13:50	20.73	1502.15
NERT5.49S1	835451.85	26734325.76	1543.37	9/6/2018	15:15	26.90	1516.47
NERT5.49S1	835451.85	26734325.76	1543.37	11/9/2018	9:31	27.19	1516.18
NERT5.49S1	835451.85	26734325.76	1543.37	1/9/2019	11:16	27.44	1515.93
NERT5.49S1	835451.85	26734325.76	1543.37	7/8/2019		26.71	1516.66
NERT5.49S1	835451.85	26734325.76	1543.37	8/12/2019	14:05	26.77	1516.60
NERT5.91S1	833571.59	26733845.83	1536.76	9/6/2018	14:15	12.85	1523.91
NERT5.91S1	833571.59	26733845.83	1536.76	11/7/2018	10:22	13.02	1523.74
NERT5.91S1	833571.59	26733845.83	1536.76	1/9/2019	11:01	13.98	1522.78
NERT5.91S1	833571.59	26733845.83	1536.76	7/1/2019		13.32	1523.44
NERT5.91S1	833571.59	26733845.83	1536.76	8/12/2019	14:45	13.29	1523.47
PC-74	829203.19	26734003.83	1565.32	4/30/2017	11:15	11.34	1553.98
PC-74	829203.19	26734003.83	1565.32	6/2/2017	10:26	11.57	1553.75
PC-74	829203.19	26734003.83	1565.32	7/11/2017	16:16	11.81	1553.51
PC-74	829203.19	26734003.83	1565.32	8/2/2017	13:46	11.49	1553.83
PC-74	829203.19	26734003.83	1565.32	9/6/2017	13:47	11.54	1553.78
PC-74	829203.19	26734003.83	1565.32	10/3/2017	13:49	11.35	1553.97
PC-74	829203.19	26734003.83	1565.32	11/1/2017	14:06	11.30	1554.02
PC-74	829203.19	26734003.83	1565.32	3/20/2018	14:50	10.77	1554.55
PC-74	829203.19	26734003.83	1565.32	5/9/2018	14:32	11.35	1553.97
PC-74	829203.19	26734003.83	1565.32	7/18/2018	13:07	11.61	1553.71
PC-74	829203.19	26734003.83	1565.32	9/5/2018	13:13	11.20	1554.12
PC-74	829203.19	26734003.83	1565.32	11/7/2018	8:34	10.95	1554.37
PC-74	829203.19	26734003.83	1565.32	1/9/2019	10:17	10.92	1554.40
PC-74	829203.19	26734003.83	1565.32	8/13/2019	9:45	11.37	1553.95
PC-77	829031.31	26733568.45	1566.86	4/30/2017	12:15	6.73	1560.13
PC-77	829031.31	26733568.45	1566.86	6/2/2017	9:01	7.10	1559.76
PC-77	829031.31	26733568.45	1566.86	7/12/2017	7:02	7.66	1559.20
PC-77	829031.31	26733568.45	1566.86	8/2/2017	14:20	7.10	1559.76
PC-77	829031.31	26733568.45	1566.86	9/6/2017	15:06	7.10	1559.76
PC-77	829031.31	26733568.45	1566.86	10/3/2017	14:57	6.84	1560.02
PC-77	829031.31	26733568.45	1566.86	11/1/2017	14:35	6.78	1560.08
PC-77	829031.31	26733568.45	1566.86	3/20/2018	15:28	5.58	1561.28
PC-77	829031.31	26733568.45	1566.86	5/9/2018	14:02	6.54	1560.32
PC-77	829031.31	26733568.45	1566.86	7/18/2018	12:38	6.93	1559.93
PC-77	829031.31	26733568.45	1566.86	9/5/2018	13:40	6.39	1560.47
PC-77	829031.31	26733568.45	1566.86	11/7/2018	8:51	5.96	1560.90
PC-77	829031.31	26733568.45	1566.86	1/9/2019	10:01	5.95	1560.91
PC-77	829031.31	26733568.45	1566.86	5/6/2019	7:42	6.39	1560.47
PC-77	829031.31	26733568.45	1566.86	5/7/2019	10:00	6.82	1560.04
PC-77	829031.31	26733568.45	1566.86	8/13/2019	9:25	6.64	1560.22
WMW3.5N	843836.97	26737791.35	1482.54	5/1/2017	11:00	35.62	1446.92
WMW3.5N	843836.97	26737791.35	1482.54	6/2/2017	12:08	35.65	1446.89
WMW3.5N	843836.97	26737791.35	1482.54	7/12/2017	9:10	35.65	1446.89
WMW3.5N	843836.97	26737791.35	1482.54	8/3/2017	8:31	35.61	1446.93
WMW3.5N	843836.97	26737791.35	1482.54	9/7/2017	8:10	35.49	1447.05
WMW3.5N	843836.97	26737791.35	1482.54	10/4/2017	Well Locked	--	--
WMW3.5N	843836.97	26737791.35	1482.54	11/2/2017	8:56	35.38	1447.16
WMW3.5N	843836.97	26737791.35	1482.54	3/21/2018	Well Locked	--	--
WMW3.5N	843836.97	26737791.35	1482.54	5/9/2018	Well Locked	--	--
WMW3.5N	843836.97	26737791.35	1482.54	7/17/2018	7:38	35.17	1447.37
WMW3.5N	843836.97	26737791.35	1482.54	9/5/2018	7:31	35.32	1447.22
WMW3.5N	843836.97	26737791.35	1482.54	11/5/2018	8:44	35.24	1447.30
WMW3.5N	843836.97	26737791.35	1482.54	1/10/2019	8:33	35.15	1447.39
WMW3.5N	843836.97	26737791.35	1482.54	2/26/2019		34.97	1447.57
WMW3.5N	843836.97	26737791.35	1482.54	5/29/2019		35.21	1447.33
WMW3.5N	843836.97	26737791.35	1482.54	7/5/2019		35.31	1447.23
WMW3.5N	843836.97	26737791.35	1482.54	8/13/2019	12:15	35.17	1447.37
WMW3.5S	844697.76	26737275.90	1483.54	5/2/2017	8:49	43.68	1439.86
WMW3.5S	844697.76	26737275.90	1483.54	6/1/2017	7:52	43.62	1439.92
WMW3.5S	844697.76	26737275.90	1483.54	7/11/2017	8:46	43.62	1439.92
WMW3.5S	844697.76	26737275.90	1483.54	8/2/2017	9:09	43.64	1439.90
WMW3.5S	844697.76	26737275.90	1483.54	9/6/2017	8:05	43.58	1439.96
WMW3.5S	844697.76	26737275.90	1483.54	10/3/2017	8:03	43.69	1439.85
WMW3.5S	844697.76	26737275.90	1483.54	11/1/2017	8:37	43.69	1439.85
WMW3.5S	844697.76	26737275.90	1483.54	3/20/2018	10:38	43.57	1439.97
WMW3.5S	844697.76	26737275.90	1483.54	5/10/2018	8:43	43.55	1439.99
WMW3.5S	844697.76	26737275.90	1483.54	7/16/2018	7:20	43.31	1440.23
WMW3.5S	844697.76	26737275.90	1483.54	9/6/2018	10:49	43.62	1439.92
WMW3.5S	844697.76	26737275.90	1483.54	11/6/2018	13:05	43.64	1439.90
WMW3.5S	844697.76	26737275.90	1483.54	1/9/2019	14:03	43.49	1440.05
WMW3.5S	844697.76	26737275.90	1483.54	6/28/2019		43.58	1439.96
WMW3.5S	844697.76	26737275.90	1483.54	8/13/2019	11:35	43.55	1439.99
WMW4.9N	838408.40	26736756.98	1523.37	5/1/2017	12:00	31.81	1491.56
WMW4.9N	838408.40	26736756.98	1523.37	6/1/2017	12:10	31.79	1491.58
WMW4.9N	838408.40	26736756.98	1523.37	7/12/2017	10:18	31.74	1491.63
WMW4.9N	838408.40	26736756.98	1523.37	8/3/2017	9:47	31.71	1491.66
WMW4.9N	838408.40	26736756.98	1523.37	9/7/2017	10:40	31.71	1491.66

Table 4
Depth to Water Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Easting ⁽¹⁾	Northing ⁽¹⁾	Elevation ⁽¹⁾ (feet amsl, TOC)	Date Gauged	Time Gauged	Depth to Water (feet, TOC) ⁽²⁾	Groundwater Elevation (feet amsl)
WMW4.9N	838408.40	26736756.98	1523.37	10/4/2017	10:16	31.74	1491.63
WMW4.9N	838408.40	26736756.98	1523.37	11/2/2017	9:55	31.75	1491.62
WMW4.9N	838408.40	26736756.98	1523.37	3/21/2018	9:28	31.96	1491.41
WMW4.9N	838408.40	26736756.98	1523.37	5/9/2018	7:46	32.10	1491.27
WMW4.9N	838408.40	26736756.98	1523.37	7/17/2018	11:37	31.58	1491.79
WMW4.9N	838408.40	26736756.98	1523.37	9/5/2018	8:26	31.76	1491.61
WMW4.9N	838408.40	26736756.98	1523.37	11/6/2018	10:13	31.75	1491.62
WMW4.9N	838408.40	26736756.98	1523.37	1/10/2019	9:18	31.76	1491.61
WMW4.9N	838408.40	26736756.98	1523.37	2/26/2019		31.62	1491.75
WMW4.9N	838408.40	26736756.98	1523.37	5/29/2019		31.68	1491.69
WMW4.9N	838408.40	26736756.98	1523.37	7/5/2019		31.80	1491.57
WMW4.9N	838408.40	26736756.98	1523.37	8/13/2019	14:15	31.71	1491.66
WMW4.9S	838411.85	26735290.15	1518.84	4/30/2017	14:36	26.45	1492.39
WMW4.9S	838411.85	26735290.15	1518.84	6/2/2017	8:01	26.42	1492.42
WMW4.9S	838411.85	26735290.15	1518.84	7/11/2017	11:16	26.41	1492.43
WMW4.9S	838411.85	26735290.15	1518.84	8/3/2017	12:12	26.36	1492.48
WMW4.9S	838411.85	26735290.15	1518.84	9/6/2017	10:16	26.35	1492.49
WMW4.9S	838411.85	26735290.15	1518.84	10/3/2017	10:23	26.36	1492.48
WMW4.9S	838411.85	26735290.15	1518.84	11/1/2017	12:01	26.39	1492.45
WMW4.9S	838411.85	26735290.15	1518.84	3/20/2018	12:25	26.61	1492.23
WMW4.9S	838411.85	26735290.15	1518.84	5/10/2018	12:46	26.77	1492.07
WMW4.9S	838411.85	26735290.15	1518.84	7/13/2018	12:31	26.20	1492.64
WMW4.9S	838411.85	26735290.15	1518.84	9/6/2018	12:10	26.40	1492.44
WMW4.9S	838411.85	26735290.15	1518.84	11/9/2018	10:33	26.42	1492.42
WMW4.9S	838411.85	26735290.15	1518.84	1/10/2019	14:33	26.38	1492.46
WMW4.9S	838411.85	26735290.15	1518.84	7/9/2019		26.45	1492.39
WMW4.9S	838411.85	26735290.15	1518.84	8/15/2019	9:25	26.34	1492.50
WMW5.58S	834576.71	26733888.85	1537.34	5/9/2018	15:20	18.04	1519.30
WMW5.58S	834576.71	26733888.85	1537.34	7/13/2018	10:50	16.60	1520.74
WMW5.58S	834576.71	26733888.85	1537.34	9/6/2018	13:40	17.04	1520.30
WMW5.58S	834576.71	26733888.85	1537.34	11/9/2018	9:19	17.10	1520.24
WMW5.58S	834576.71	26733888.85	1537.34	1/10/2019	12:53	17.15	1520.19
WMW5.58S	834576.71	26733888.85	1537.34	7/3/2019		16.87	1520.47
WMW5.58S	834576.71	26733888.85	1537.34	8/13/2019	10:10	16.85	1520.49
WMW5.58SI	835070.11	26734647.03	1526.08	4/29/2017	11:45	9.38	1516.70
WMW5.58SI	835070.11	26734647.03	1526.08	6/2/2017	8:16	9.31	1516.77
WMW5.58SI	835070.11	26734647.03	1526.08	7/11/2017	14:16	9.34	1516.74
WMW5.58SI	835070.11	26734647.03	1526.08	8/2/2017	10:46	9.45	1516.63
WMW5.58SI	835070.11	26734647.03	1526.08	9/6/2017	11:40	9.63	1516.45
WMW5.58SI	835070.11	26734647.03	1526.08	10/3/2017	10:54	9.74	1516.34
WMW5.58SI	835070.11	26734647.03	1526.08	11/1/2017	12:46	9.84	1516.24
WMW5.58SI	834576.71	26733888.85	1537.34	1/25/2018	Well WMW5.58SI destroyed, replaced by WMW5.58S		
WMW5.5S	835768.11	26733971.74	1528.22	4/29/2017	10:30	14.69	1513.53
WMW5.5S	835768.11	26733971.74	1528.22	6/1/2017	9:46	14.71	1513.51
WMW5.5S	835768.11	26733971.74	1528.22	7/11/2017	12:55	14.71	1513.51
WMW5.5S	835768.11	26733971.74	1528.22	8/2/2017	11:31	14.64	1513.58
WMW5.5S	835768.11	26733971.74	1528.22	9/6/2017	10:35	14.71	1513.51
WMW5.5S	835768.11	26733971.74	1528.22	10/3/2017	11:22	14.67	1513.55
WMW5.5S	835768.11	26733971.74	1528.22	11/1/2017	12:31	14.78	1513.44
WMW5.5S	835768.11	26733971.74	1528.22	3/20/2018	13:01	15.91	1512.31
WMW5.5S	835768.11	26733971.74	1528.22	5/9/2018	15:38	16.56	1511.66
WMW5.5S	835768.11	26733971.74	1528.22	7/13/2018	9:46	13.55	1514.67
WMW5.5S	835768.11	26733971.74	1528.22	9/5/2018	14:07	14.16	1514.06
WMW5.5S	835768.11	26733971.74	1528.22	11/9/2018	9:55	14.20	1514.02
WMW5.5S	835768.11	26733971.74	1528.22	1/9/2019	11:31	14.45	1513.77
WMW5.5S	835768.11	26733971.74	1528.22	2/25/2019		13.86	1514.36
WMW5.5S	835768.11	26733971.74	1528.22	6/28/2019		13.89	1514.33
WMW5.5S	835768.11	26733971.74	1528.22	8/12/2019	14:20	13.96	1514.26
WMW5.7N	834471.76	26734425.52	1528.50	5/1/2017	14:22	8.29	1520.21
WMW5.7N	834471.76	26734425.52	1528.50	6/2/2017	11:46	8.36	1520.14
WMW5.7N	834471.76	26734425.52	1528.50	7/12/2017	11:16	8.22	1520.28
WMW5.7N	834471.76	26734425.52	1528.50	8/3/2017	10:16	8.32	1520.18
WMW5.7N	834471.76	26734425.52	1528.50	9/7/2017	11:21	8.46	1520.04
WMW5.7N	834471.76	26734425.52	1528.50	10/4/2017	Well Locked	--	--
WMW5.7N	834471.76	26734425.52	1528.50	11/2/2017	10:22	8.61	1519.89
WMW5.7N	834471.76	26734425.52	1528.50	3/21/2018	10:05	9.07	1519.43
WMW5.7N	834471.76	26734425.52	1528.50	5/9/2018	8:05	9.51	1518.99
WMW5.7N	834471.76	26734425.52	1528.50	7/17/2018	13:10	8.36	1520.14
WMW5.7N	834471.76	26734425.52	1528.50	9/5/2018 ⁽⁵⁾	8:50	5.58	1522.92
WMW5.7N	834471.76	26734425.52	1528.50	11/6/2018	10:56	8.69	1519.81
WMW5.7N	834471.76	26734425.52	1528.50	1/10/2019	9:39	8.74	1519.76
WMW5.7N	834471.76	26734425.52	1528.50	2/26/2019		8.25	1520.25
WMW5.7N	834471.76	26734425.52	1528.50	5/29/2019		8.23	1520.27
WMW5.7N	834471.76	26734425.52	1528.50	7/9/2019		8.42	1520.08
WMW5.7N	834471.76	26734425.52	1528.50	8/13/2019	14:45	8.41	1520.09
WMW6.15N	832493.06	26735359.77	1552.55	5/1/2017	15:12	22.35	1530.20
WMW6.15N	832493.06	26735359.77	1552.55	6/1/2017	12:40	22.54	1530.01

Table 4
Depth to Water Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Well ID	Easting ⁽¹⁾	Northing ⁽¹⁾	Elevation ⁽¹⁾ (feet amsl, TOC)	Date Gauged	Time Gauged	Depth to Water (feet, TOC) ⁽²⁾	Groundwater Elevation (feet amsl)
WMW6.15N	832493.06	26735359.77	1552.55	7/12/2017	11:55	22.52	1530.03
WMW6.15N	832493.06	26735359.77	1552.55	8/3/2017	10:46	22.37	1530.18
WMW6.15N	832493.06	26735359.77	1552.55	9/7/2017	12:01	22.61	1529.94
WMW6.15N	832493.06	26735359.77	1552.55	10/4/2017	Well Locked	--	--
WMW6.15N	832493.06	26735359.77	1552.55	11/2/2017	10:46	22.72	1529.83
WMW6.15N	832493.06	26735359.77	1552.55	3/21/2018	10:40	22.77	1529.78
WMW6.15N	832493.06	26735359.77	1552.55	5/9/2018	8:22	23.08	1529.47
WMW6.15N	832493.06	26735359.77	1552.55	7/18/2018	7:32	22.62	1529.93
WMW6.15N	832493.06	26735359.77	1552.55	9/5/2018	9:07	22.39	1530.16
WMW6.15N	832493.06	26735359.77	1552.55	11/6/2018	11:24	22.53	1530.02
WMW6.15N	832493.06	26735359.77	1552.55	1/10/2019	9:58	22.95	1529.60
WMW6.15N	832493.06	26735359.77	1552.55	8/13/2019	15:35	22.85	1529.70
WMW6.15S	832119.74	26734098.93	1545.08	3/20/2018	14:22	7.90	1537.18
WMW6.15S	832119.74	26734098.93	1545.08	5/9/2018	15:05	8.99	1536.09
WMW6.15S	832119.74	26734098.93	1545.08	7/18/2018	14:05	9.03	1536.05
WMW6.15S	832119.74	26734098.93	1545.08	9/5/2018	12:50	9.19	1535.89
WMW6.15S	832119.74	26734098.93	1545.08	11/7/2018	9:25	10.11	1534.97
WMW6.15S	832119.74	26734098.93	1545.08	1/9/2019	10:39	9.63	1535.45
WMW6.55S	830218.73	26734351.02	1559.25	4/30/2017	9:13	16.00	1543.25
WMW6.55S	830218.73	26734351.02	1559.25	6/2/2017	10:38	16.09	1543.16
WMW6.55S	830218.73	26734351.02	1559.25	7/11/2017	15:46	16.08	1543.17
WMW6.55S	830218.73	26734351.02	1559.25	8/2/2017	13:28	16.00	1543.25
WMW6.55S	830218.73	26734351.02	1559.25	9/6/2017	13:05	16.09	1543.16
WMW6.55S	830218.73	26734351.02	1559.25	10/3/2017	14:25	15.94	1543.31
WMW6.55S	830218.73	26734351.02	1559.25	11/1/2017	14:24	15.91	1543.34
WMW6.55S	830218.73	26734351.02	1559.25	3/20/2018	14:38	16.65	1542.60
WMW6.55S	830218.73	26734351.02	1559.25	5/9/2018	14:47	16.78	1542.47
WMW6.55S	830218.73	26734351.02	1559.25	7/18/2018	13:31	16.96	1542.29
WMW6.55S	830218.73	26734351.02	1559.25	9/5/2018	13:01	6.10	1553.15
WMW6.55S	830218.73	26734351.02	1559.25	11/7/2018	9:13	16.21	1543.04
WMW6.55S	830218.73	26734351.02	1559.25	1/10/2019	13:27	16.12	1543.13
WMW6.55S	830218.73	26734351.02	1559.25	2/25/2019		16.28	1542.97
WMW6.55S	830218.73	26734351.02	1559.25	5/28/2019		16.34	1542.91
WMW6.55S	830218.73	26734351.02	1559.25	8/13/2019	8:35	16.45	1542.80
WMW6.9N	828913.10	26735560.65	1573.16	5/1/2017	15:50	18.21	1554.95
WMW6.9N	828913.10	26735560.65	1573.16	6/2/2017	11:31	18.26	1554.90
WMW6.9N	828913.10	26735560.65	1573.16	7/12/2017	12:32	18.13	1555.03
WMW6.9N	828913.10	26735560.65	1573.16	8/3/2017	11:03	18.20	1554.96
WMW6.9N	828913.10	26735560.65	1573.16	9/7/2017	12:36	18.22	1554.94
WMW6.9N	828913.10	26735560.65	1573.16	10/4/2017	11:01	18.20	1554.96
WMW6.9N	828913.10	26735560.65	1573.16	11/2/2017	11:02	18.23	1554.93
WMW6.9N	828913.10	26735560.65	1573.16	3/21/2018	11:10	18.05	1555.11
WMW6.9N	828913.10	26735560.65	1573.16	5/9/2018	8:47	18.15	1555.01
WMW6.9N	828913.10	26735560.65	1573.16	7/18/2018	7:46	18.21	1554.95
WMW6.9N	828913.10	26735560.65	1573.16	9/5/2018	9:21	18.23	1554.93
WMW6.9N	828913.10	26735560.65	1573.16	11/6/2018	11:41	18.16	1555.00
WMW6.9N	828913.10	26735560.65	1573.16	1/10/2019	10:16	18.05	1555.11
WMW6.9N	828913.10	26735560.65	1573.16	2/26/2019		18.03	1555.13
WMW6.9N	828913.10	26735560.65	1573.16	5/29/2019		18.23	1554.93
WMW6.9N	828913.10	26735560.65	1573.16	8/13/2019	15:20	18.26	1554.90
WMW6.9S	828430.55	26734539.19	1570.60	4/30/2017	9:55	11.04	1559.56
WMW6.9S	828430.55	26734539.19	1570.60	6/1/2017	15:55	11.21	1559.39
WMW6.9S	828430.55	26734539.19	1570.60	7/12/2017	7:35	11.46	1559.14
WMW6.9S	828430.55	26734539.19	1570.60	8/2/2017	14:02	11.02	1559.58
WMW6.9S	828430.55	26734539.19	1570.60	9/6/2017	14:20	10.96	1559.64
WMW6.9S	828430.55	26734539.19	1570.60	10/3/2017	13:09	10.85	1559.75
WMW6.9S	828430.55	26734539.19	1570.60	11/1/2017	13:50	10.88	1559.72
WMW6.9S	828430.55	26734539.19	1570.60	3/20/2018	15:11	10.38	1560.22
WMW6.9S	828430.55	26734539.19	1570.60	5/9/2018	14:17	10.79	1559.81
WMW6.9S	828430.55	26734539.19	1570.60	7/18/2018	12:52	10.83	1559.77
WMW6.9S	828430.55	26734539.19	1570.60	9/5/2018	13:26	10.58	1560.02
WMW6.9S	828430.55	26734539.19	1570.60	11/7/2018	8:17	10.57	1560.03
WMW6.9S	828430.55	26734539.19	1570.60	1/10/2019	13:46	10.42	1560.18
WMW6.9S	828430.55	26734539.19	1570.60	8/13/2019	9:05	10.81	1559.79

Notes:

(1) Well coordinates and elevations surveyed by licensed surveyor (Stanley). Coordinate system: State Plane Coordinate System; Elevations are referenced to the North American Datum (NAD) 83 Nevada East Zone (2701) with vertical datum based on NAVD 88 referenced to the City of Henderson Benchmark network.

(2) McGinley & Associates, Inc., conducted a groundwater sampling event from May 22 through 25, 2017, during which wells MW-13 and MW-20 were sampled. Hence, transducer data from this period may not accurately reflect static groundwater conditions.

(3) A 2.8-foot elevation increase was measured on September 5, 2018. This change in elevation was not recorded by the transducer; therefore, the manual groundwater data may be erroneous.

amsl = above mean sea level

TOC = top of casing

-- = Data not collected due to locked well or other access issue.

Table 5
Surface Water Transducer Installation Information
 NERT RI - Downgradient Study Area
 Henderson, Nevada

Gage ID	Mark Surveyed	Elevation	Time on 5/10/2018	Gage Height on 5/10/2018	Surface Water Elevation on 5/10/2018	Compensated Transducer Reading on 5/10/2018	Estimated Transducer Elevation
--	(ft)	(ft)	--	(ft)	(ft msl)	(ft)	(ft msl)
S 3.80	2	1454.54	9:20	1.20	1453.7	1.14	1452.6
S 3.75	2	1437.88	9:45	1.08	1437.0	1.04	1435.9
S 3.50	2	1437.71	10:05	0.78	1436.5	0.94	1435.5
S 4.60	2	1473.79	10:45	0.95	1472.7	0.87	1471.9
S 4.65	5	1486.43	11:00	4.22	1485.7	1.44	1484.2
S 4.75	5	1486.53	11:25	4.10	1485.6	0.69	1484.9
S 5.30	2	1511.00	11:50	1.40	1510.4	1.78	1508.6

Notes:

ft = feet

msl = mean sea level

Table 6
Summary of Groundwater Hydrograph and Temperature Graph Observations
April 2017 to January 2019
NERT RI - Downgradient Study Area
Henderson Nevada

Well ID	Groundwater Levels	Appearance of Groundwater Hydrograph	Decrease in Water Elevations January to June 2018	Statistical Trend in Groundwater Elevations (Nov. 2017-Aug. 2019)	Storm Peaks Visible	Temperature	Approx. Temperature Range (in degrees Fahrenheit)
AA-30	Storm surge detected with notable peaks; small daily fluctuations, groundwater fluctuates 3.4 feet over monitoring period.	Irregular	Yes	Increasing Trend	Yes - Large	General decrease of 1.1 degrees Fahrenheit since April 2017	73.0 - 74.1
COH-2B1	Storm surge detected with very notable peaks; small daily fluctuations; groundwater fluctuates 1.6 feet over monitoring period.	Irregular	Yes	Decreasing Trend	Yes - Large	Small seasonal variation Increase - August through December Decrease - January through July	71.4 - 74.0
LNDMW1	Storm surge detected with very notable peaks; small daily fluctuations; groundwater has a 0.5-foot increase over monitoring period.	Increase	No	Increasing Trend	Yes - Large	Slow gradual decrease since April 2017	74 - 74.5
LNDMW2	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period but increases at end.	Increase	No	Increasing Trend	Yes - Medium	Seasonal variation Increase - May through September Decrease - April through September	71.9-74.7
MW-13	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period except for a decrease in elevation January to June 2018 followed by a recovery.	Large fluctuations over longer time periods	Yes	Decreasing Trend	Yes - Large	Seasonal variation Increase - October through March Decrease - April through September	72.2 - 73.6
MW-20	Storm surge detected with notable peaks; small daily fluctuations; groundwater elevation increases 0.35 foot over monitoring period.	Increase	Yes	Increasing Trend	Yes - Medium	Relatively steady over monitoring period	74.5 - 74.8
NERT3.35S1	Small daily fluctuations with one major jump in early July 2019.	Stable, with one significant jump	NA	Increasing Trend (June 2019 - August 2019)	Yes	Relatively steady over monitoring period	78.5
NERT3.40S1	Small daily fluctuations but stable over monitoring period.	Stable	NA	Increasing Trend (June 2019 - August 2019)	No	Relatively steady over monitoring period	77.2
NERT3.58N1	Moderate daily fluctuations but stable over monitoring period.	Stable	NA	Decreasing Trend (June 2019 - August 2019)*	No	Relatively steady over monitoring period except for one jump	75.0-75.4
NERT3.60N1	Moderate daily fluctuations but stable over monitoring period.	Stable	NA	Decreasing Trend (June 2019 - August 2019)	No	Relatively steady over monitoring period	73.8-74.0
NERT3.63S1	Moderate daily fluctuations but stable over monitoring period.	Stable	NA	Increasing Trend (June 2019 - August 2019)	No	Relatively steady over monitoring period	72.5-72.8
NERT3.80S1	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period.	Stable	No	Decreasing Trend (September 2018 - August 2019)	Yes - Large	Seasonal (summer to winter) variation of approximately 14 degrees Fahrenheit.	66.2-80
NERT3.98S1	Small daily fluctuations, stable over monitoring period, no storm peaks visible.	Stable/slight increase	NA	Increasing Trend (June 2019 - August 2019)		Relatively steady over monitoring period	71.8-72.0
NERT4.21N1	Storm surge detected, peaks are small to large; small daily fluctuations; groundwater shows moderate increase in elevation over monitoring period.	Stable/moderate increase	NA	Increasing Trend (September 2018 - August 2019)	Yes	Seasonal 2 degree variation in temperature from summer to winter	73-75
NERT4.38N1	Storm surge detected, peaks are small to large; small daily fluctuations; groundwater shows moderate increase in elevation over monitoring period.	Stable/moderate increase	NA	Increasing Trend (September 2018 - August 2019)	Yes	Steady - slight seasonal variation	72.0 - 72.1
NERT4.51S1	Storm surge detected, peaks are small to large; small daily fluctuations; groundwater shows moderate increase in elevation over monitoring period.	Stable/moderate increase	NA	Increasing Trend (September 2018 - August 2019)	Yes	Steady - slight seasonal variation	73.6-73.8

Table 6
Summary of Groundwater Hydrograph and Temperature Graph Observations
April 2017 to January 2019
NERT RI - Downgradient Study Area
Henderson Nevada

Well ID	Groundwater Levels	Appearance of Groundwater Hydrograph	Decrease in Water Elevations January to June 2018	Statistical Trend in Groundwater Elevations (Nov. 2017-Aug. 2019)	Storm Peaks Visible	Temperature	Approx. Temperature Range (in degrees Fahrenheit)
NERT4.64N1	Small daily fluctuations, stable over monitoring period, no storm peaks visible.	Stable/slight increase	NA	Increasing Trend (June 2019 - August 2019)		Relatively steady over monitoring period	73
NERT4.65N1	Moderate daily fluctuations but stable over monitoring period, no storm peaks visible. Moderate increase in groundwater elevation over monitoring period.	Stable	NA	Increasing Trend (June 2019 - August 2019)	No	Relatively steady over monitoring period	73.2-73.3
NERT4.70N1	Moderate daily fluctuations but stable over monitoring period, no storm peaks visible. Moderate increase in groundwater elevation over monitoring period.	Stable/ Moderate increase	NA	Increasing Trend (June 2019 - August 2019)	No	Steady decrease over monitoring period	71.2 - 72.5
NERT4.71S1	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period.	Stable / Moderate increase in second half of monitoring period	NA	Increasing Trend (September 2018 - August 2019)	Yes - Medium	Steady - slight seasonal variation	72.9 - 73.3
NERT4.71S2	Moderate daily fluctuations but stable over monitoring period, no storm peaks visible. Moderate increase in groundwater elevation over monitoring period.	Stable/ Moderate increase	NA	Increasing Trend (June 2019 - August 2019)	No	Steady	73.9-74
NERT4.93S1	Storm surge detected, peaks are small to large; small daily fluctuations; groundwater relatively stable over monitoring period but displays gradual increasing trend.	Stable/ Moderate increase	NA	Decreasing Trend (September 2018 - August 2019)	Yes	Seasonal variation	71.9 - 74.5
NERT5.11S1	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period with a general increase during the second half of the monitoring period.	Stable	No	Increasing Trend (September 2018 - August 2019)	Yes - Large	Irregular increase and decrease offset from expected seasonal trends	72.9 - 74.5
NERT5.49S1	Storm surge detected, peaks are small to large; small daily fluctuations; gradual decreases in groundwater elevation followed by rapid increases.	Large fluctuations - steady decreases and abrupt increases	NA	Increasing Trend (September 2018 - August 2019)	Yes - Large	Large seasonal variation	63.5-85.5
NERT5.91S1	Storm surge detected with very notable peaks; small daily fluctuations, groundwater relatively stable over monitoring period with a gradual decrease.	Stable	No	Decreasing Trend	Yes - Large	Slight seasonal variation	72.7 - 73.3
PC-74	Storm surge detected; peaks are small; lots of gradual fluctuations over monitoring period; small daily fluctuations.	Gradual fluctuations	Yes	Increasing Trend	Yes - Medium	Seasonal variation Increase - October through January Decrease - February through September	71-72.1
PC-77	Storm surge peaks not obvious; Frequent fluctuations over monitoring period.	Frequent gradual to abrupt fluctuations, overall irregular	Yes	Increasing Trend	Yes - Small and somewhat obscured by other water level fluctuations	Seasonal variation Increase - August through December Decrease - January through July	73.0-74.8
WMW3.5N	Storm surge detected; peaks are small and show a slight delay (1-2 days) in response to storm; small daily fluctuations; gradual increase in groundwater elevations of 0.5 foot over monitoring period	Gradual increase	No	Increasing Trend	Yes - Small	Relatively steady over monitoring period	73.5 - 73.6
WMW3.5S	Storm surge detected with very notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period.	Stable	No	Increasing Trend	Yes - Large	Seasonal variation Increase - June through October Decrease - November through May	71.8 - 75.3
WMW4.9N	Storm surge detected with notable peaks; small daily fluctuations; groundwater elevation is overall stable except a decrease from January to June 2018.	Stable	Yes	Increasing Trend	Yes - Large	Seasonal variation Increase - November through May Decrease - May through November	72.8 - 73.2

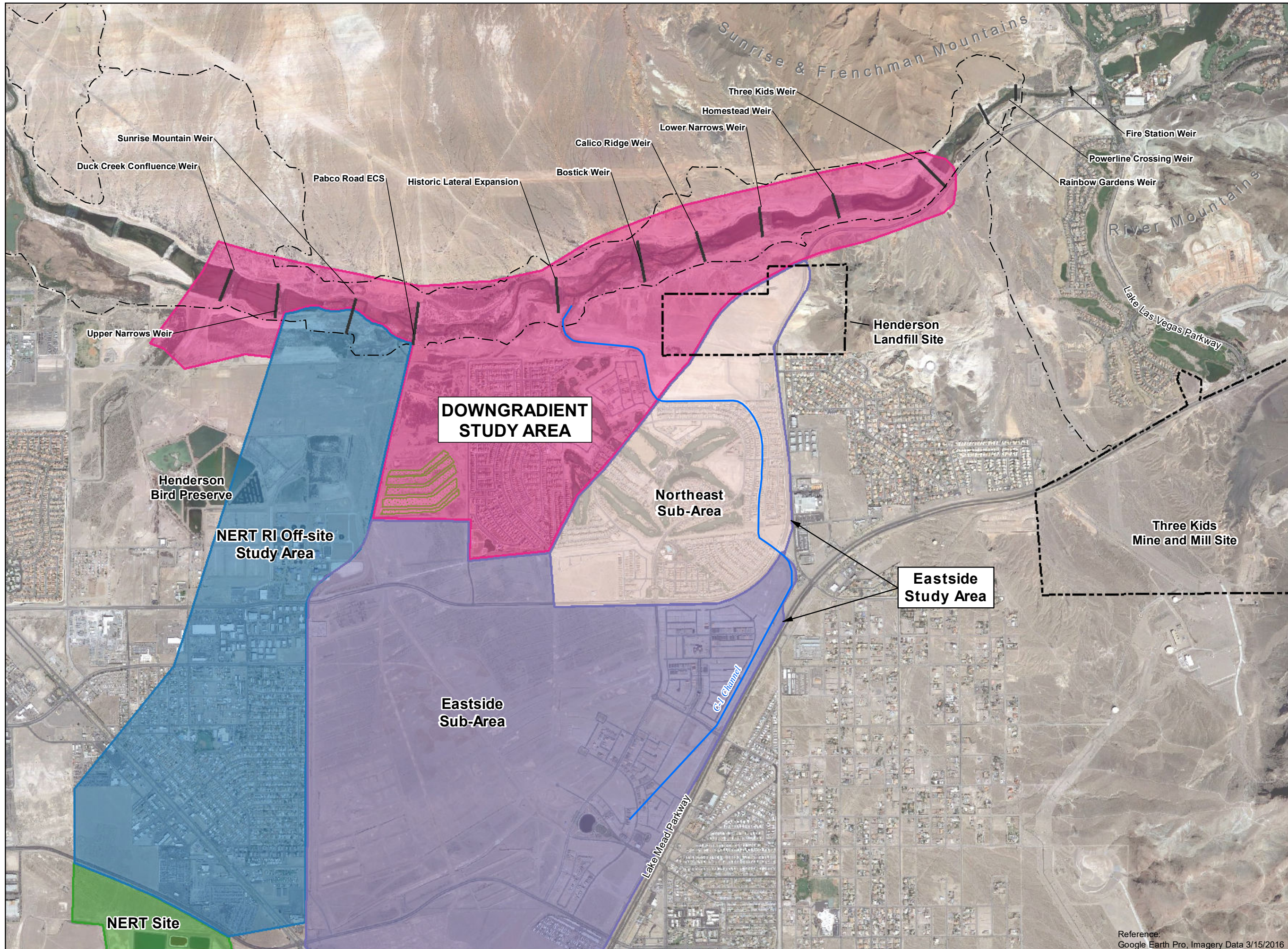
Table 6
Summary of Groundwater Hydrograph and Temperature Graph Observations
April 2017 to January 2019
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Groundwater Levels	Appearance of Groundwater Hydrograph	Decrease in Water Elevations January to June 2018	Statistical Trend in Groundwater Elevations (Nov. 2017-Aug. 2019)	Storm Peaks Visible	Temperature	Approx. Temperature Range (in degrees Fahrenheit)
WMW4.9S	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period with a decrease and recovery in the middle of the monitoring period.	Stable	Yes	Decreasing Trend	Yes - Large	Seasonal variation Increase - July through December Decrease - January through June	71.0 - 77.0
WMW5.5S	Storm surge detected with notable peaks; small daily fluctuations; groundwater shows gradual increase after a decreasing trend from January to June of 2018.	Stable	Yes	Increasing Trend	Yes - Large	Seasonal variation Increase - June through December Decrease - December through June	69.2 - 77.8
WMW5.58S	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period.	Stable	Transducer was not installed in this well until September 6, 2018	Increasing Trend	Yes - Small	Seasonal variation - Increase September 2018 to January 2019, Decrease January 2019 to August 2019	71.6 - 73.2
WMW5.58SI	Storm surge detected with notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period.	Stable	Well was destroyed in early 2019	Trend test was not run because the well was destroyed	Yes - Large	Seasonal variation - increase April to August, decrease September to January	69 - 85
WMW5.7N	Storm surge detected with very notable peaks; small daily fluctuations; groundwater stable except a decrease from January to June 2018.	Stable	Yes	Insufficient evidence of statistically significant trend	Yes - Large	Seasonal variation Increase - February through August Decrease - September through January	60.6 - 86
WMW6.15N	Storm surge detected, peaks are small; lots of gradual fluctuations in groundwater levels; small daily fluctuations.	Significant but gradual fluctuations that appear to follow seasonal trends	Yes	Decreasing Trend	Yes - Small	Subtle seasonal variations Increase - November through April Decrease - May through October	71.9 - 72.4
WMW6.15S	Storm surge detected with notable peaks; transducer did not record continuously; moderate daily fluctuations. Transducer problems impact data quality throughout 2018 and 2019.	Stable	No	Transducer malfunctioned so data is not available Oct 2018 - 2019	Yes - Large	Seasonal variation Increase - November through April Decrease - May through October	65.5 - 74.1
WMW6.55S	Storm surge detected with very notable peaks; moderate daily fluctuations; groundwater relatively stable over monitoring period.	Stable	Yes	Decreasing Trend	Yes - Large	Seasonal variation Increase - October through March Decrease - April through September	71.8 - 72.7
WMW6.9N	Storm surge detected with very notable peaks; small daily fluctuations; groundwater relatively stable over monitoring period and exhibits moderate seasonal fluctuations.	Stable	Yes - Slight	Decreasing Trend	Yes - Large	Seasonal variation Increase - October through March Decrease - April through September	71.9 - 72.9
WMW6.9S	Storm surge detected with very notable peaks; small daily fluctuations; groundwater gradually increasing over monitoring period.	Small increase (0.4 foot) from start to end of monitoring period	Yes	Increasing Trend	Yes - Large	Seasonal variation Increase - October through March Decrease - April through September	68.7 - 69.9

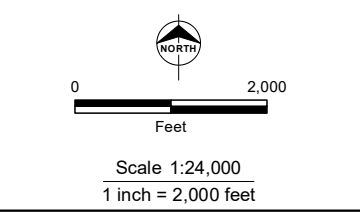
General Observations

Most wells show relatively stable groundwater elevations over the monitoring period with some wells showing sharp increases in elevation due to storm surges. Some wells show notable increases and decreases in groundwater levels between January 2018 and August 2018, while active dewatering for weir construction occurred. Wells with notable increases and decreases in groundwater levels between January 2018 and August 2018 are located upstream of Calico Ridge Weir. Wells with 9+ degrees Fahrenheit change in temperature are located between Pabco Road ECS and Historical Lateral Expansion and upgradient of Three Kids Weir.
 * Trend may be biased by incompletely adjusted transducer record.

Figures



- Legend**
- Wetlands Trail
 - Channels
 - Northern Rapid Infiltration Basins
 - Downgradient Study Area
 - NERT Eastside Study Area
 - BRC Eastside Sub-Area
 - Northeast Sub-Area
 - Off-Site NERT RI Study Area
 - NERT Site



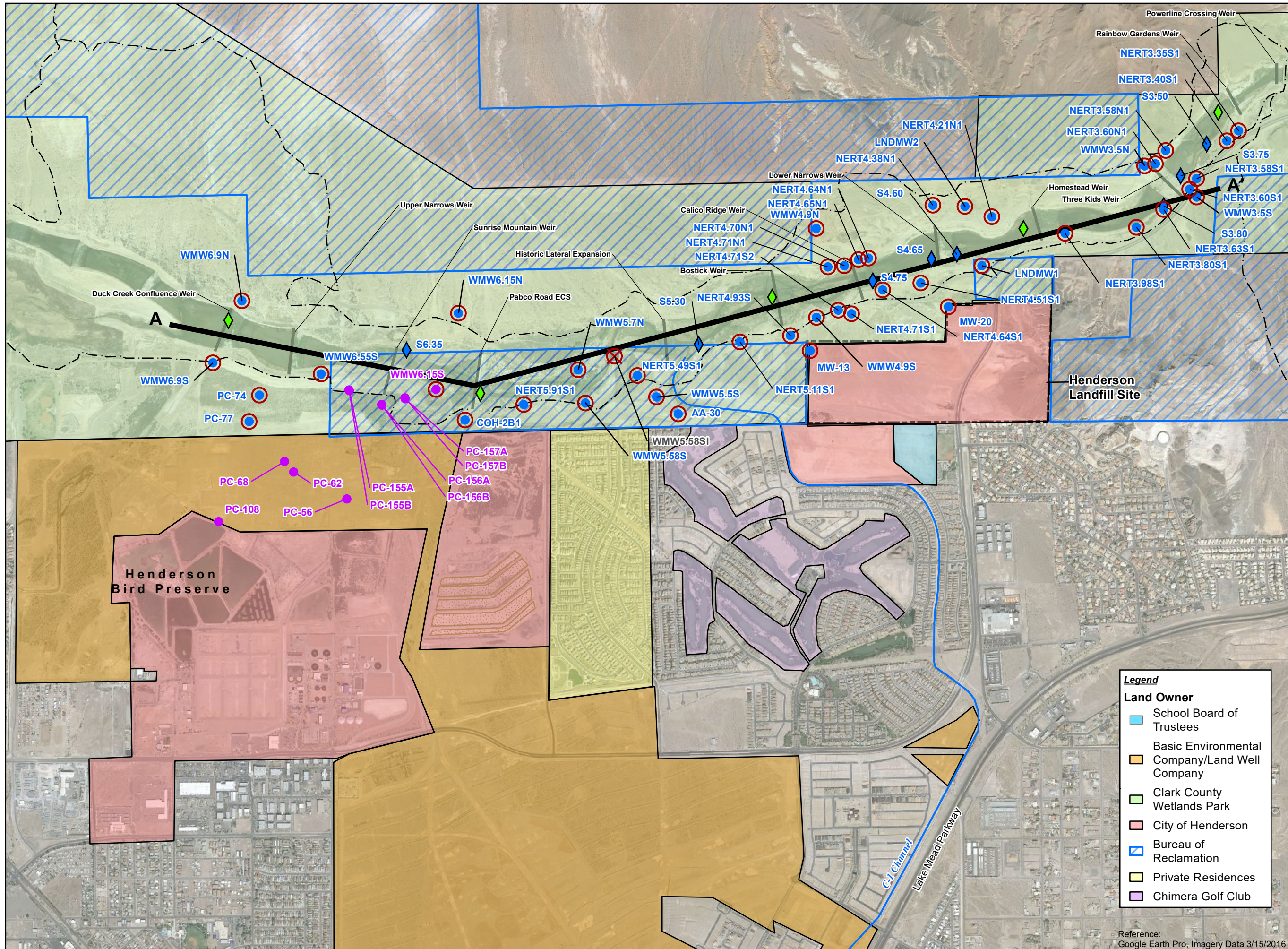
NERT
Downgradient Study Area

**DOWNGRADIENT
STUDY AREA
LOCATION MAP**

Date: 9/20/2019 Project: 60477365

Reference:
Google Earth Pro, Imagery Data 3/15/2016

AECOM Figure 1



Legend

- Location of Transducer Installation in Existing Well
- NERT Transducer Well Included in AECOM Study
- NERT Transducer Well
- ✗ Transducer Removed and Well Destroyed on 1/25/2018
- ◆ Approximate Location of Permanent USGS Stream Gage
- ◆ Approximate Location of Staff Gage Installation
- Wetlands Trail
- C-1 Channel
- Northern Rapid Infiltration Basins
- A A'** Cross Section Line

Note:
 In August 2017 the transducers in wells PC-62, PC-68 and PC-108 were removed. One of these transducers was installed in well PC-56.

0 1,500
 Feet
 Scale 1:18,000
 1 inch = 1,500 feet

Legend

Land Owner

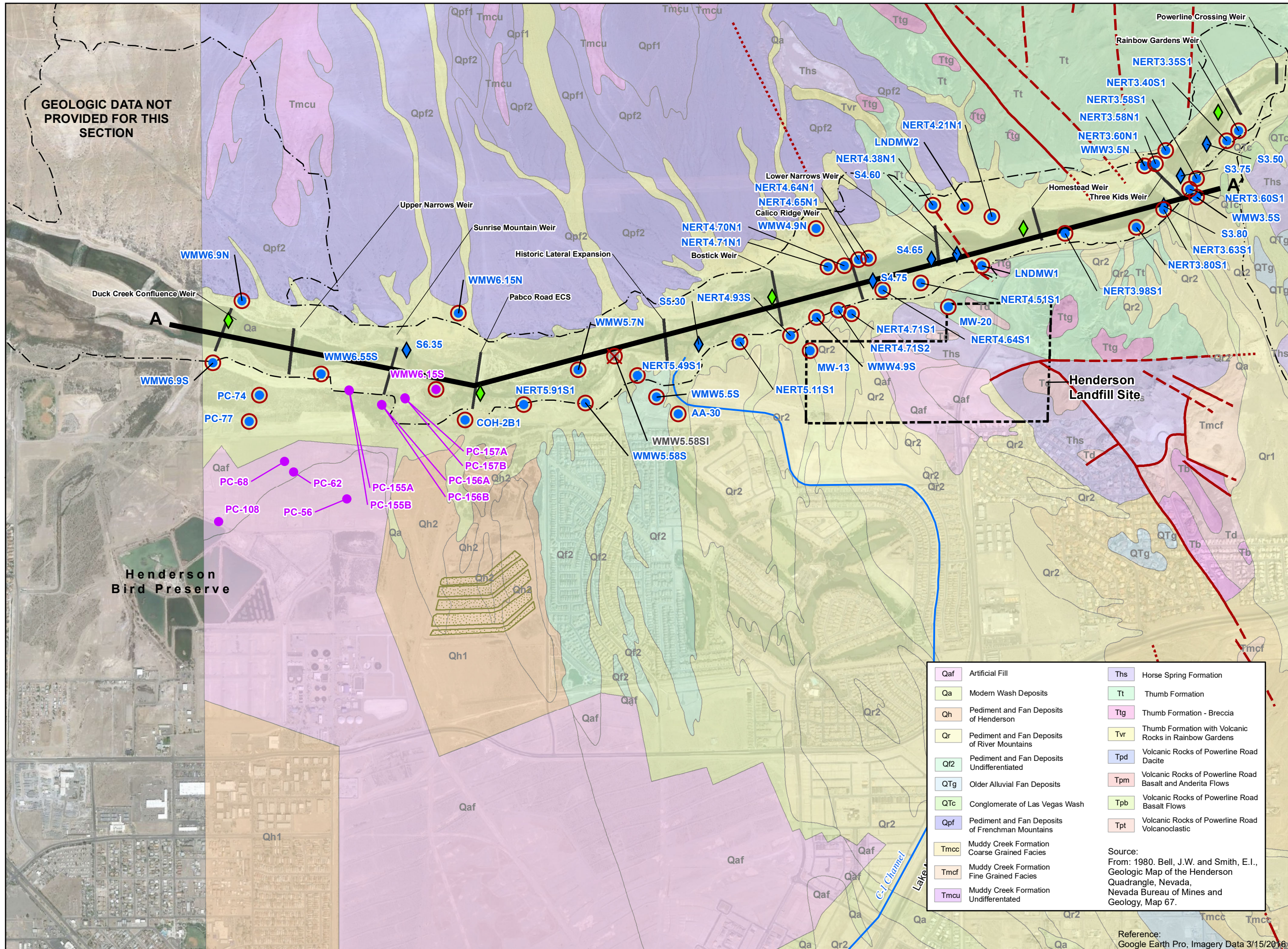
- School Board of Trustees
- Basic Environmental Company/Land Well Company
- Clark County Wetlands Park
- City of Henderson
- Bureau of Reclamation
- Private Residences
- Chimera Golf Club

NERT Downgradient Study Area

TRANSDUCER LOCATIONS AND LAND OWNERSHIP

Date: 10/15/2019 Project: 60477365

AECOM **Figure 2**



GEOLOGIC DATA NOT PROVIDED FOR THIS SECTION



Legend

- Location of Transducer Installation in Existing Well
- NERT Transducer Well Included in AECOM Study
- NERT Transducer Well
- ⊗ Transducer Removed and Well Destroyed on 1/25/2018
- ◆ Approximate Location of Permanent USGS Stream Gage
- ◆ Approximate Location of Staff Gage Installation
- Wetlands Trail
- C-1 Channel
- ▨ Northern Rapid Infiltration Basins
- Cross Section Line
- Fault, dashed where inferred, dotted where concealed

Note:
In August 2017 the transducers in wells PC-62, PC-68 and PC-108 were removed. One of these transducers was installed in well PC-56.

0 1,500
Feet
Scale 1:18,000
1 inch = 1,500 feet

Qaf	Artificial Fill	Ths	Horse Spring Formation
Qa	Modern Wash Deposits	Tt	Thumb Formation
Qh	Pediment and Fan Deposits of Henderson	Ttg	Thumb Formation - Breccia
Qr	Pediment and Fan Deposits of River Mountains	Tvr	Thumb Formation with Volcanic Rocks in Rainbow Gardens
Qf2	Pediment and Fan Deposits Undifferentiated	Tpd	Volcanic Rocks of Powerline Road Dacite
QTg	Older Alluvial Fan Deposits	Tpm	Volcanic Rocks of Powerline Road Basalt and Anderita Flows
QTc	Conglomerate of Las Vegas Wash	Tpb	Volcanic Rocks of Powerline Road Basalt Flows
Qpf	Pediment and Fan Deposits of Frenchman Mountains	Tpt	Volcanic Rocks of Powerline Road Volcanoclastic
Tmcc	Muddy Creek Formation Coarse Grained Facies		
Tmcf	Muddy Creek Formation Fine Grained Facies		
Tmcs	Muddy Creek Formation Undifferentiated		

Source:
From: 1980. Bell, J.W. and Smith, E.I.,
Geologic Map of the Henderson
Quadrangle, Nevada,
Nevada Bureau of Mines and
Geology, Map 67.

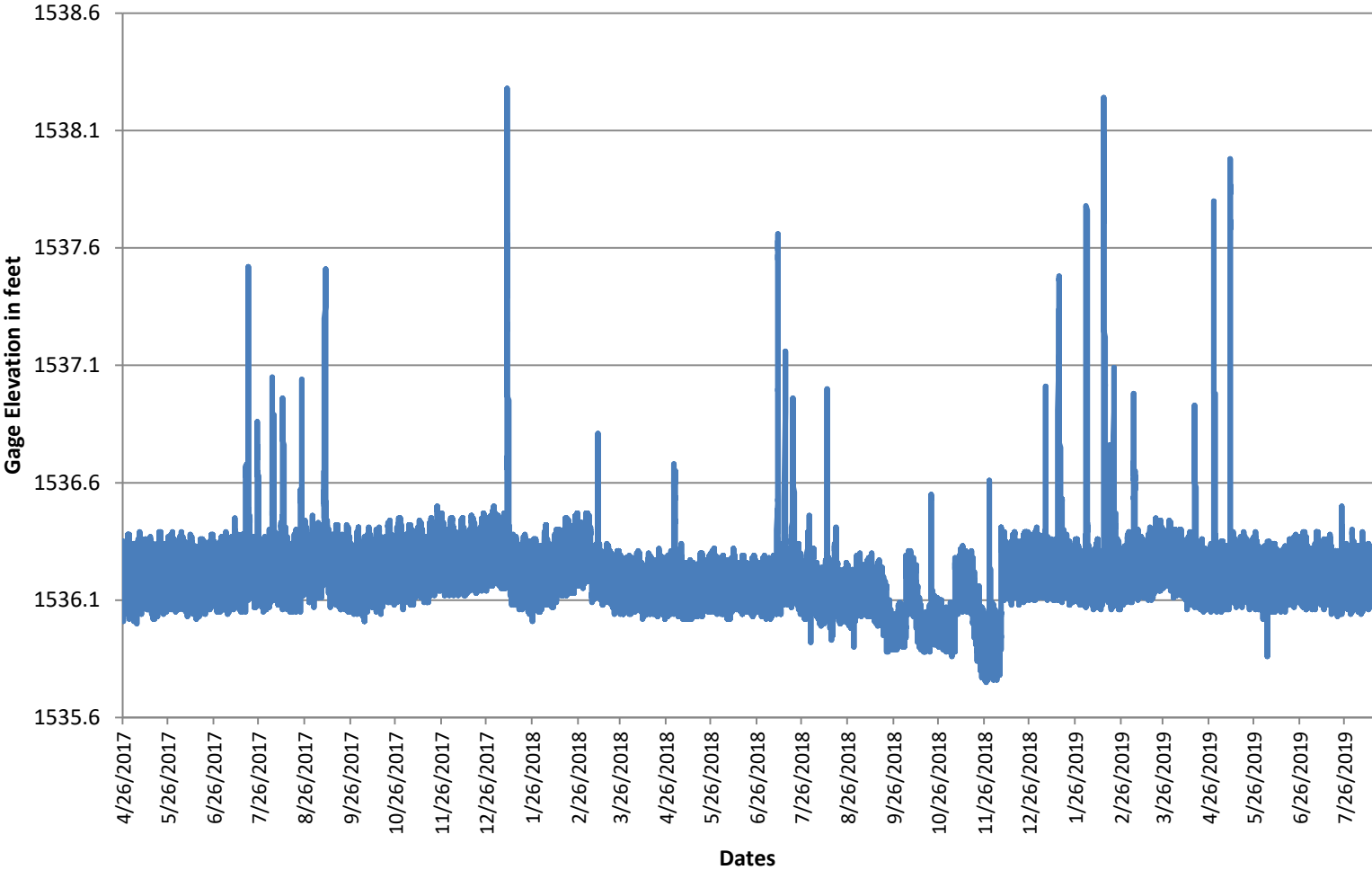
NERT
Downgradient Study Area

**TRANSDUCER
LOCATIONS WITH
GEOLOGY**

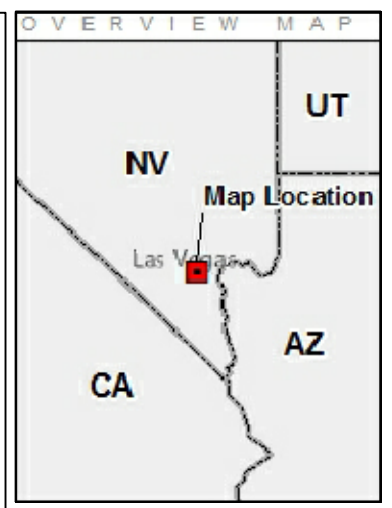
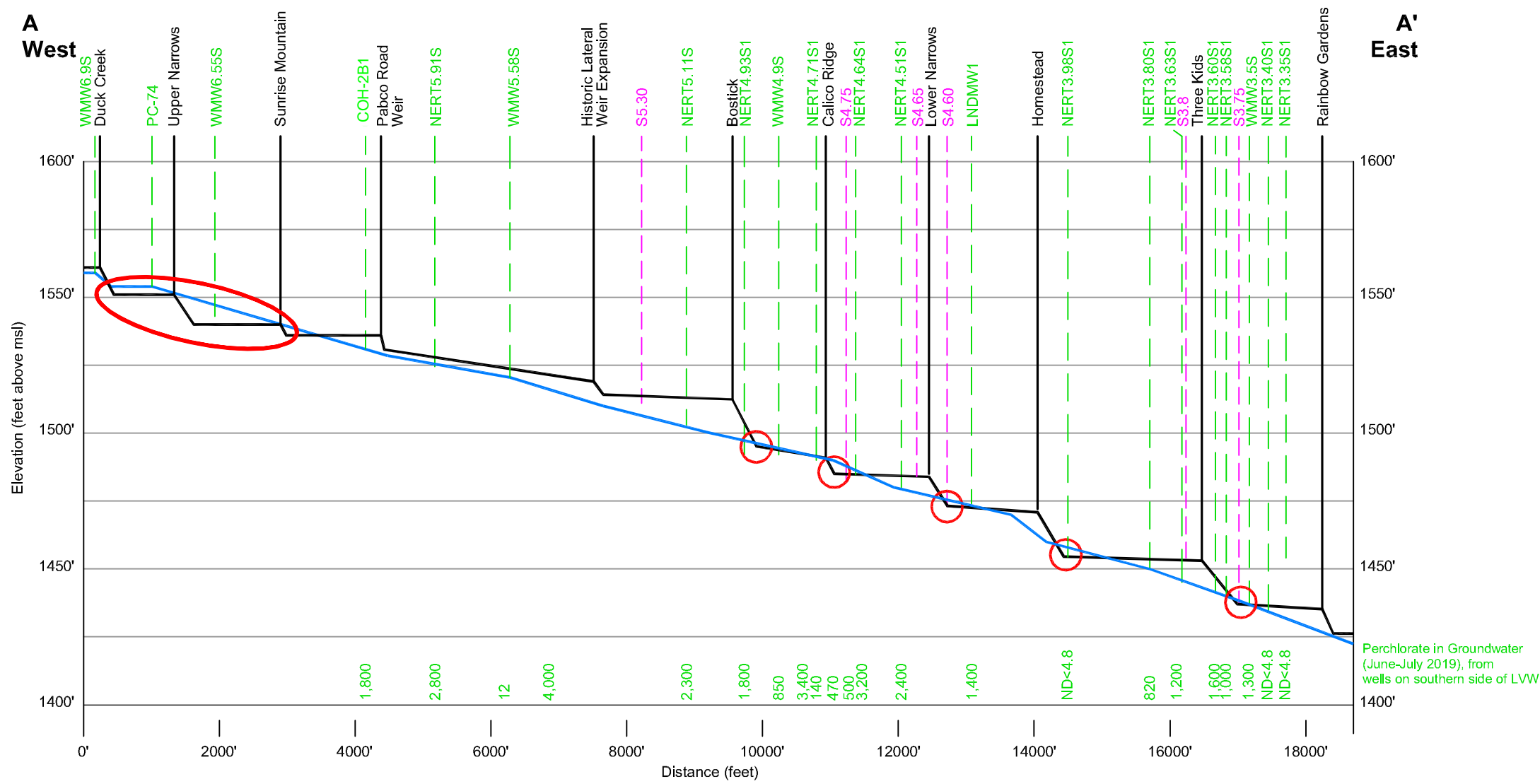
Date: 10/15/2019 Project: 60477365

AECOM Figure 3

Figure 4
USGS Gage at Pabco Road



J:\Client\Projects\NDEP\NERT_GW_RA\900-CAD\00-GIS\WXDs\NEPA_PD\Transducer_Study\Sept2019\Fig5_LW_CrossSection_9-2019.dwg



Legend

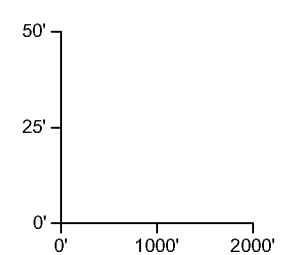
- Surface Water Elevation: Based on AECOM survey of Pabco Road Weir, Las Vegas Wash grade control structures, general elevation information updated 3/22/2018, survey information 6/29/2018, and elevations from Staff Gage Transducers (July 9, 2019)
- Groundwater Elevation: Based on transducer measurements on (July 9, 2019).
- Location of Surface Water Gage
- Location of Transducers in Monitoring Wells
- Location of Weir
- Area Where Groundwater Elevation is Higher Than Surface Water Elevation

NERT
Downgradient Study Area

SCHEMATIC CROSS SECTION OF SURFACE WATER AND GROUNDWATER ELEVATIONS ALONG LAS VEGAS WASH 2019

Date: 9/11/2019 Project: 60477365

AECOM Figure 5



Appendix A

Response to Comments

No stakeholder comments were received.

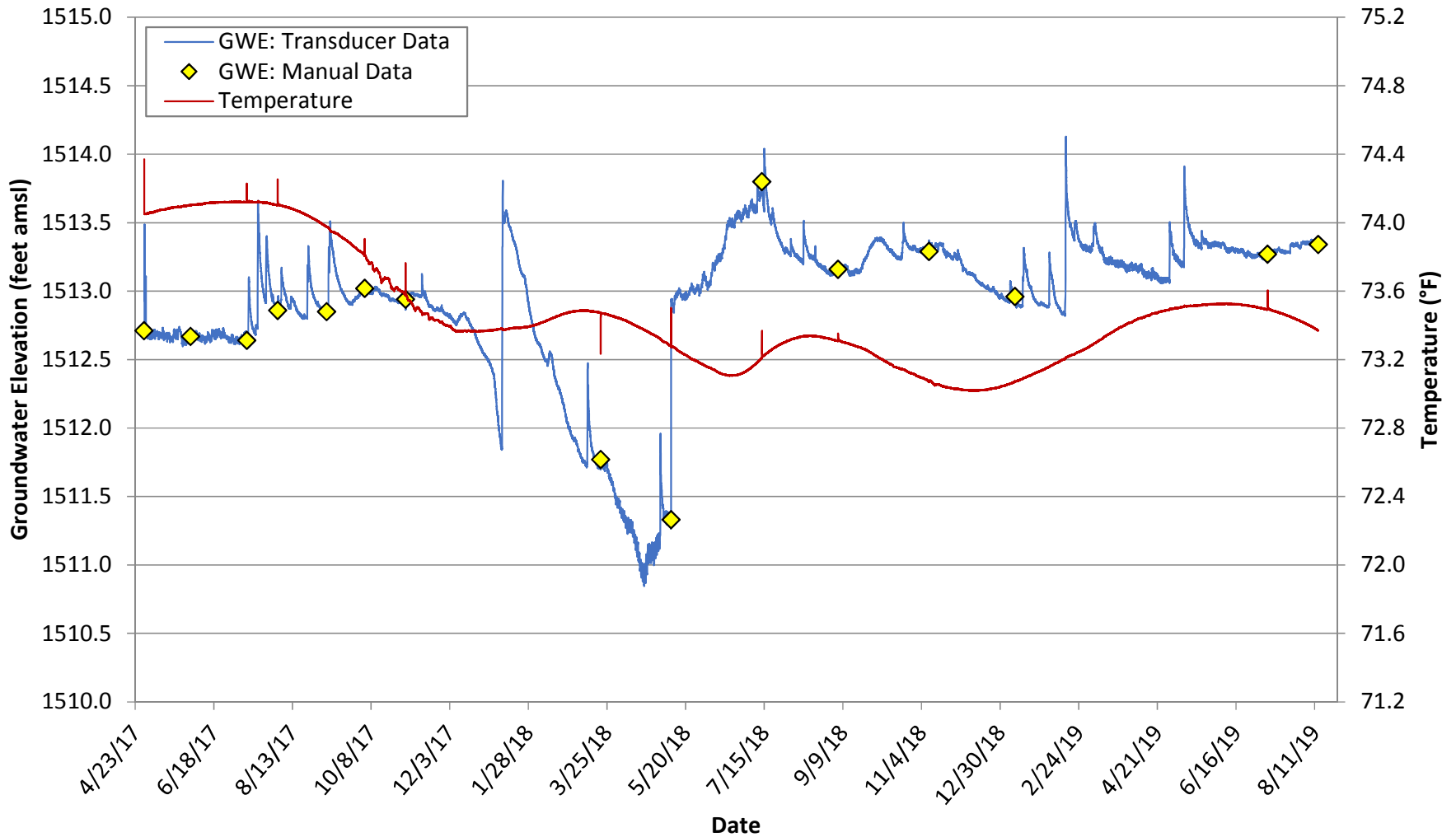
Appendix B

Transducer Data (electronic files)

Appendix C

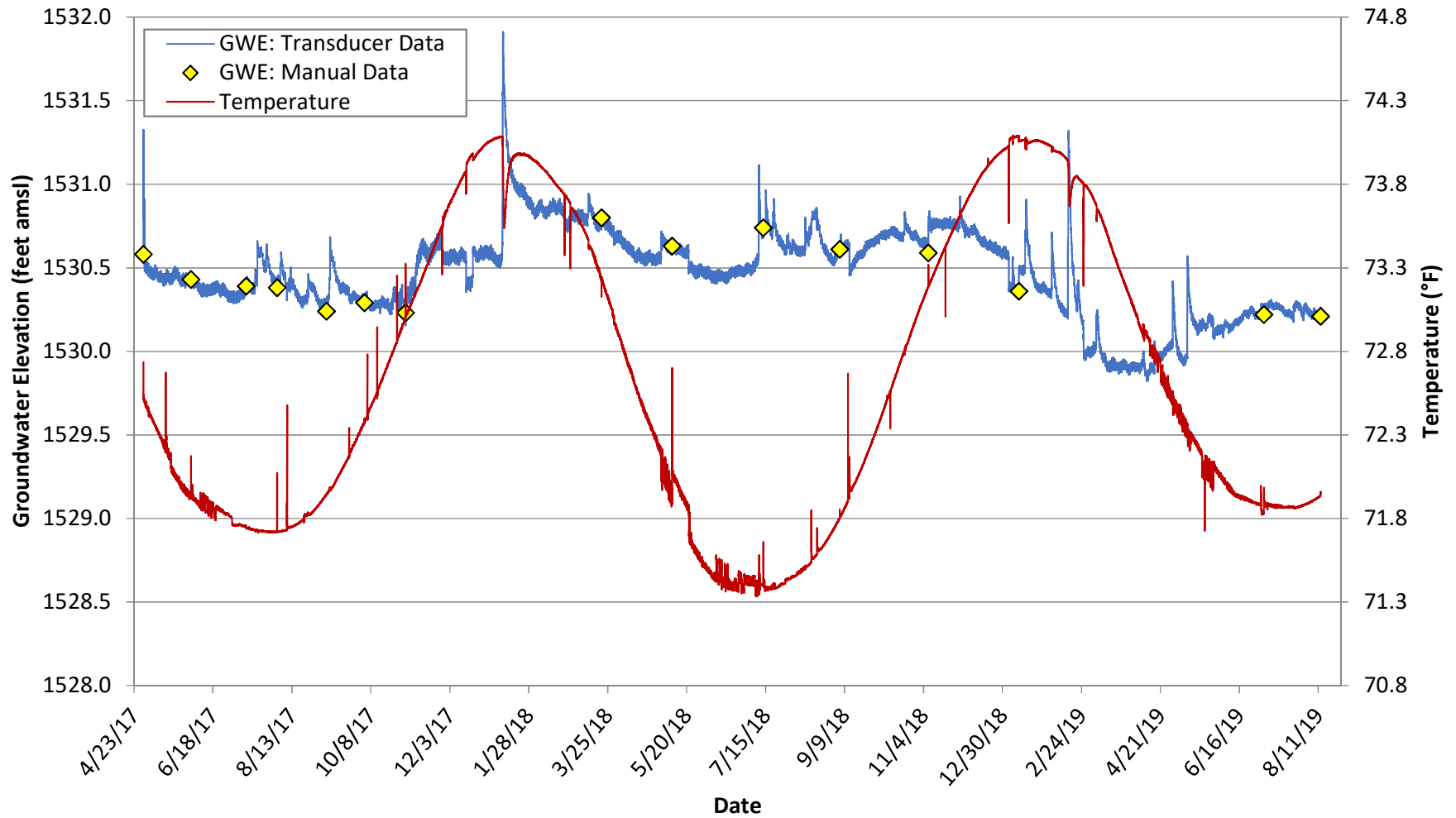
Groundwater Hydrographs and Temperature Graphs

AA-30 Hydrograph



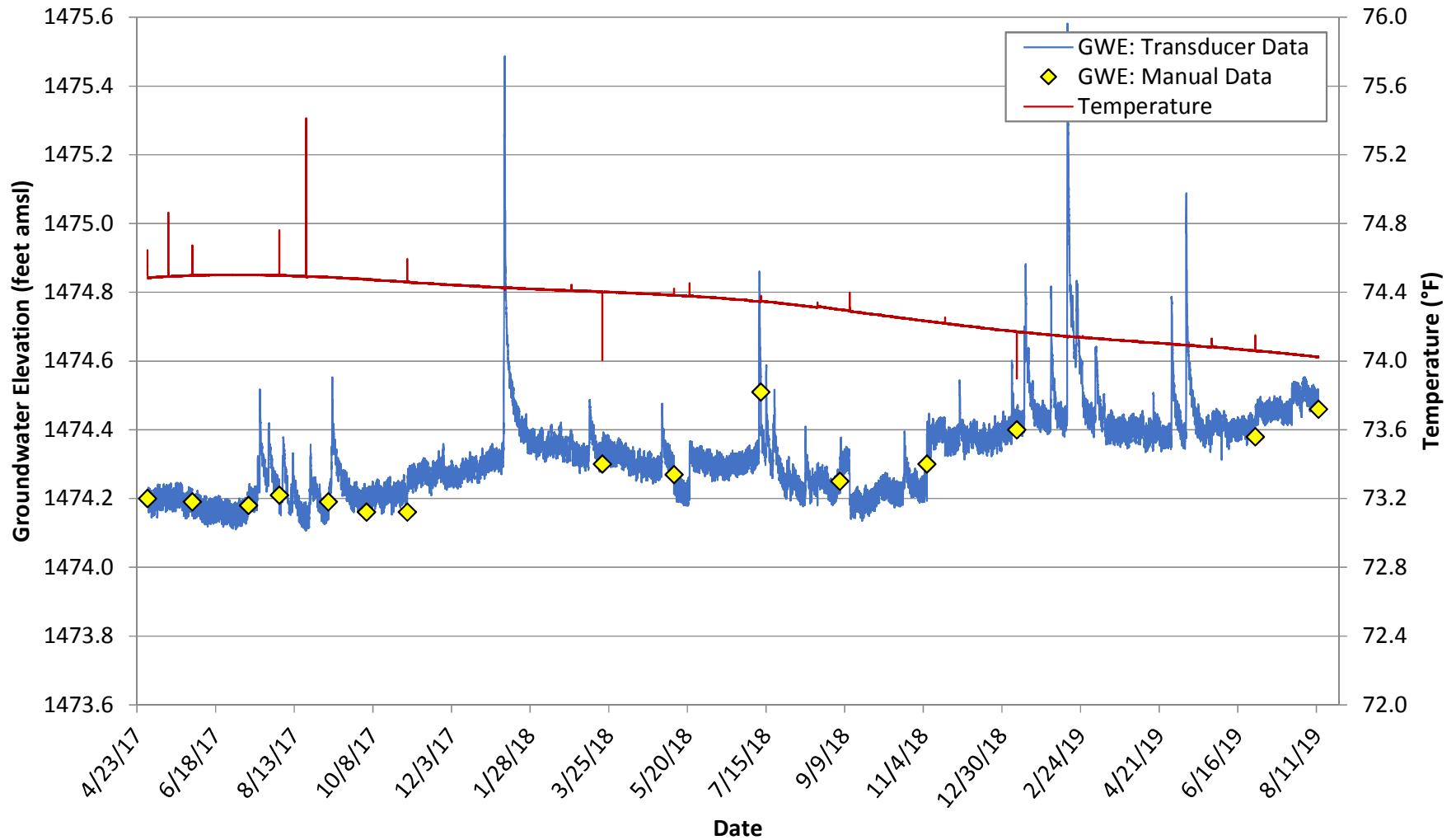
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

COH-2B1 Hydrograph



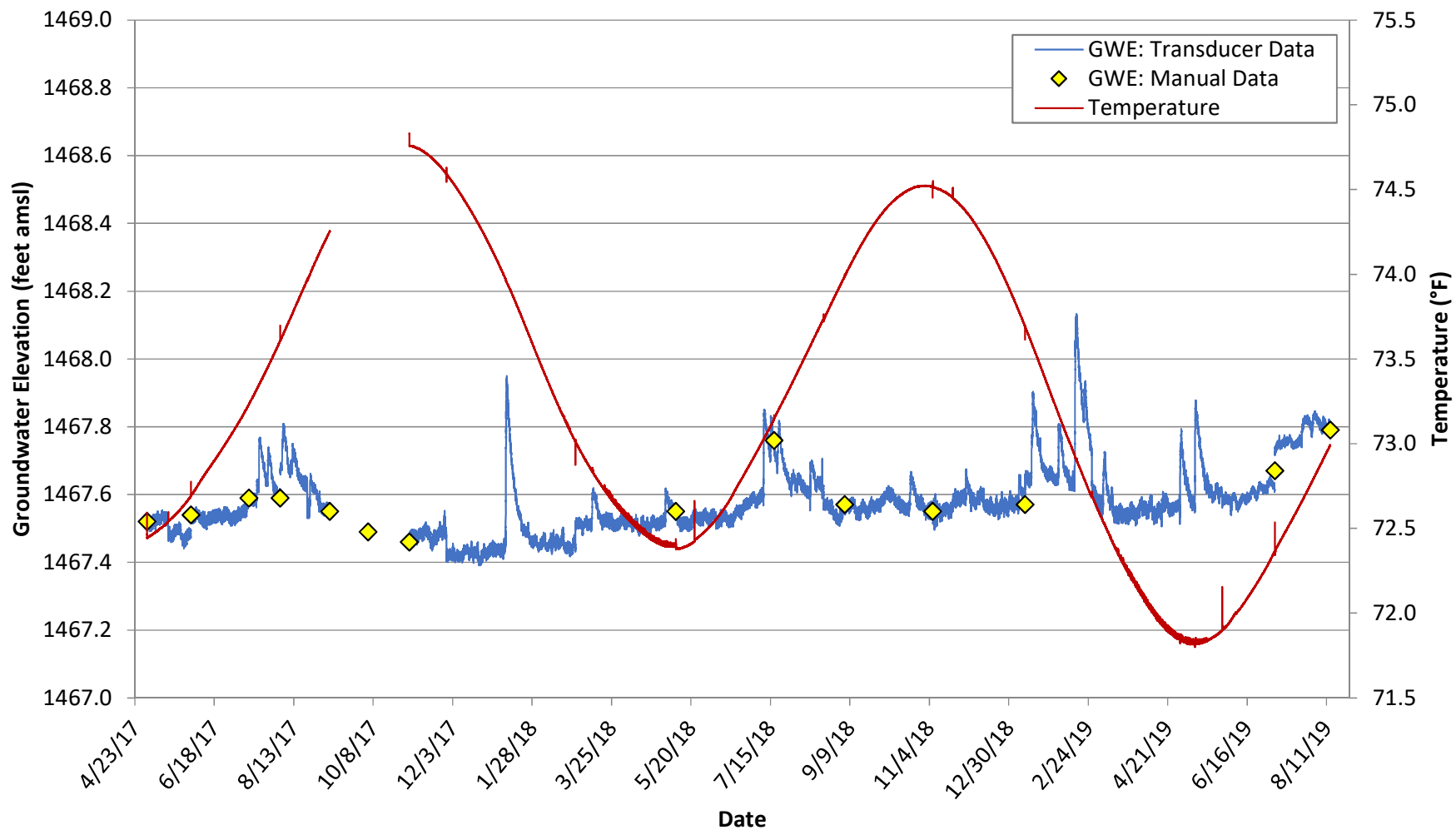
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

LNDMW1 Hydrograph



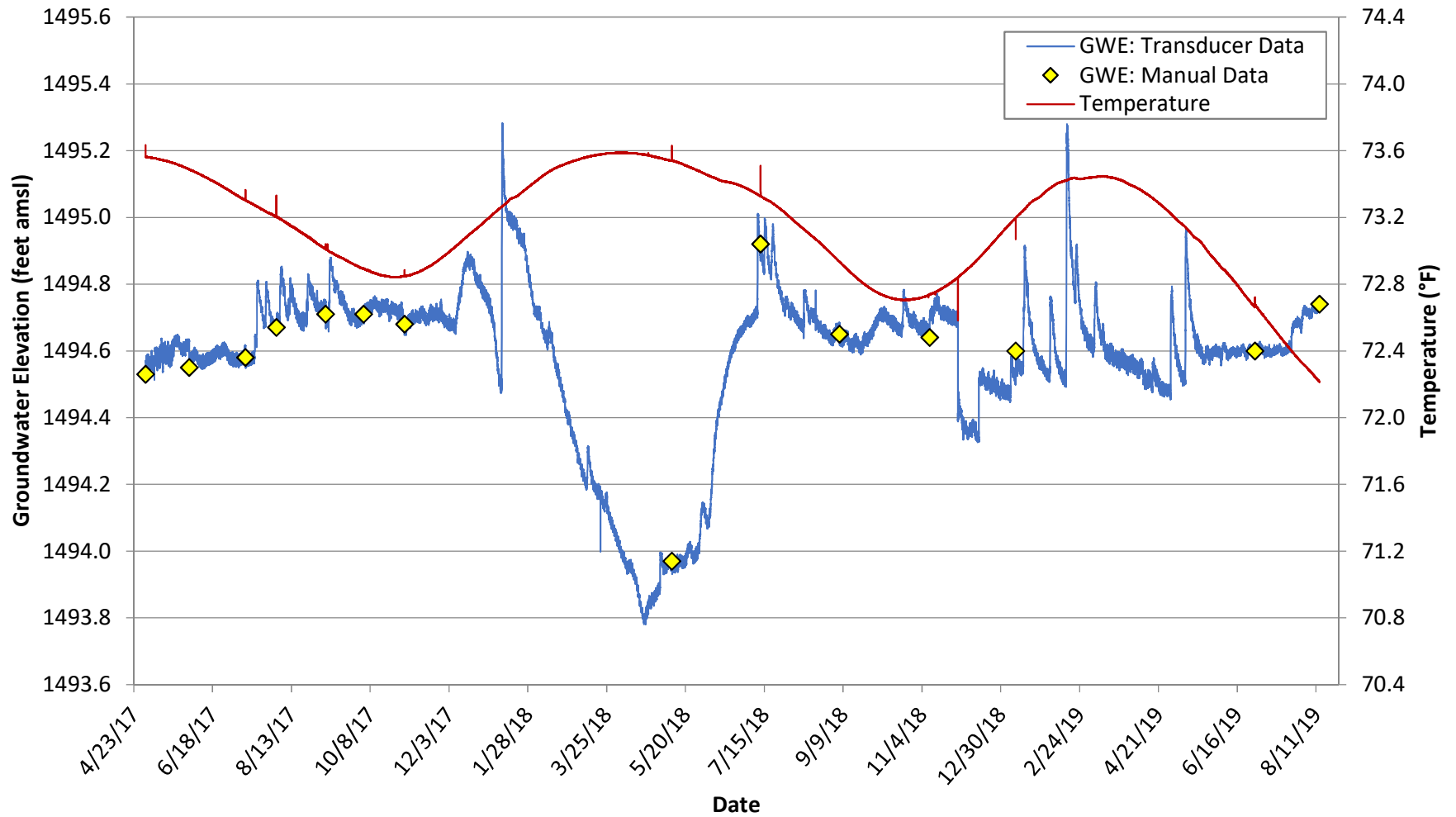
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

LNDMW2 Hydrograph



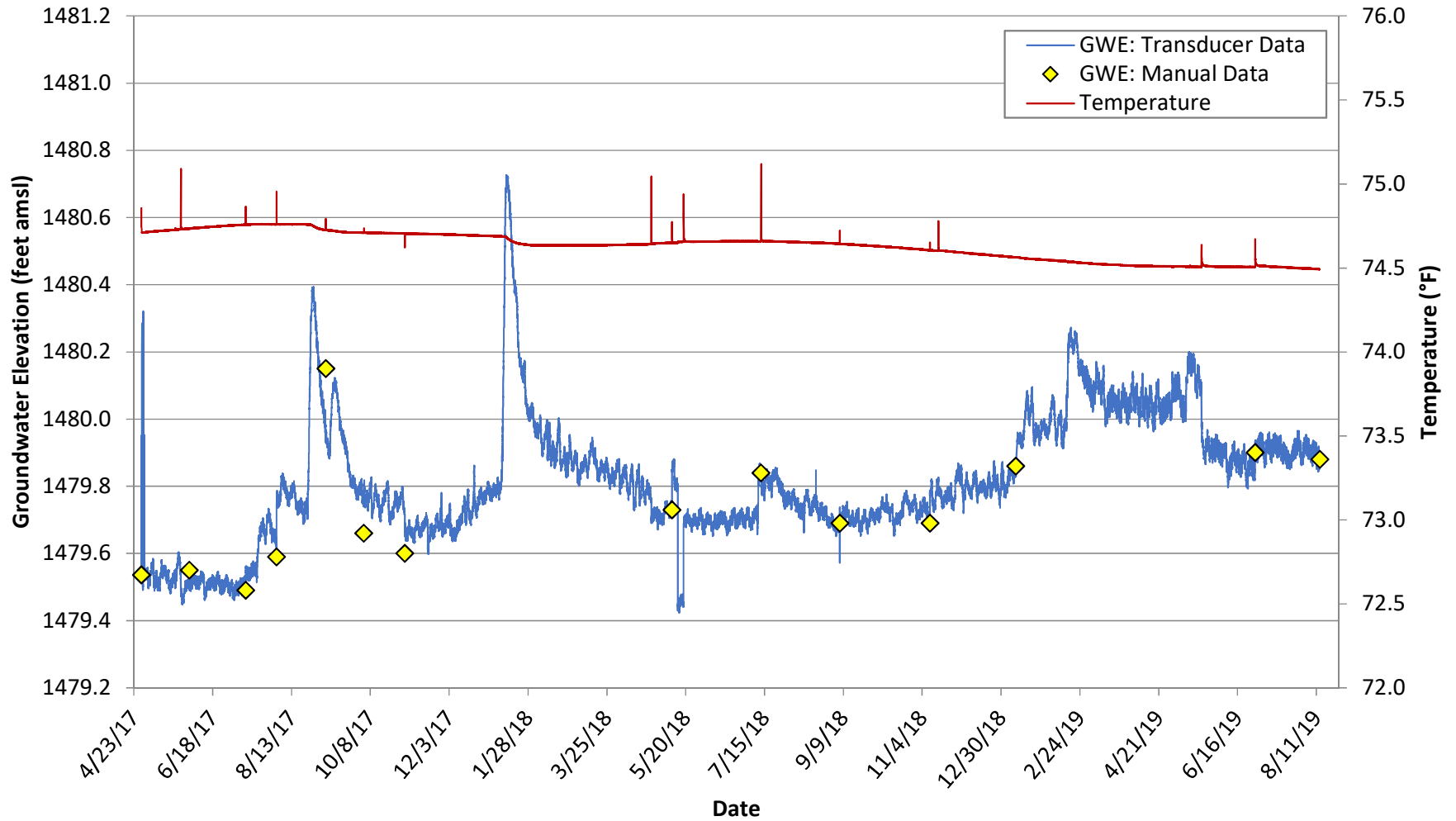
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. Transducer stopped recording for an unknown reason in September 2017 and was not fixed until November 2017.

MW-13 Hydrograph



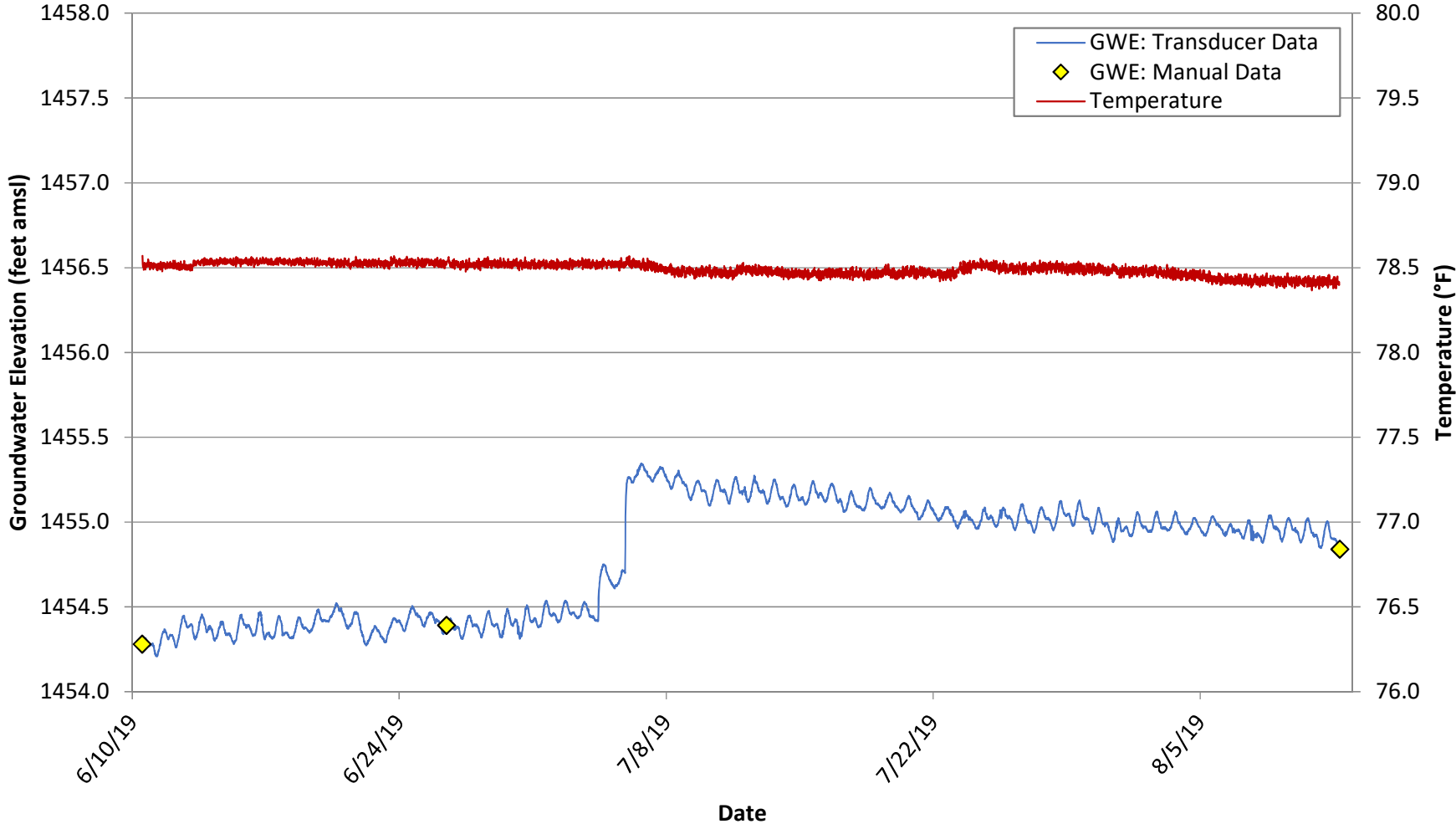
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

MW-20 Hydrograph



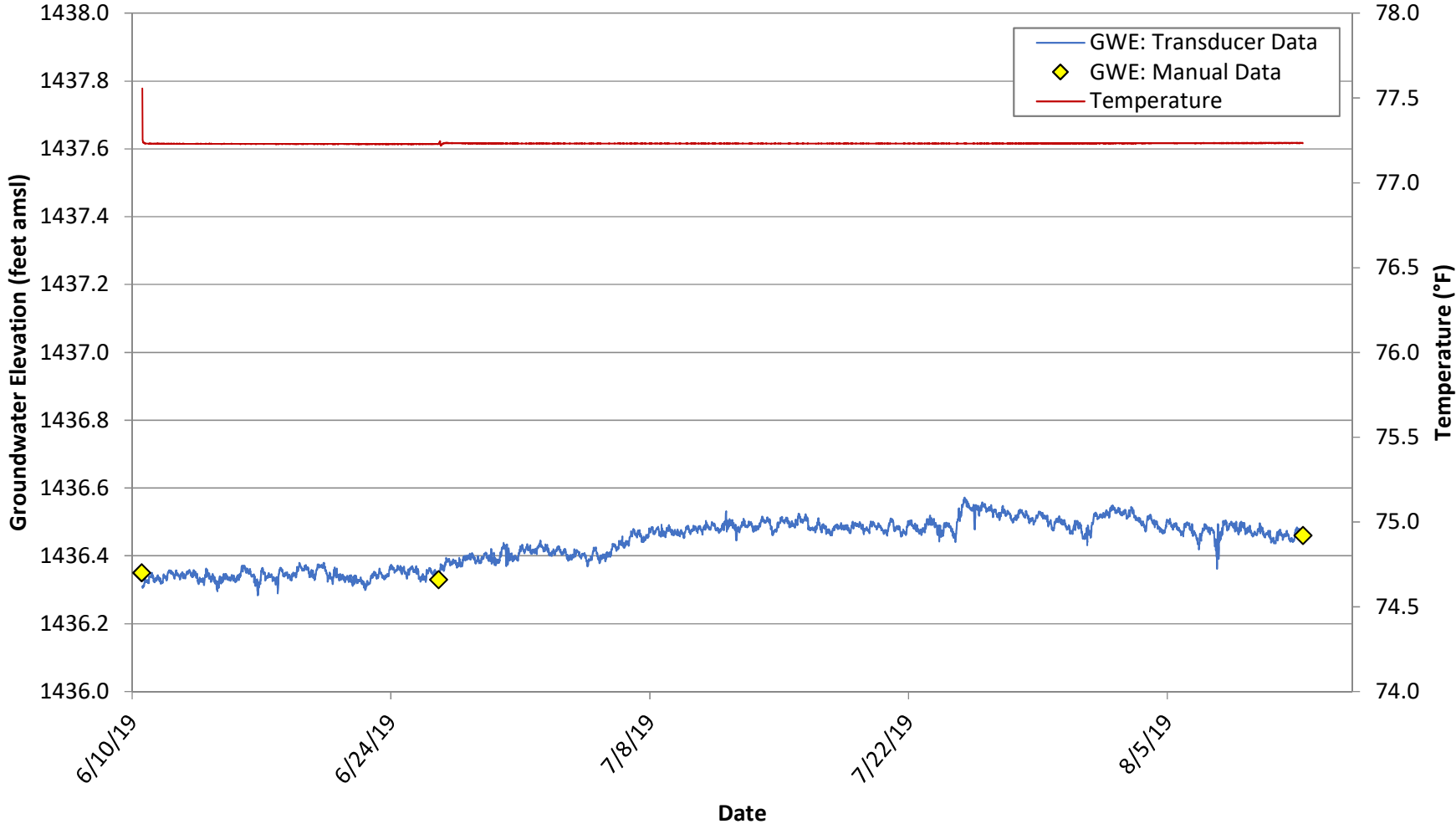
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT3.35S1 Hydrograph



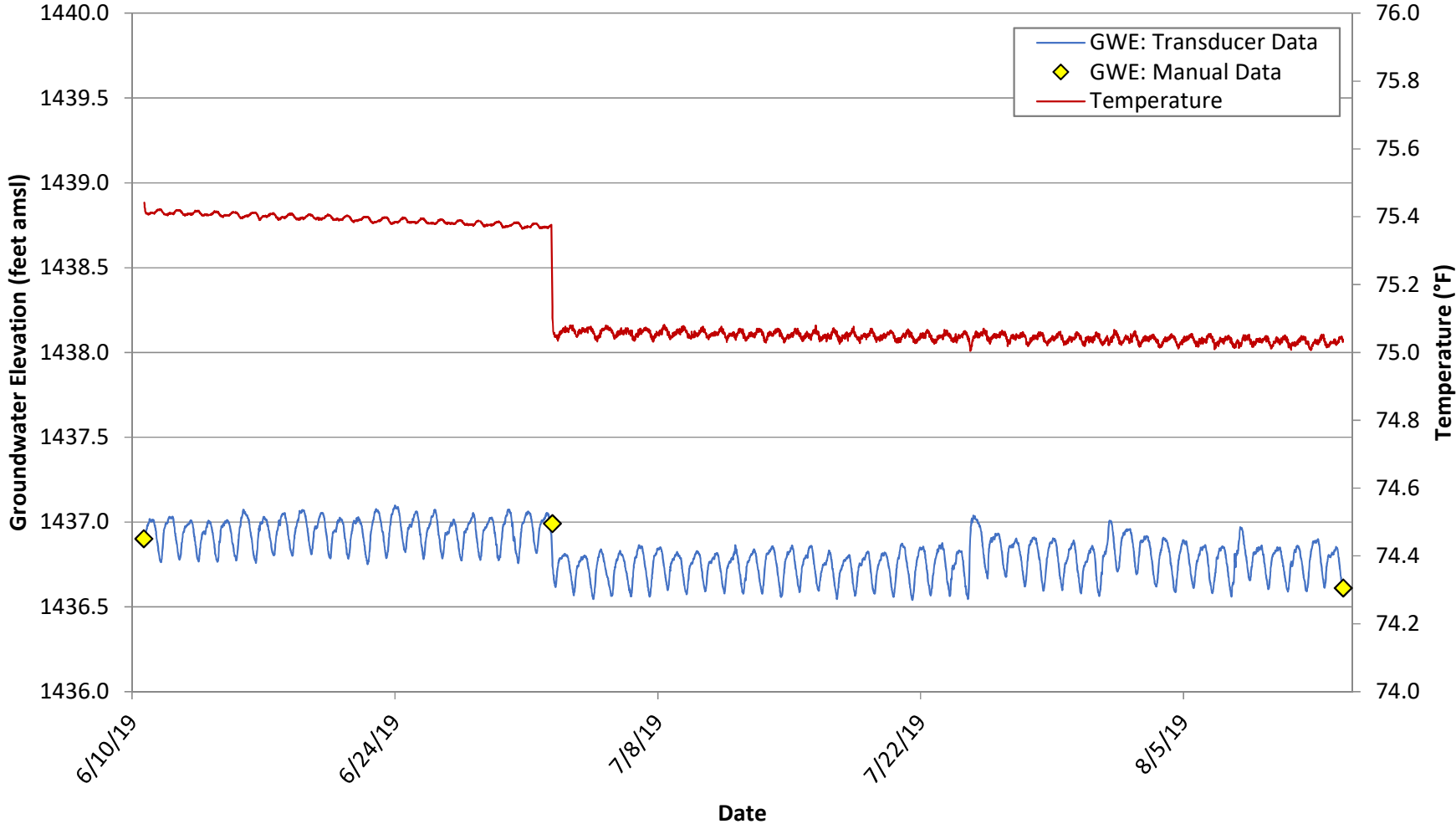
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT3.40S1 Hydrograph



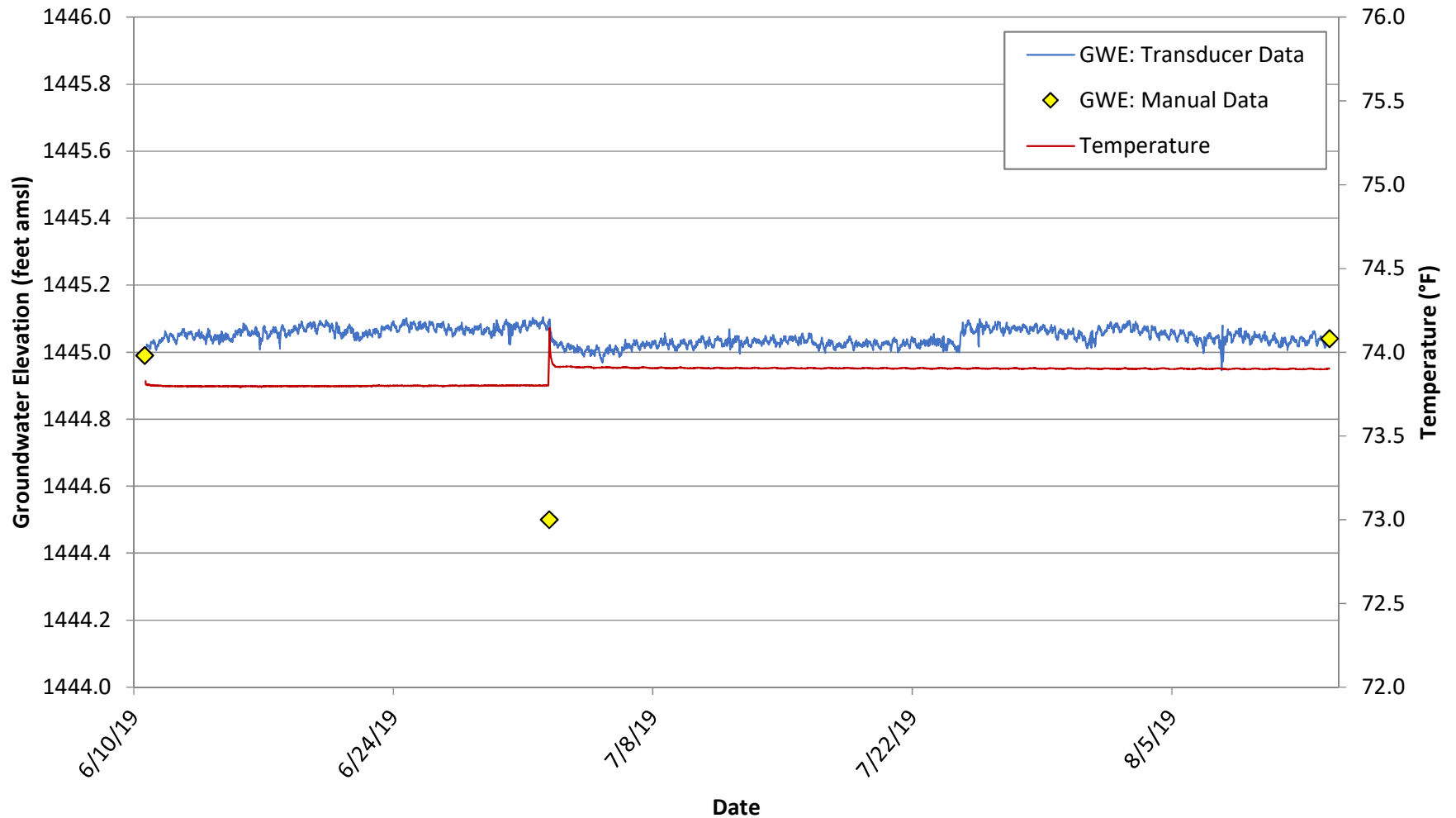
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT3.58N1 Hydrograph



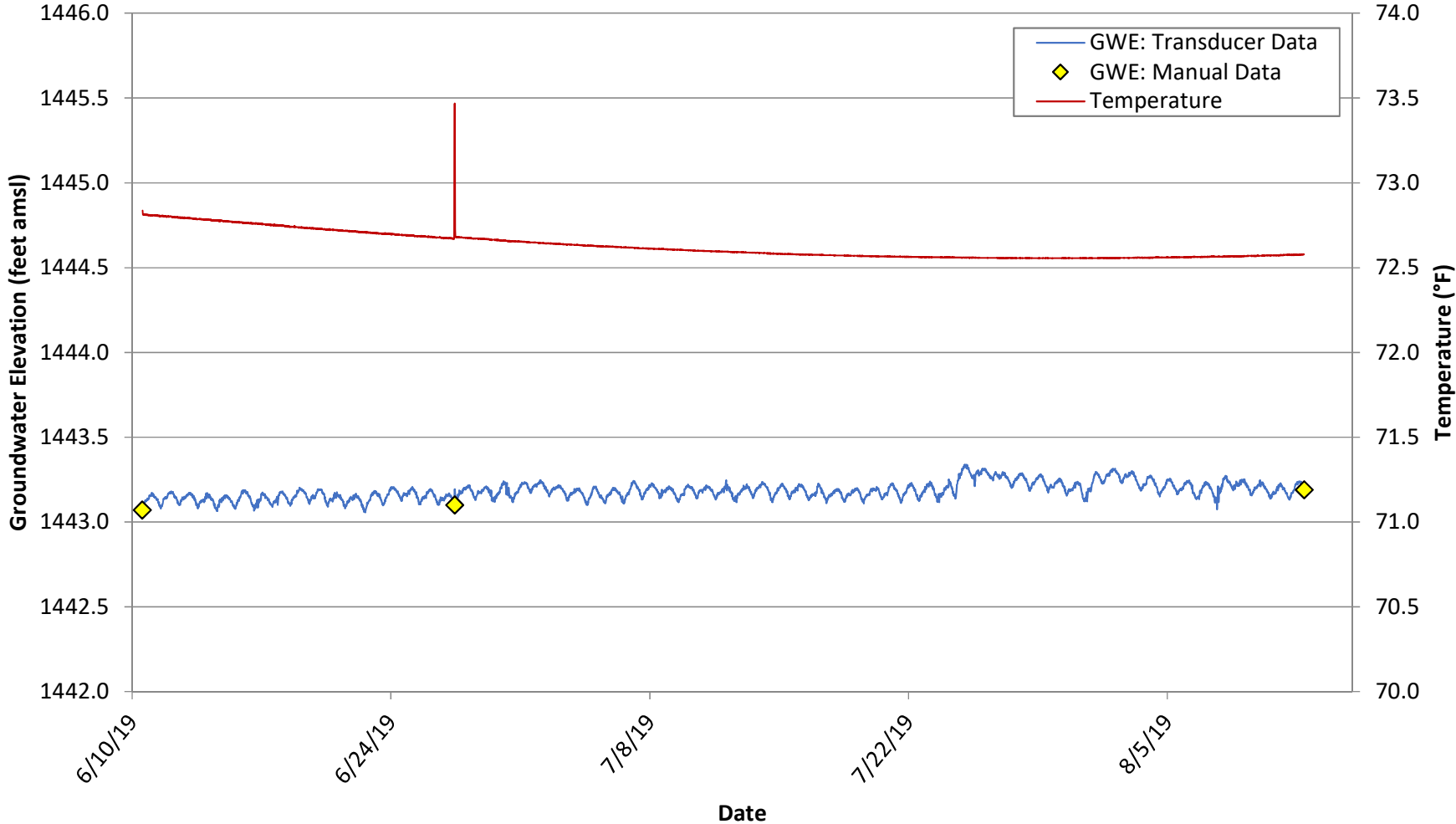
- Notes:
- 1. Transducer data has been corrected for barometric pressure.
 - 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT3.60N1 Hydrograph



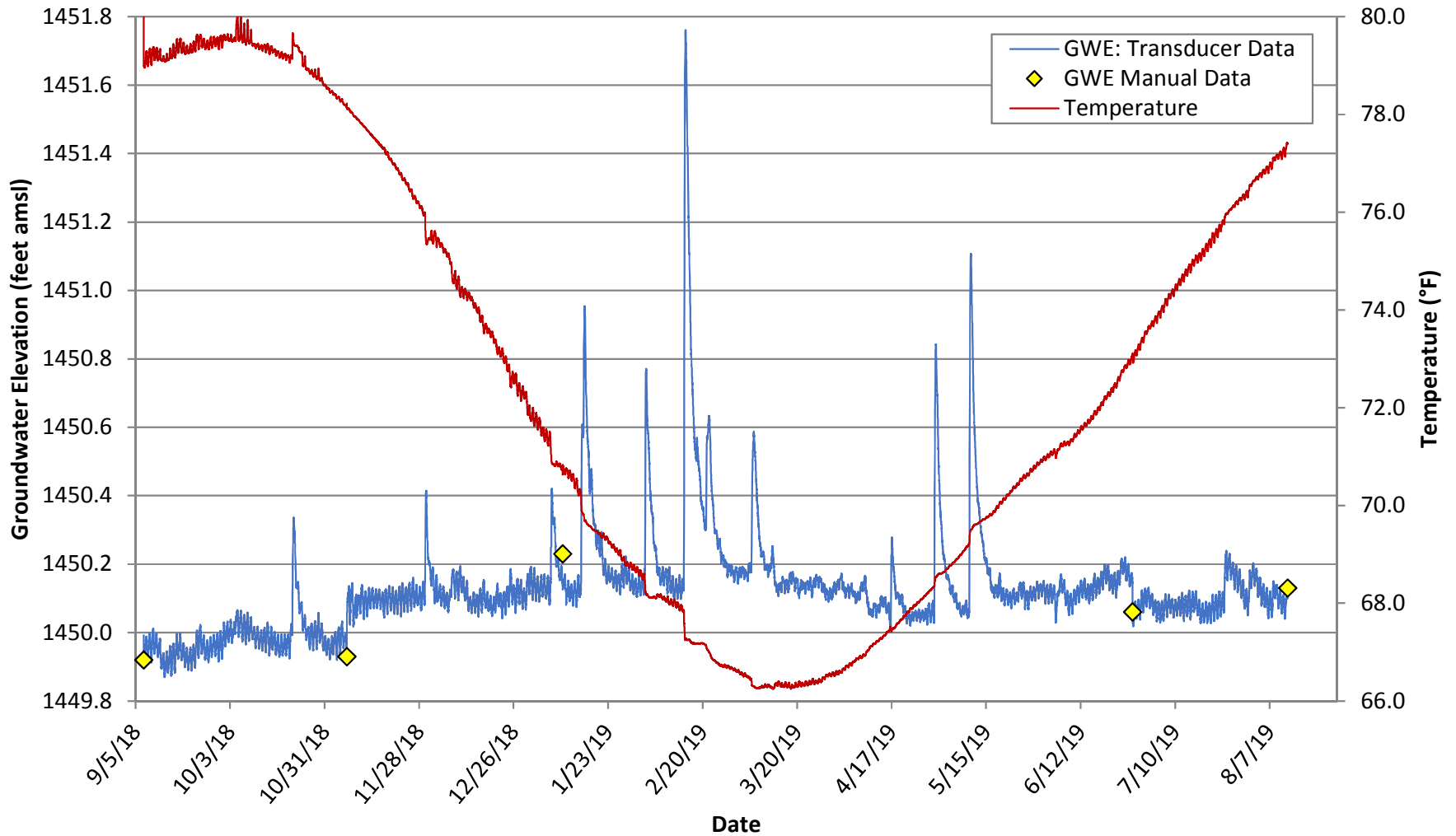
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. Depth to water reading on 7/2/2019 not used to adjust transducer record.

NERT3.63S1 Hydrograph



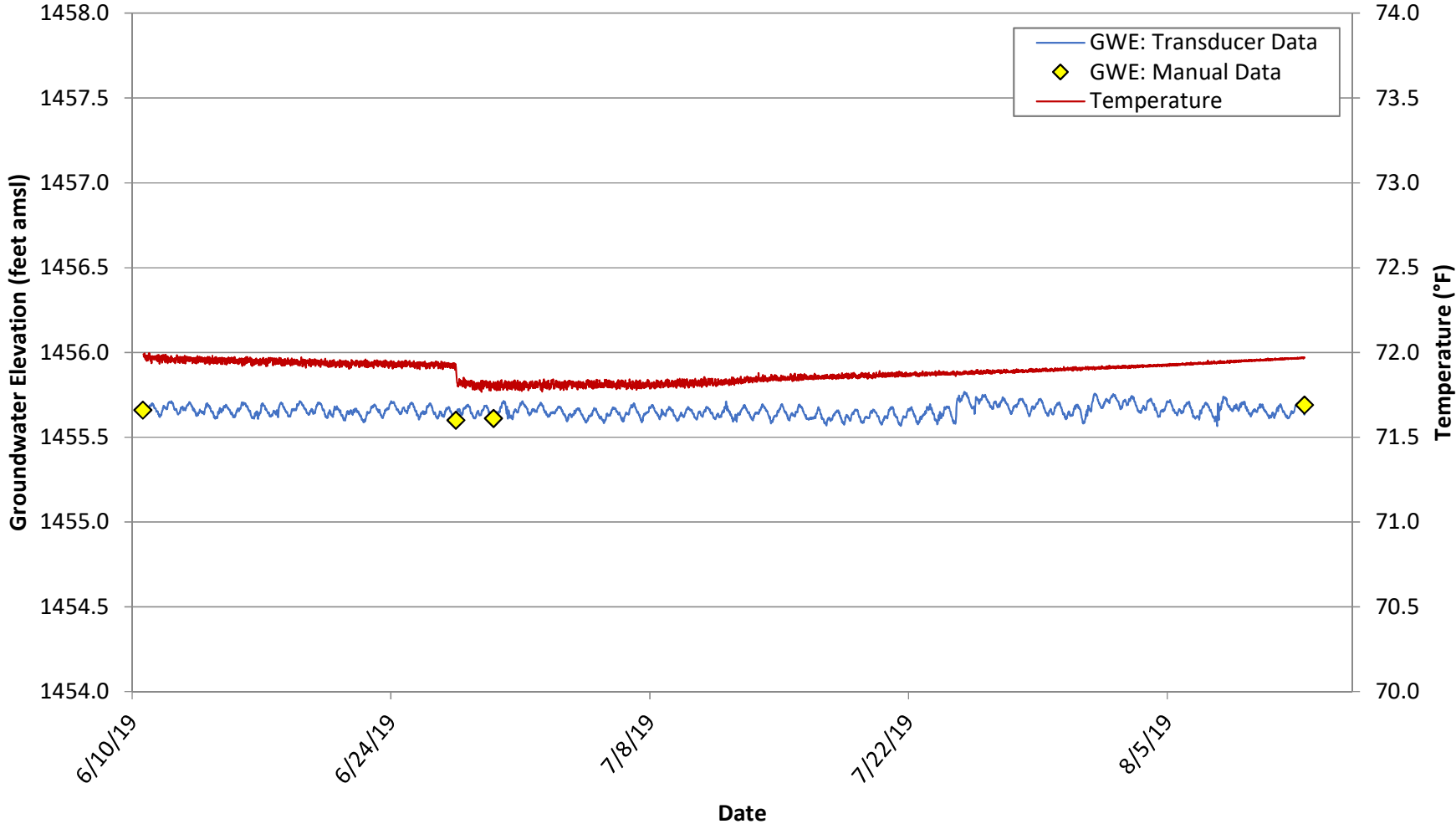
- Notes:
- 1. Transducer data has been corrected for barometric pressure.
 - 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT3.80S1 Hydrograph



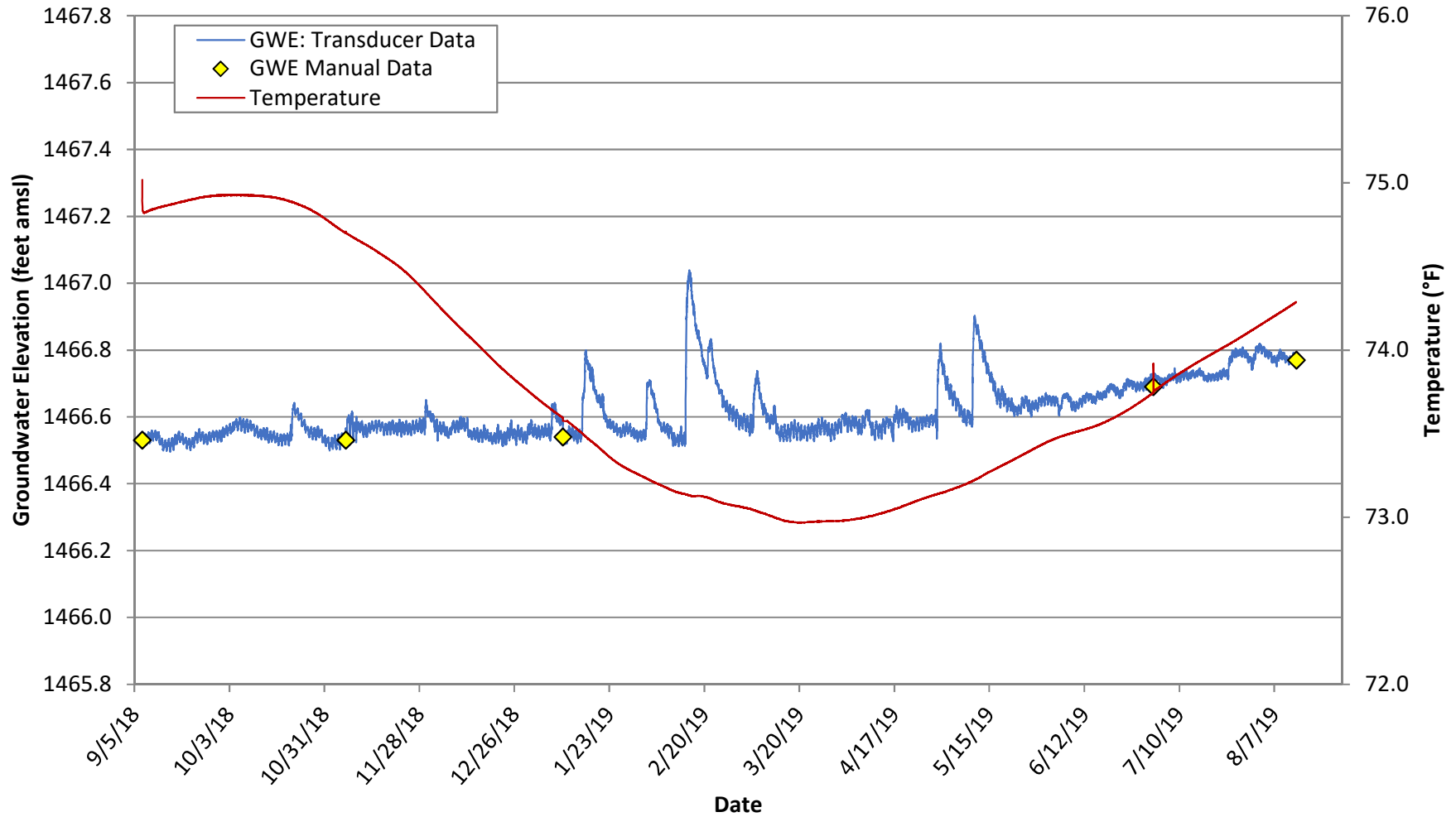
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT3.98S1 Hydrograph



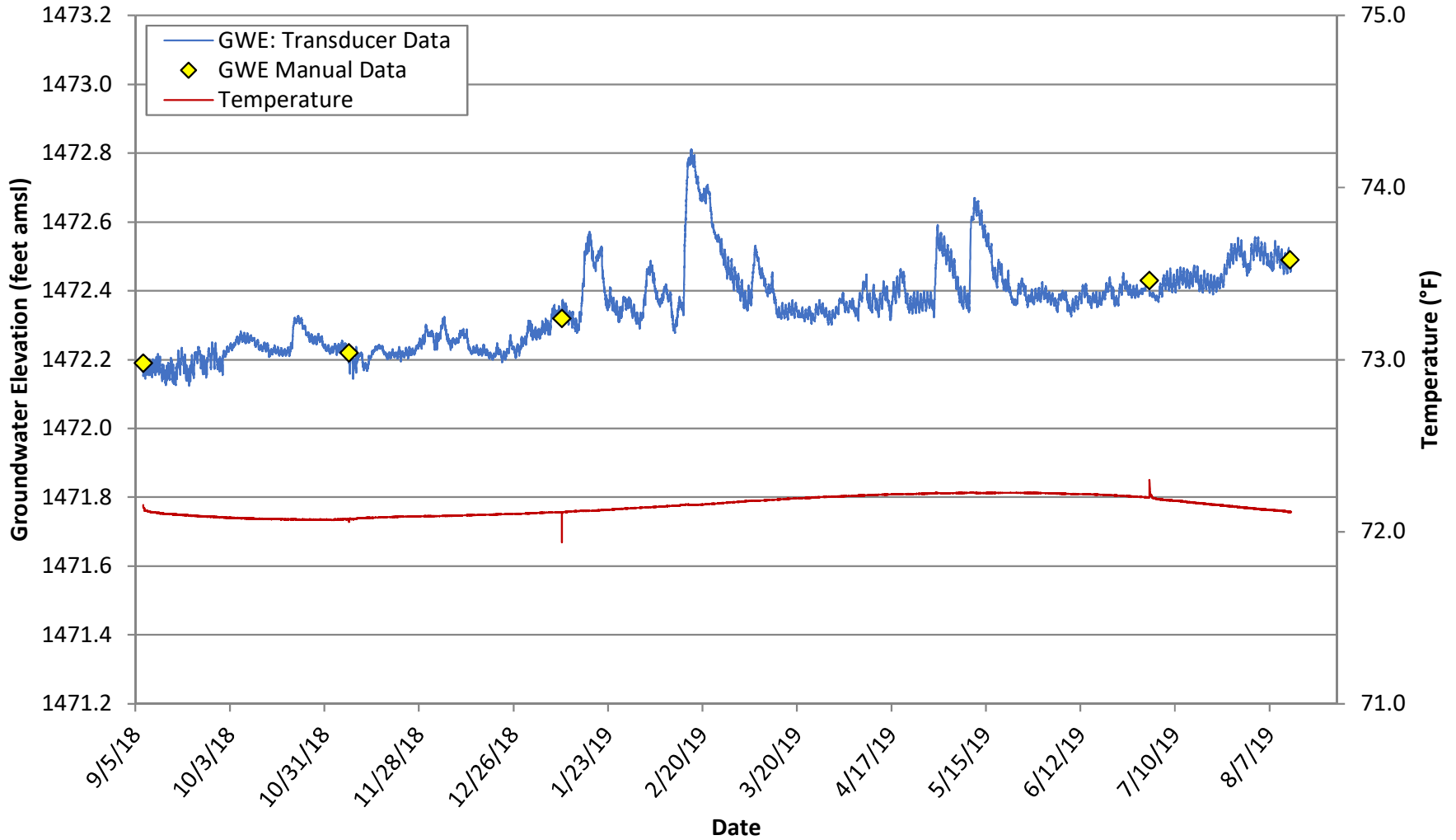
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter

NERT4.21N1 Hydrograph



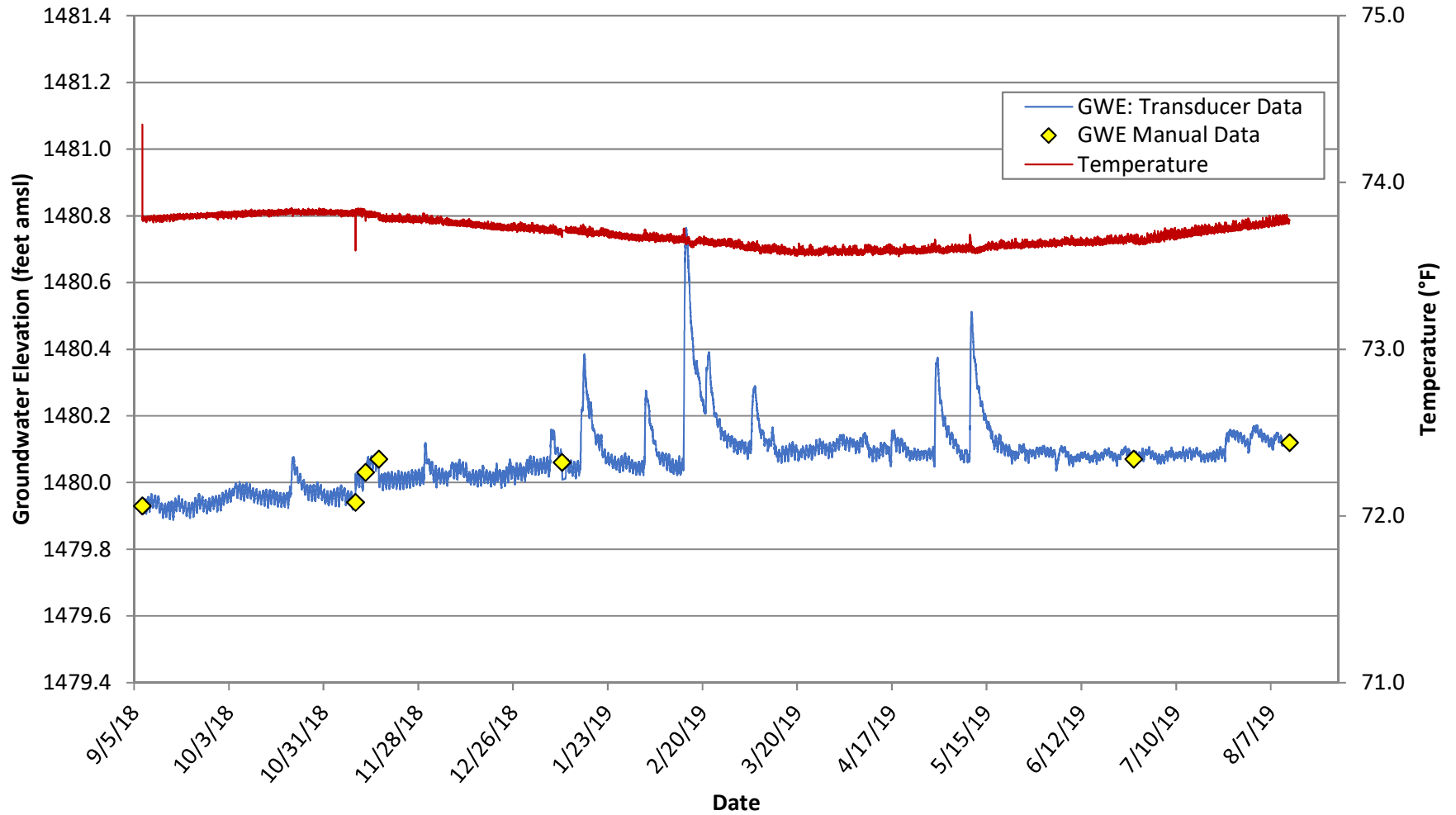
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.38N1 Hydrograph



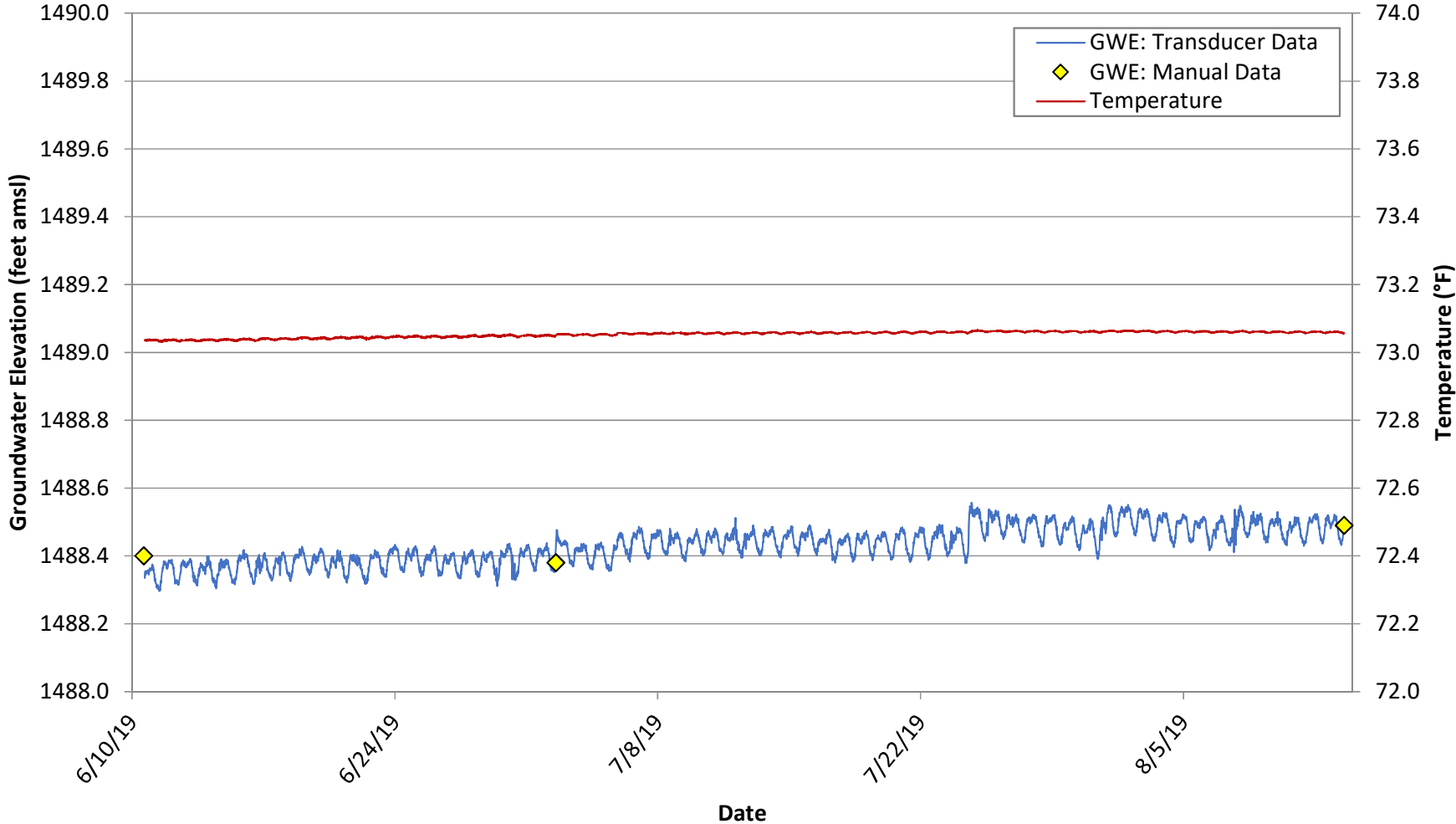
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.51S1 Hydrograph



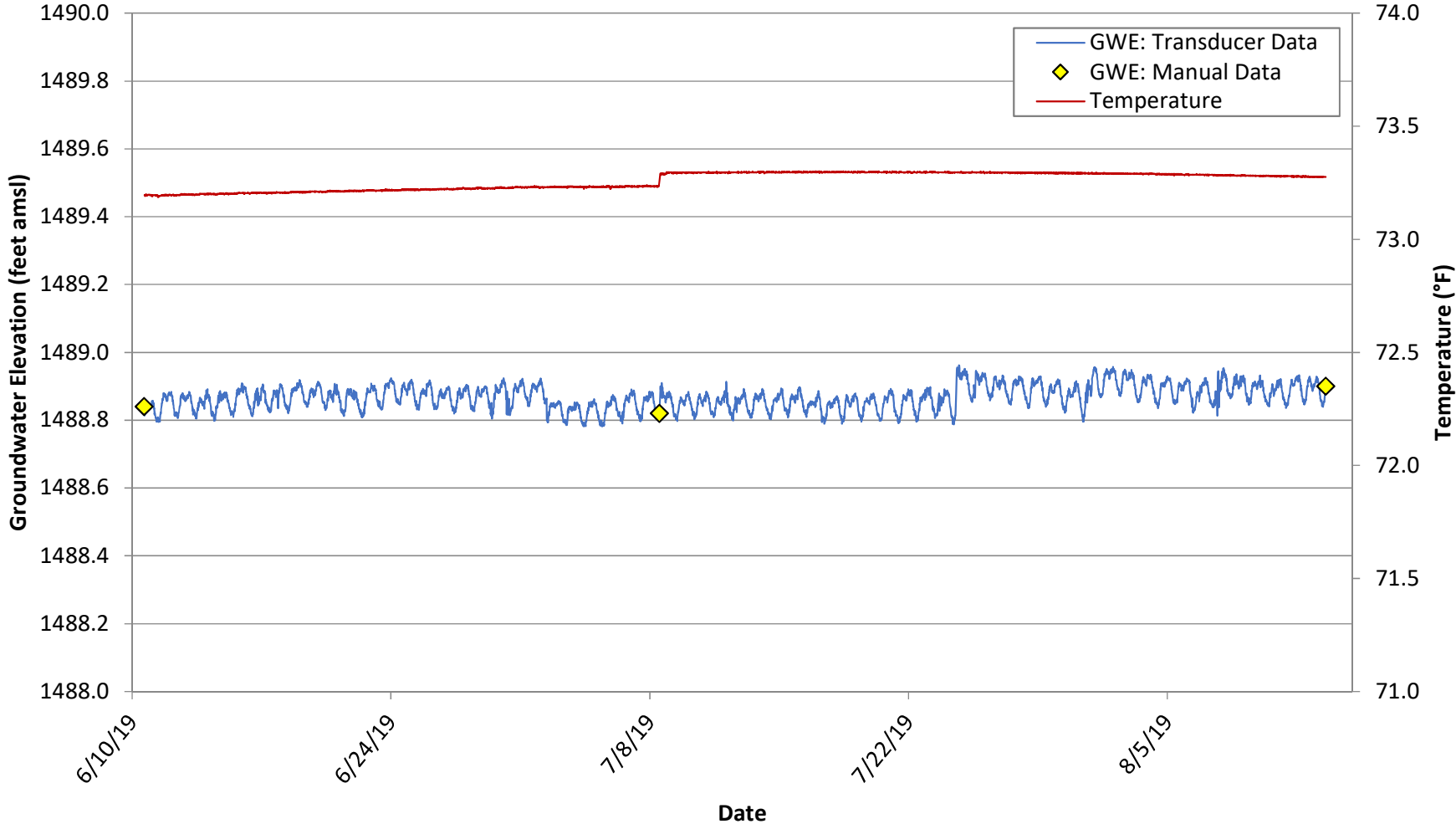
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.64N1 Hydrograph



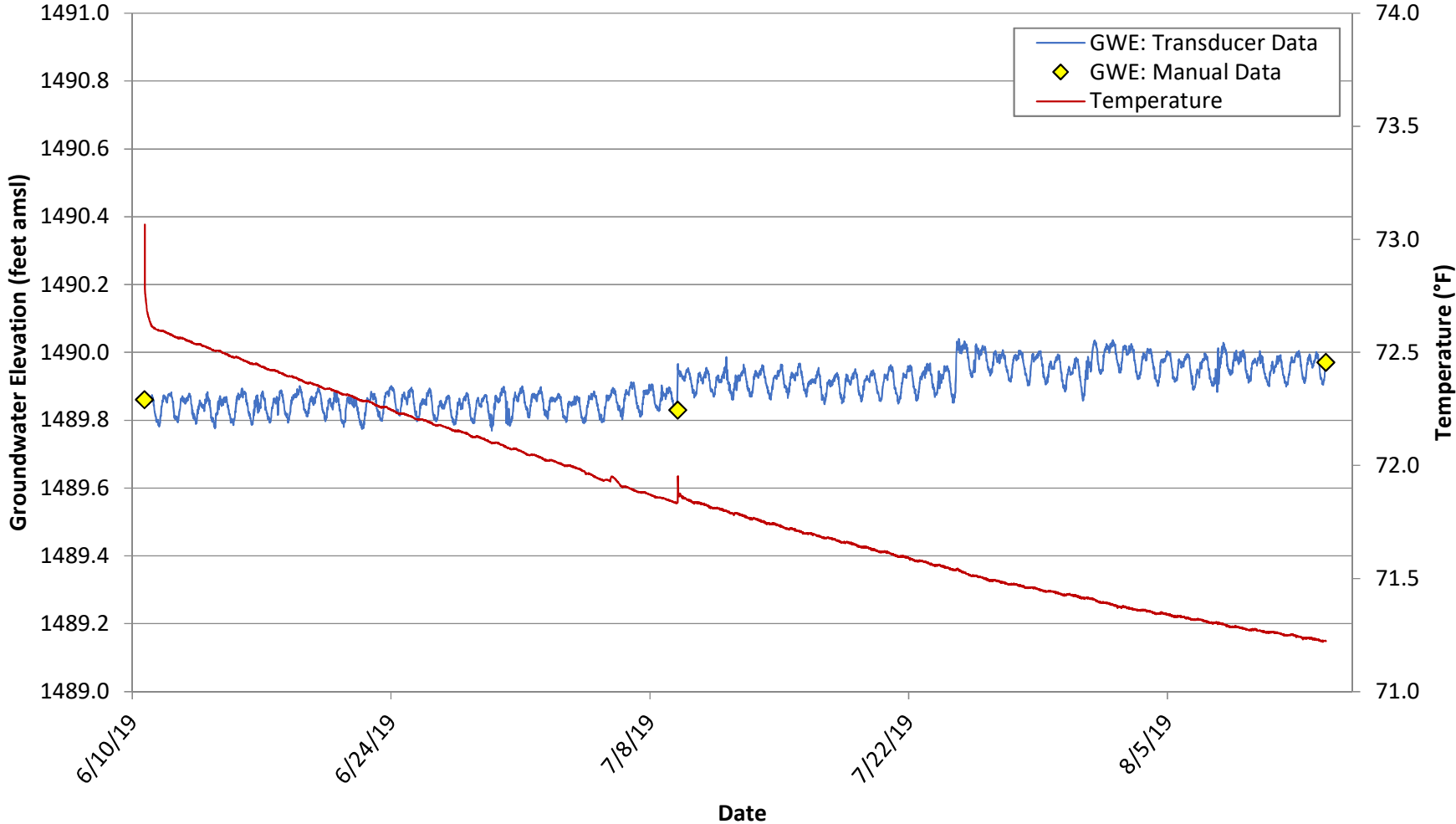
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.65N1 Hydrograph



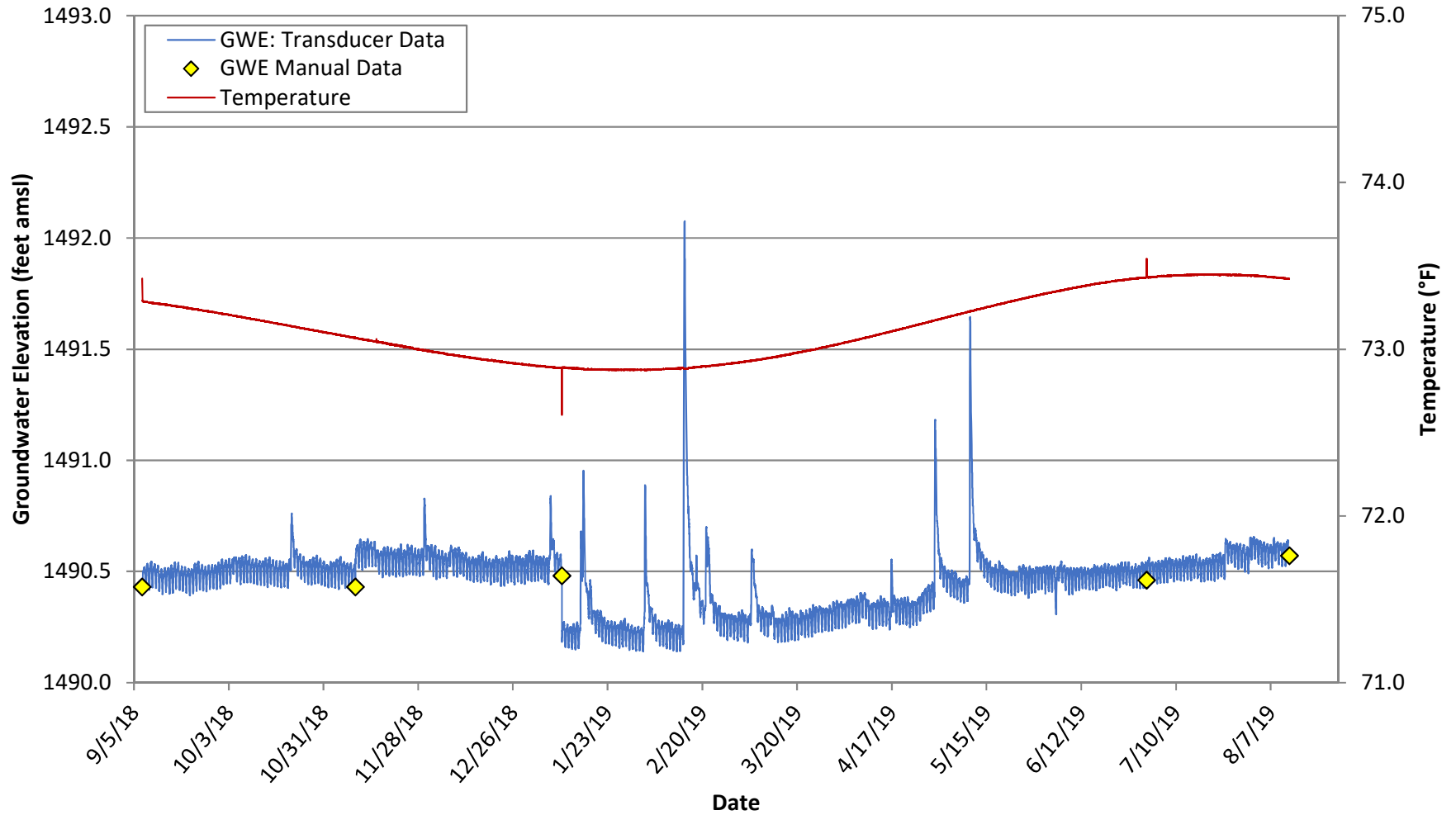
Notes: 1. Transducer data has been corrected for barometric pressure.
2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.70N1 Hydrograph



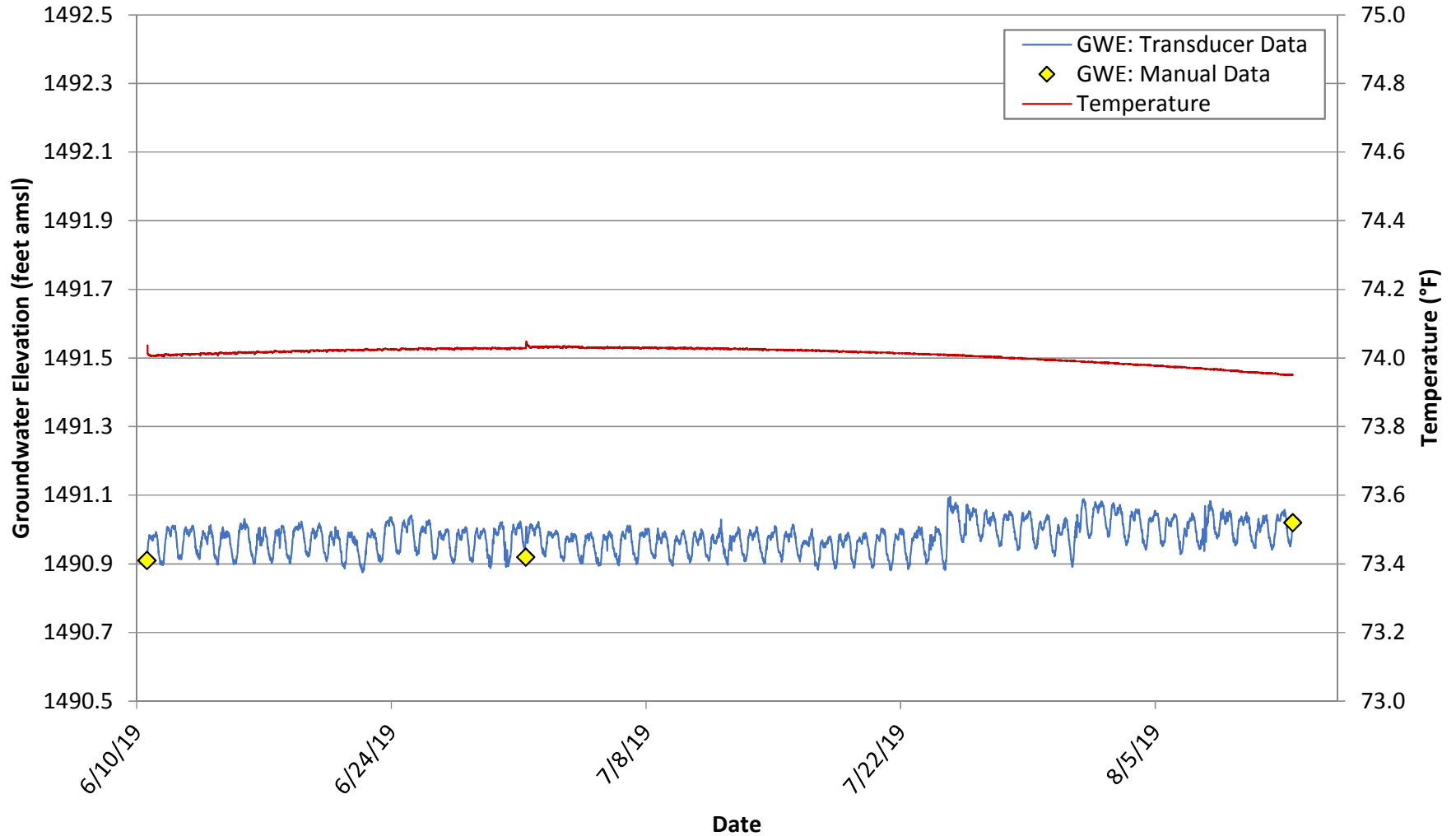
- Notes:
- 1. Transducer data has been corrected for barometric pressure.
 - 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.71S1 Hydrograph



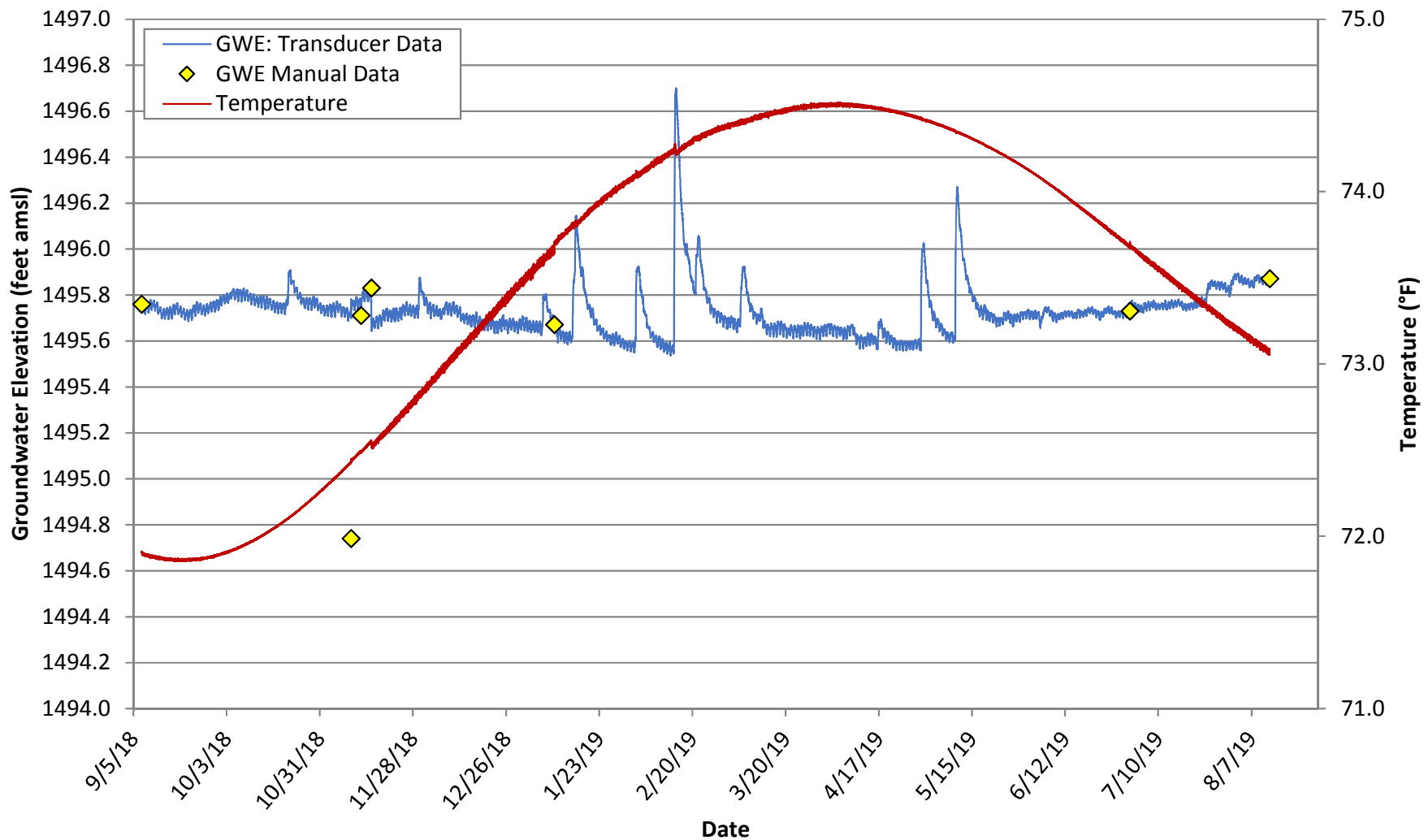
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.71S2 Hydrograph



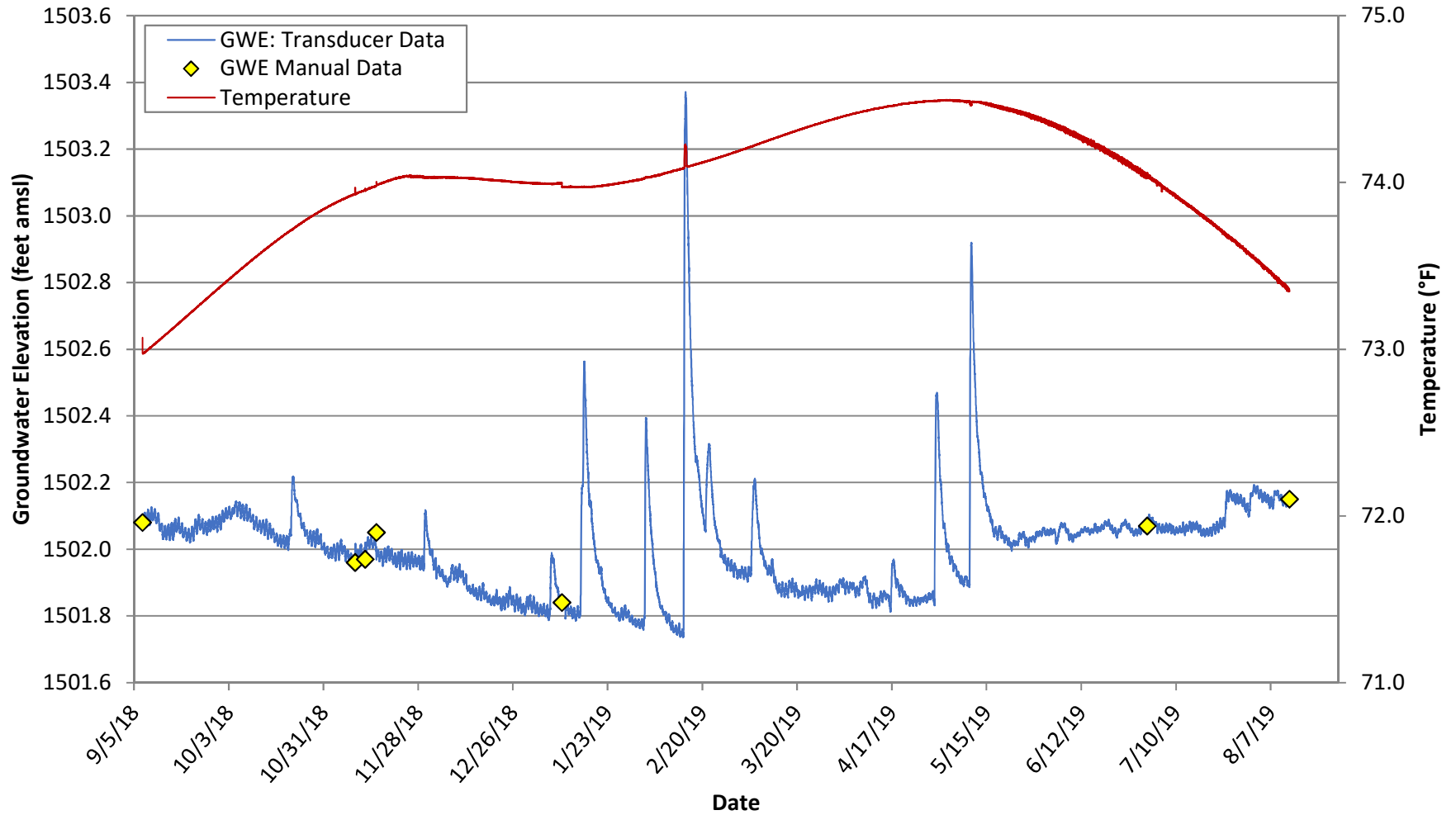
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT4.93S1 Hydrograph



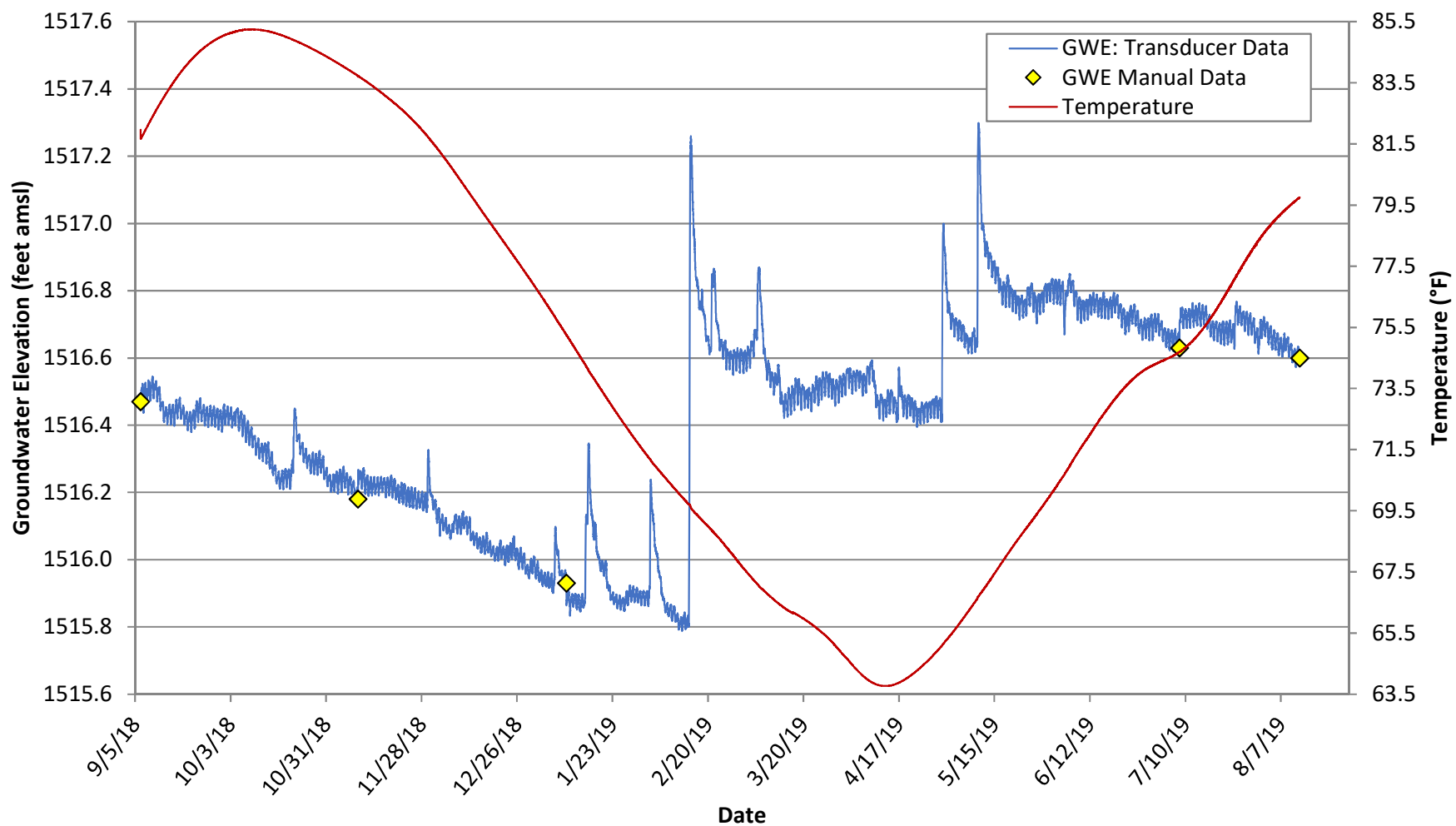
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. DTW measurement from 11/9/2018 not used for transducer record adjustment.

NERT5.11S1 Hydrograph



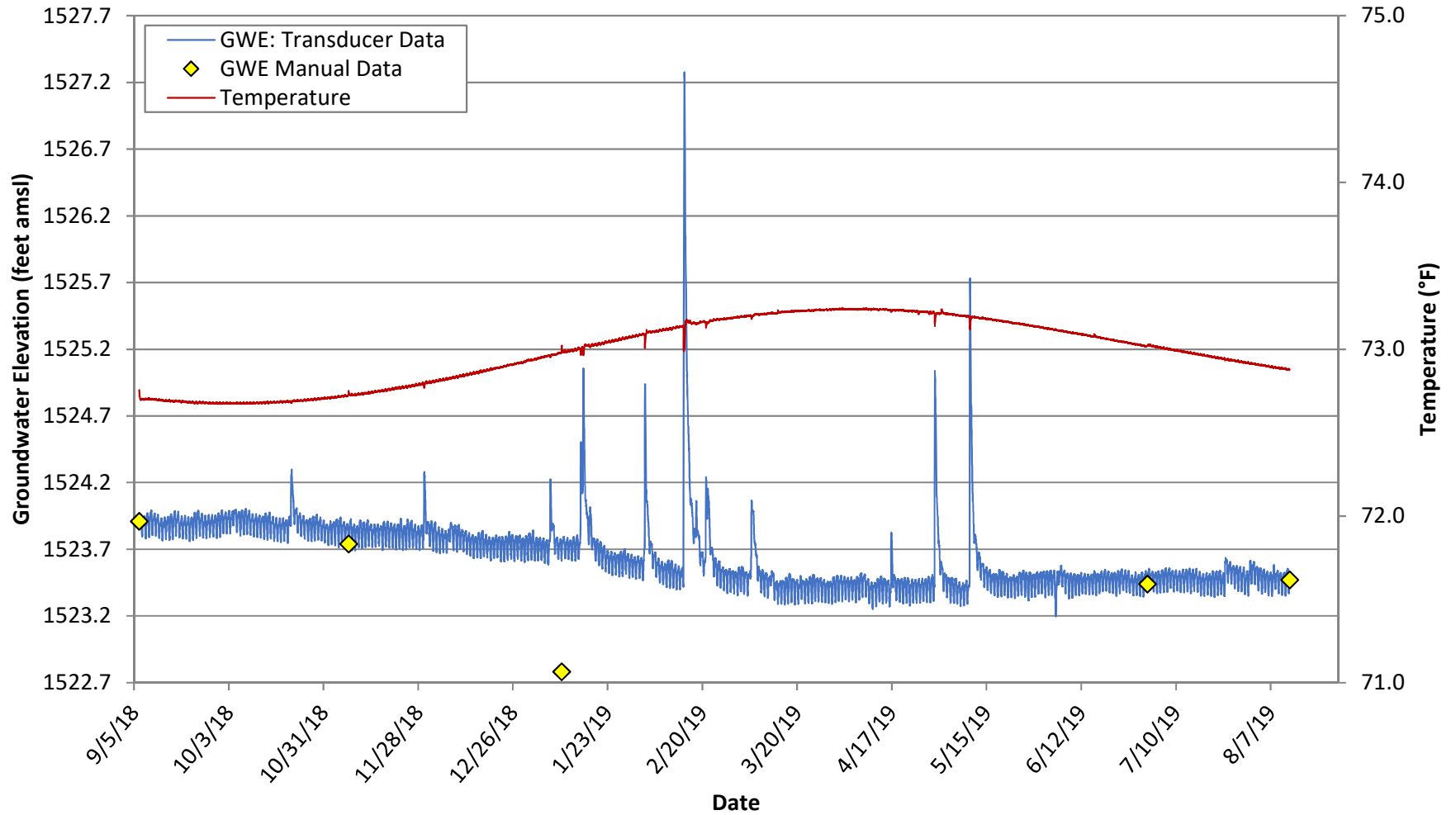
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT5.49S1 Hydrograph



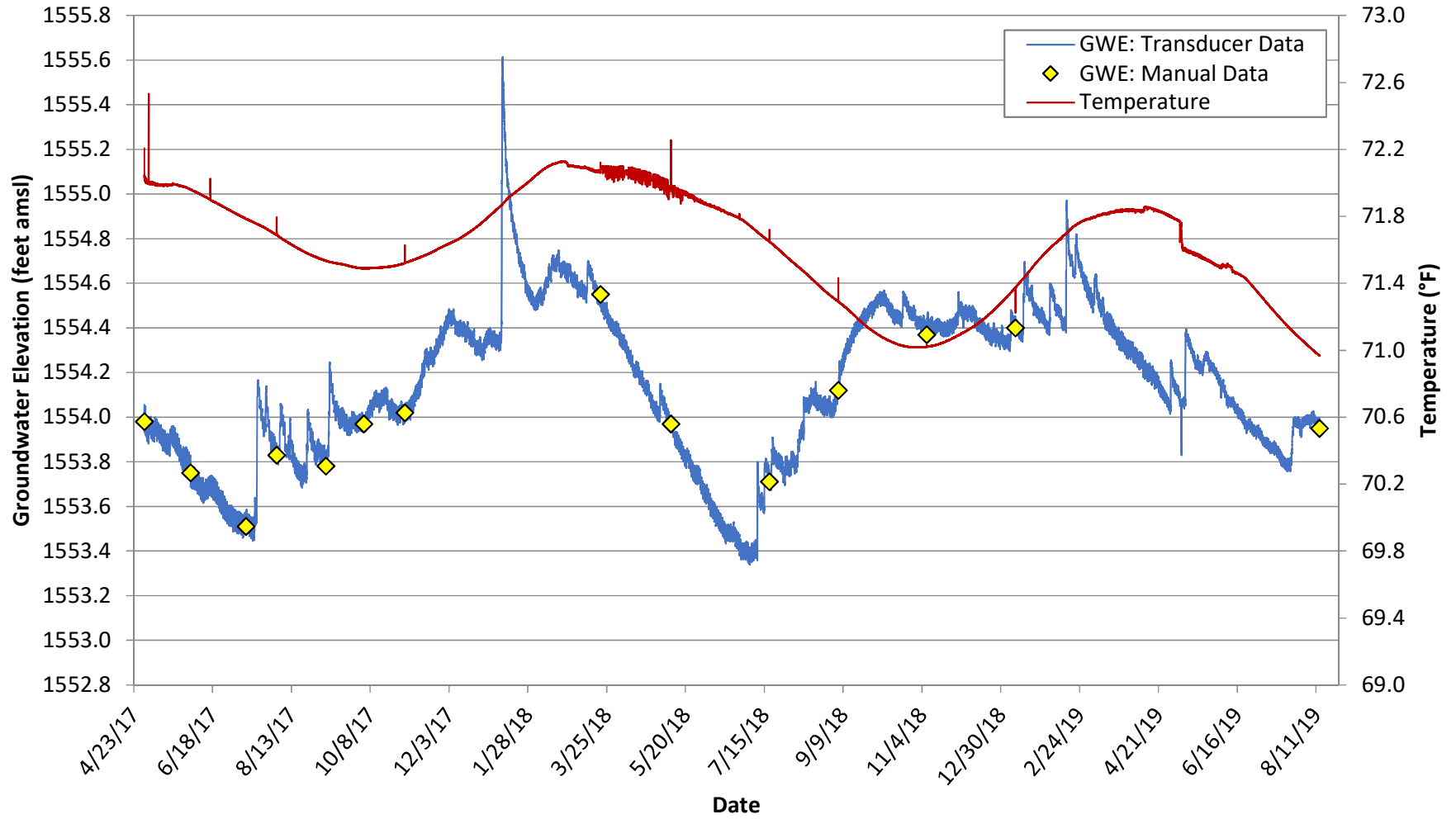
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

NERT5.91S1 Hydrograph



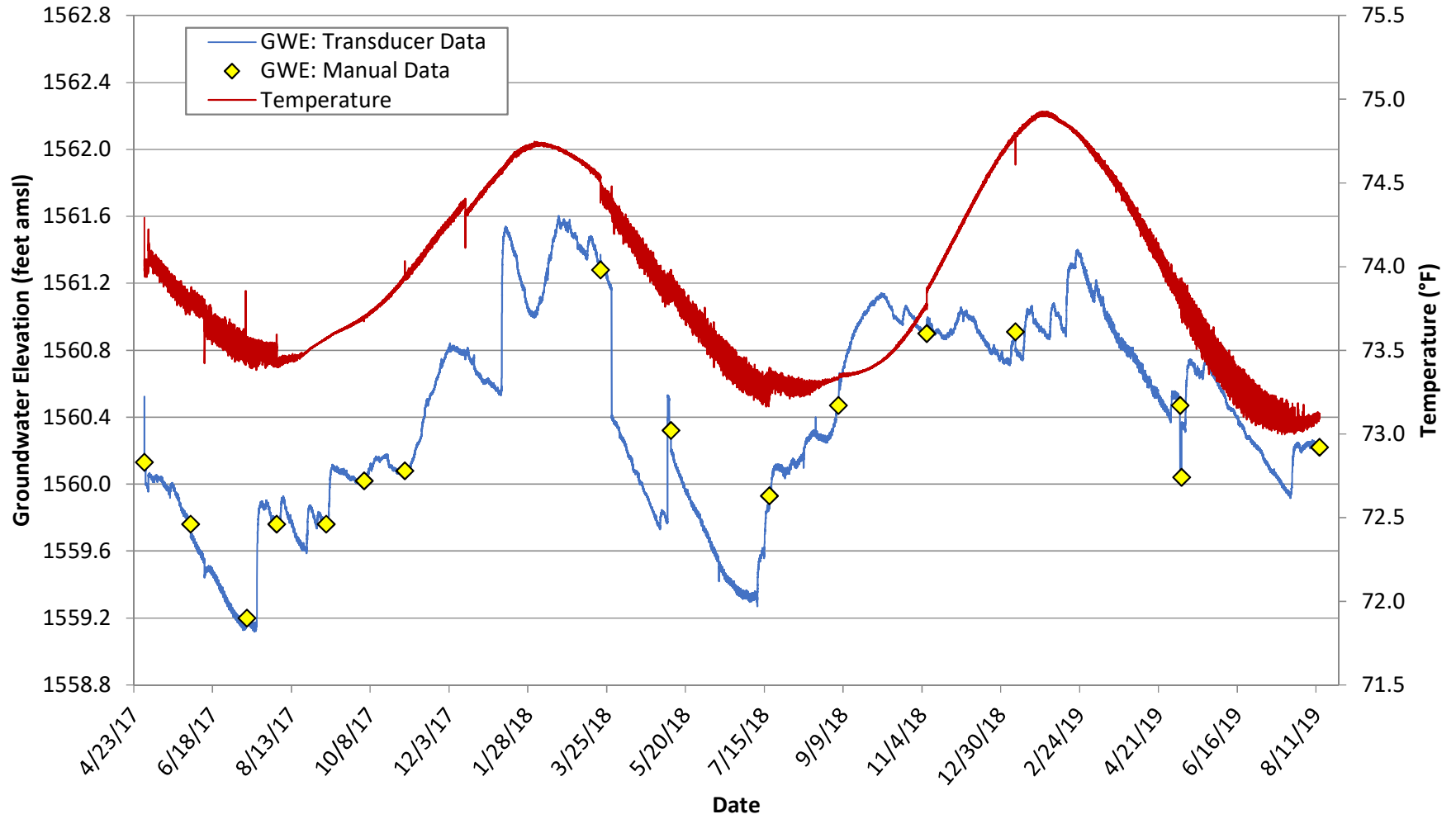
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. DTW measurement on 1/9/2019 not used to adjust transducer data.

PC-74 Hydrograph



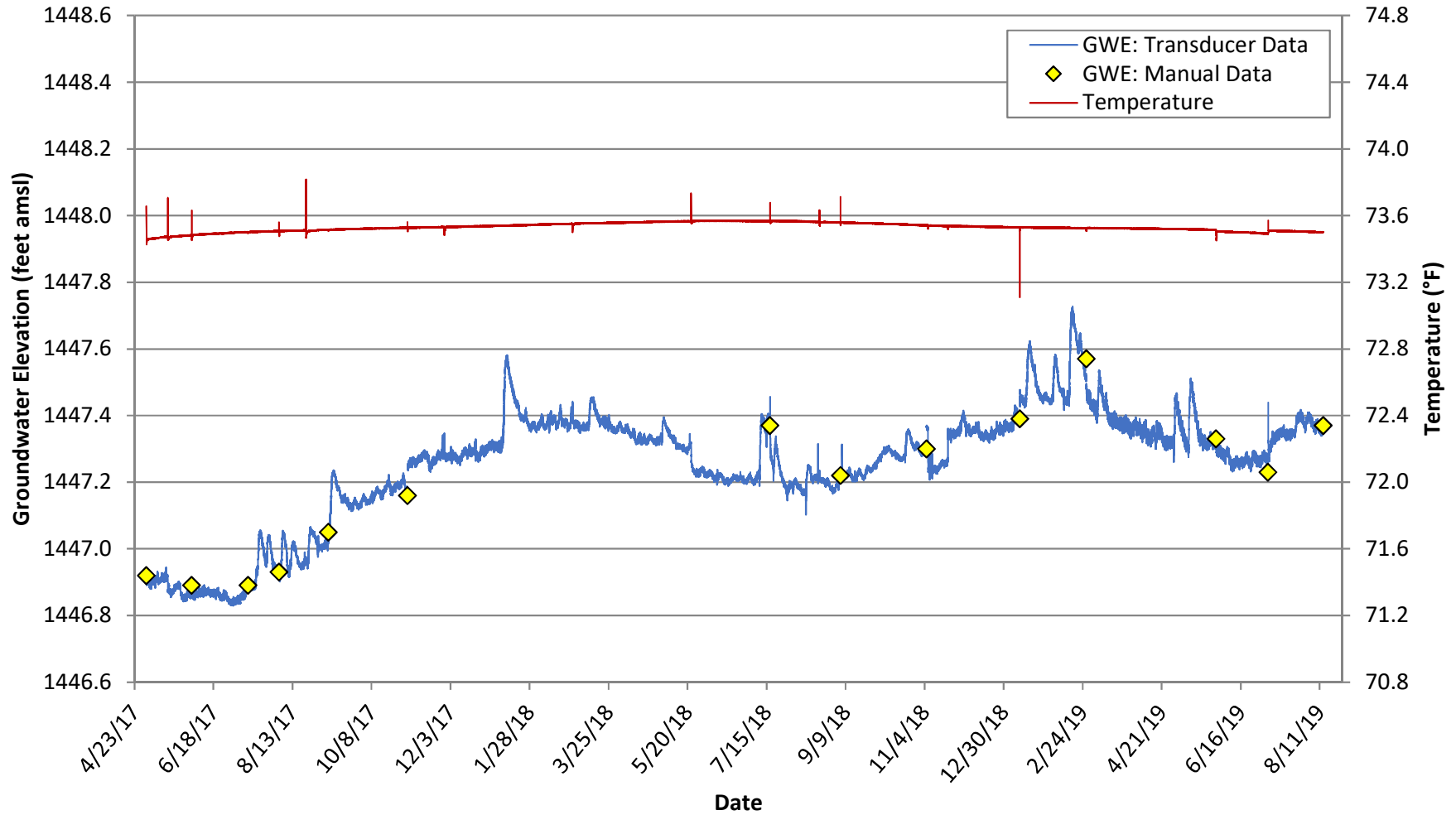
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

PC-77 Hydrograph



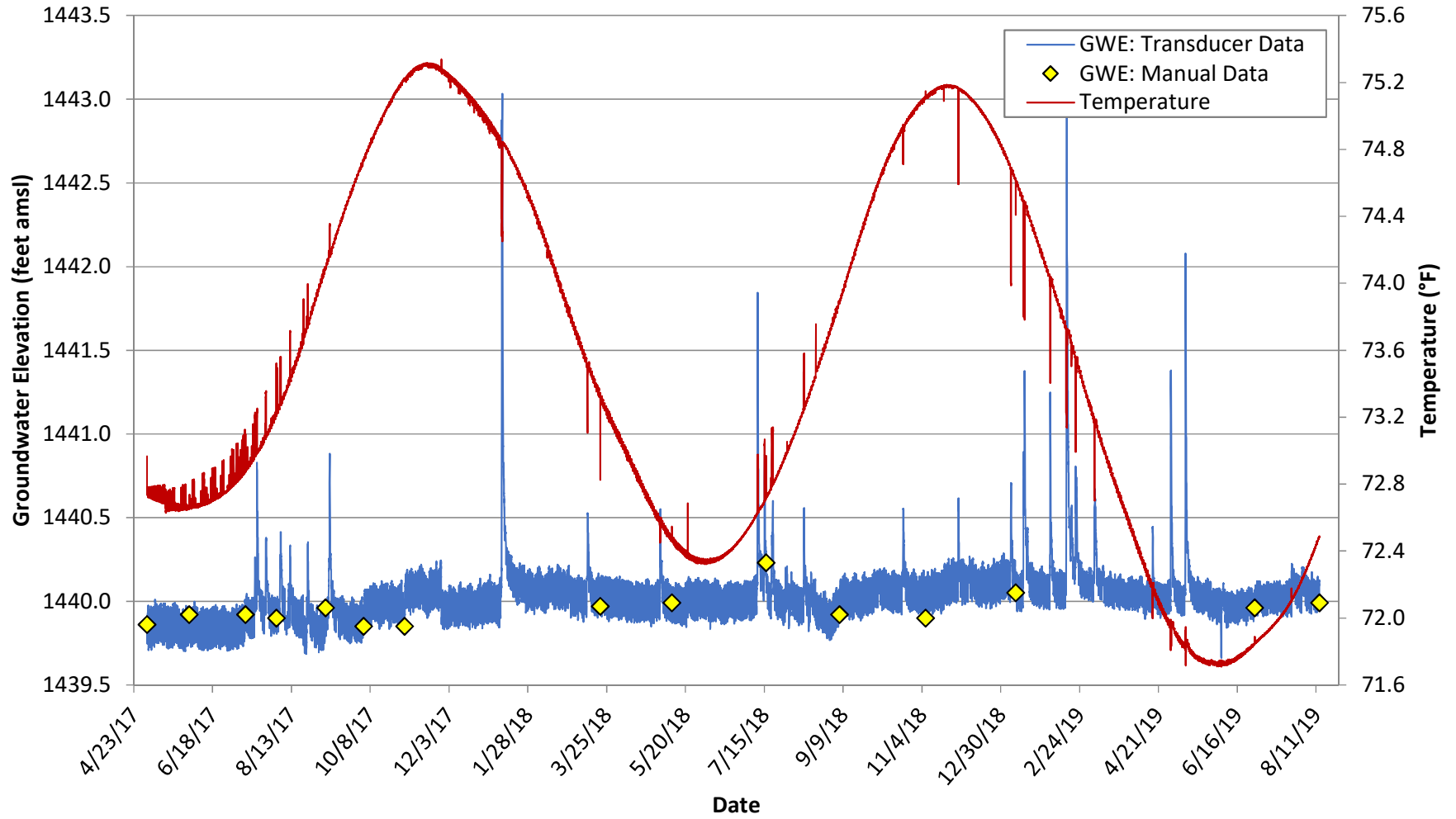
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW3.5N Hydrograph



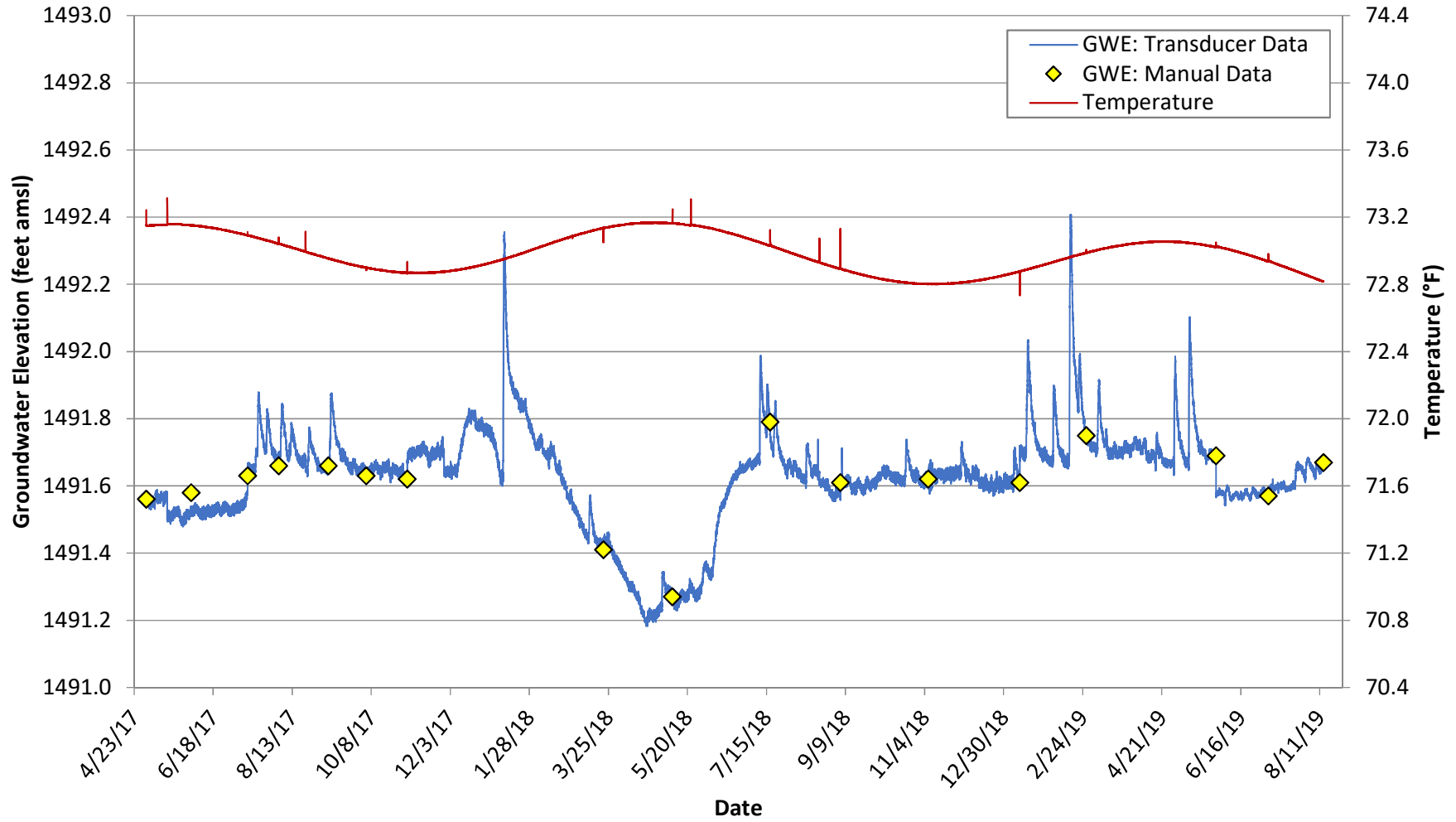
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW3.5S Hydrograph



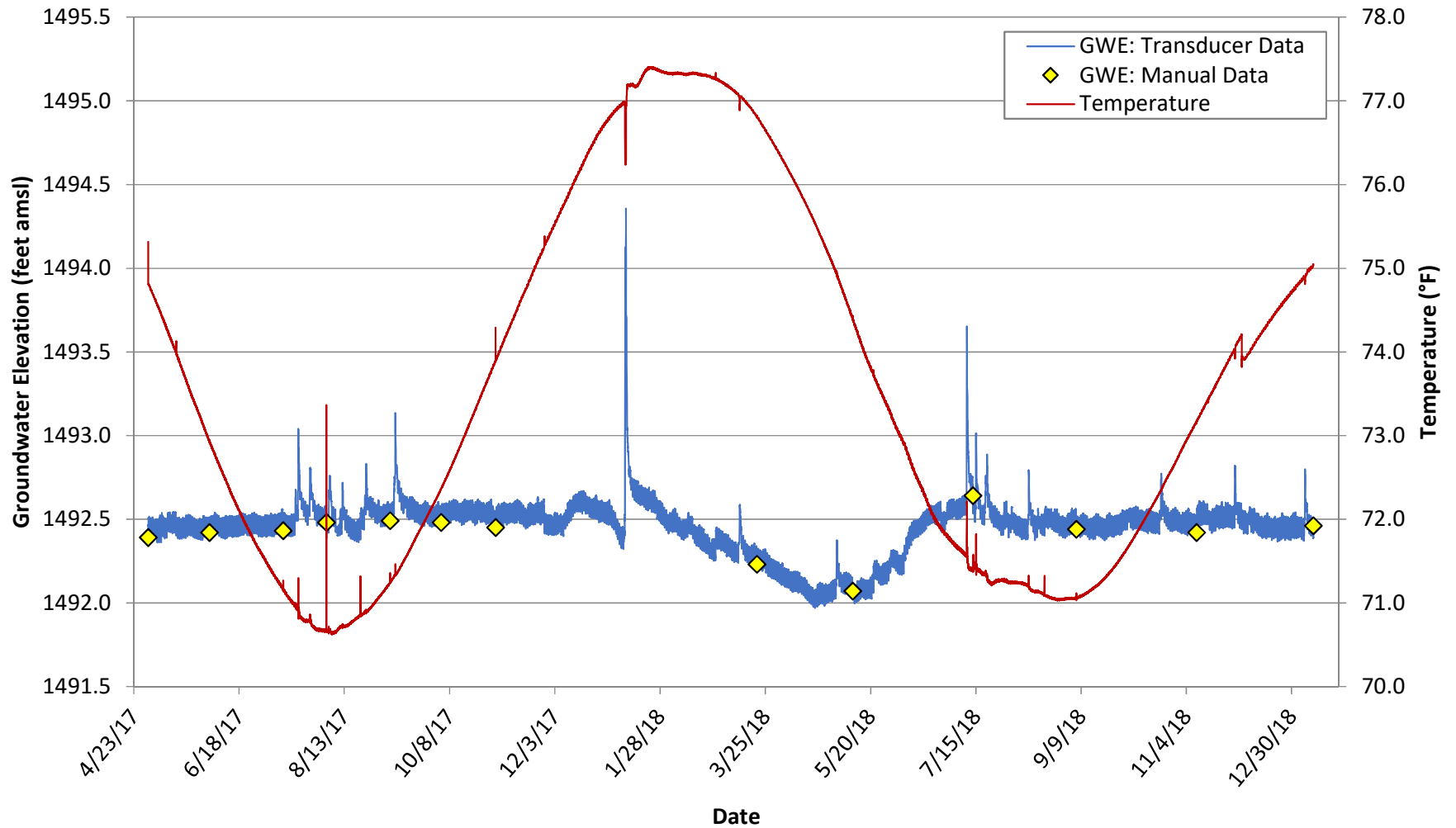
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW4.9N Hydrograph



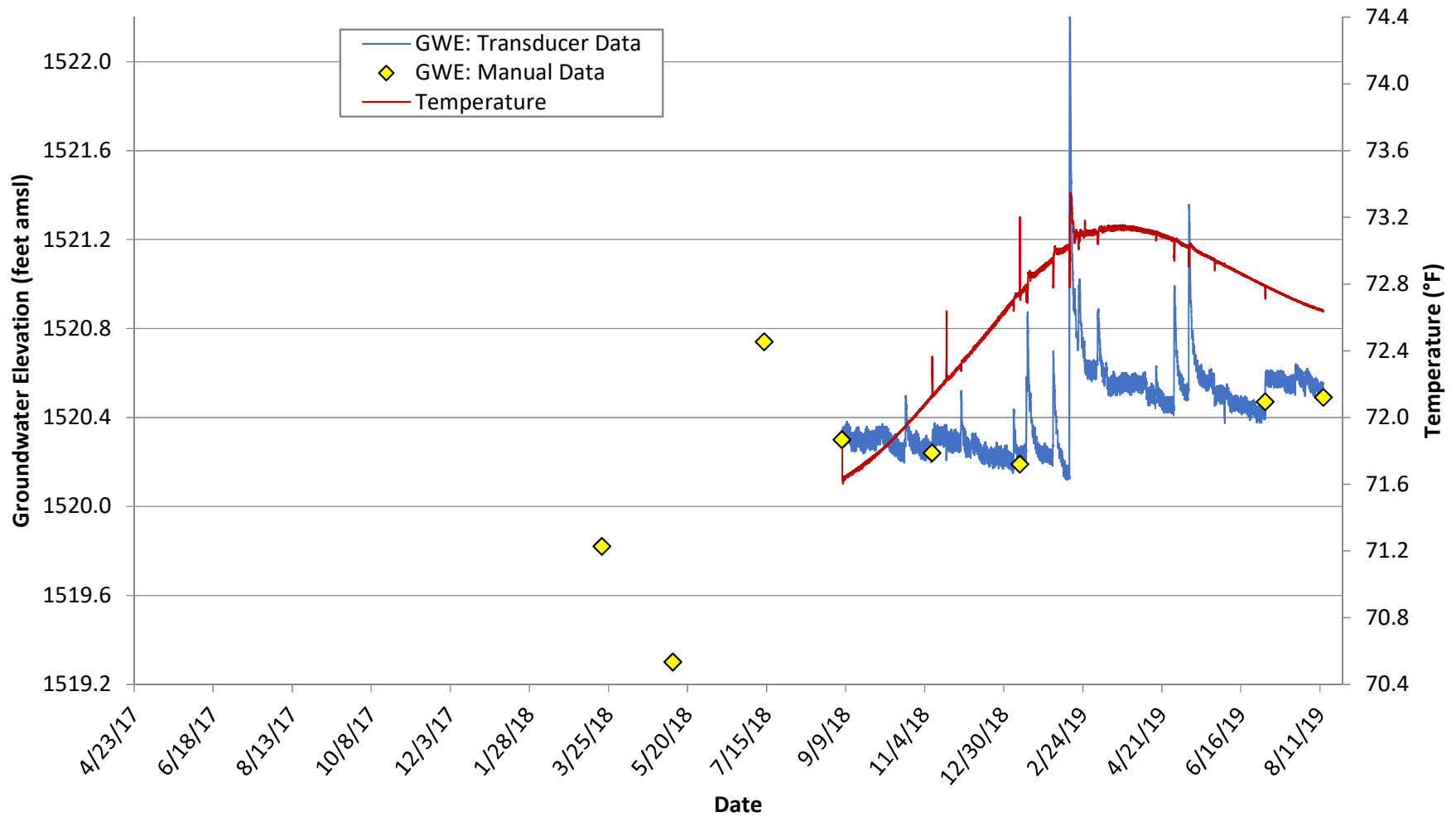
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW4.9S Hydrograph



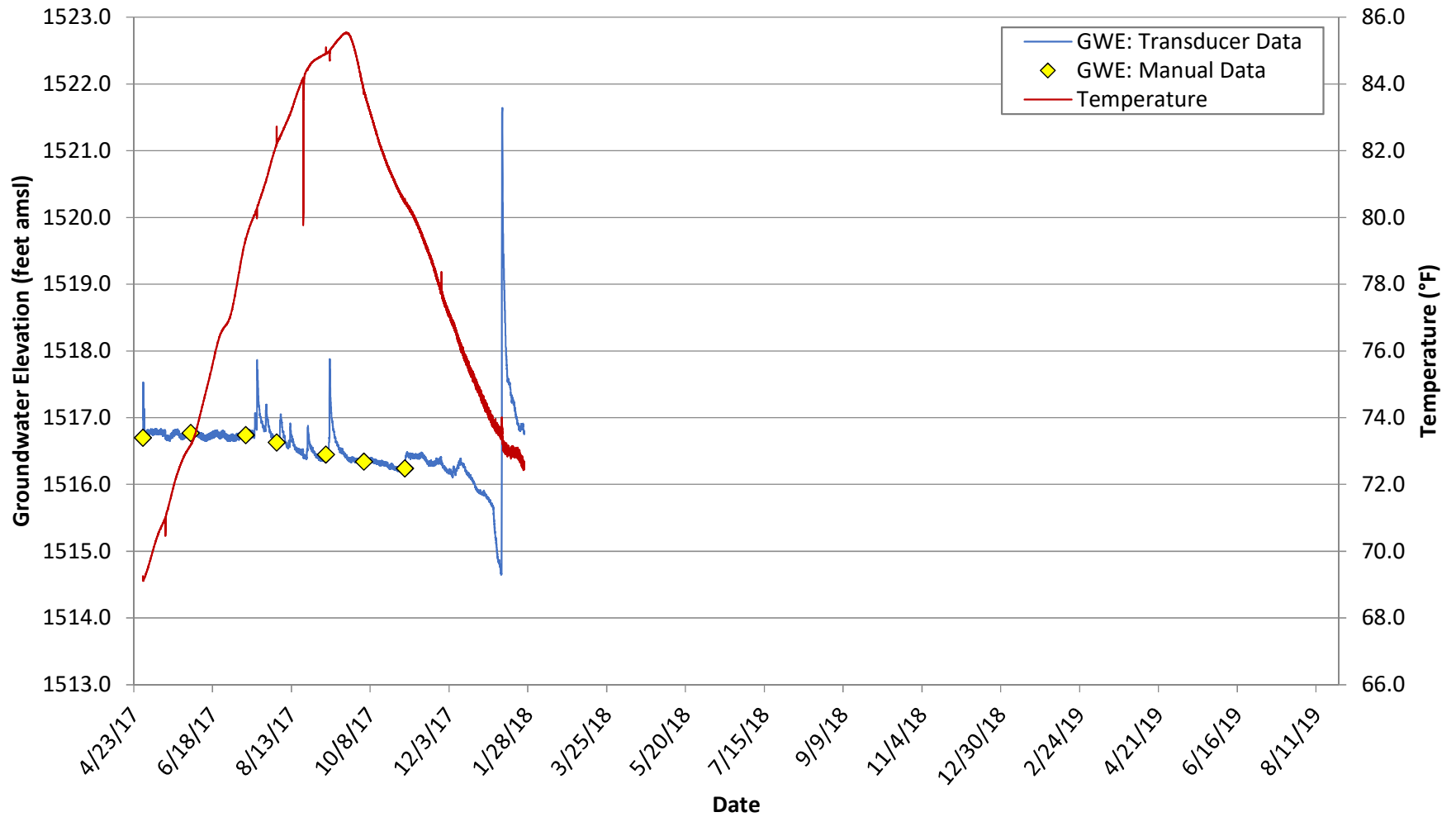
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW5.58S Hydrograph



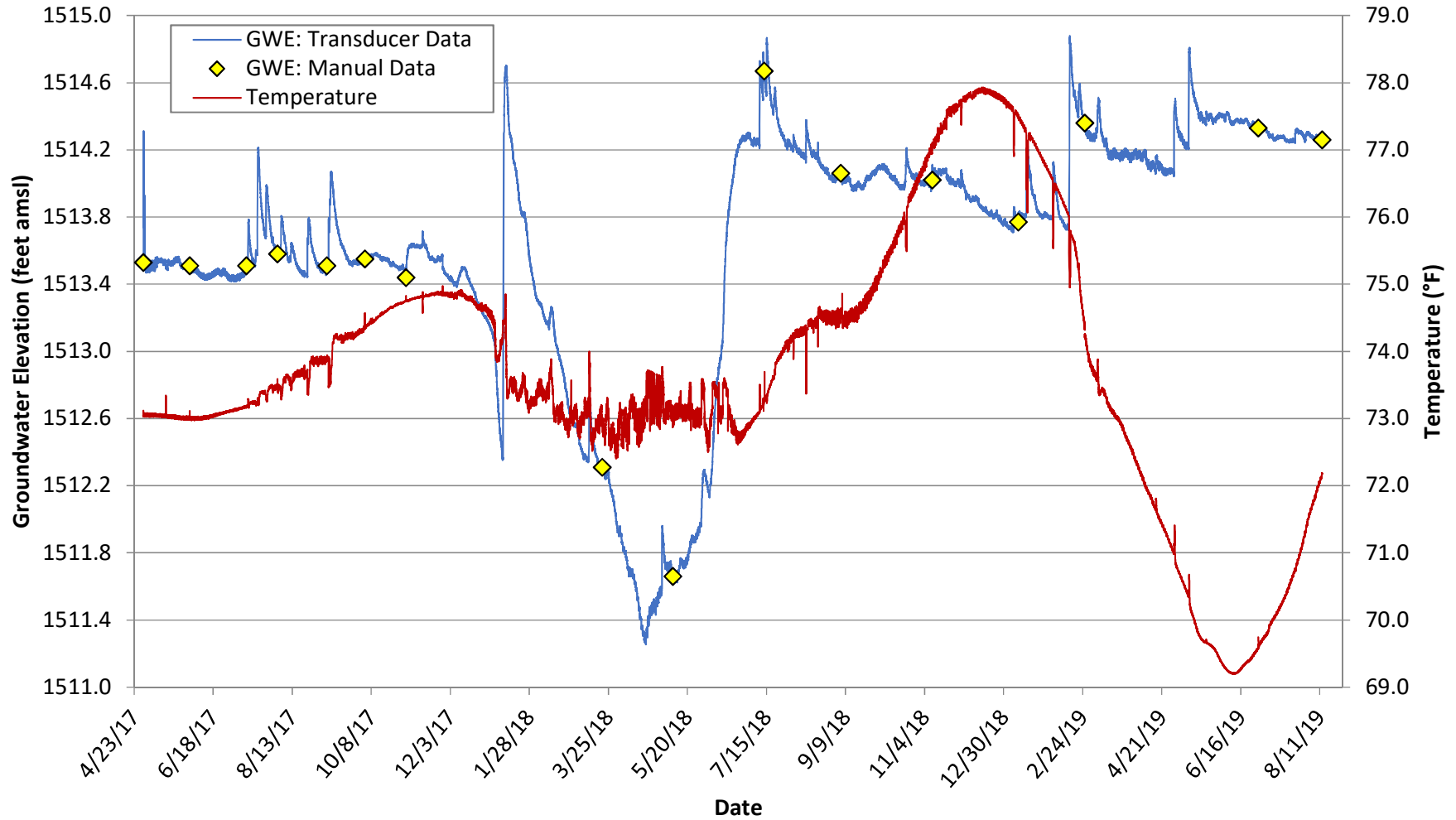
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. Well was installed south of WMW5.58S; transducer placed in well 9/6/2018.

WMW5.58SI Hydrograph



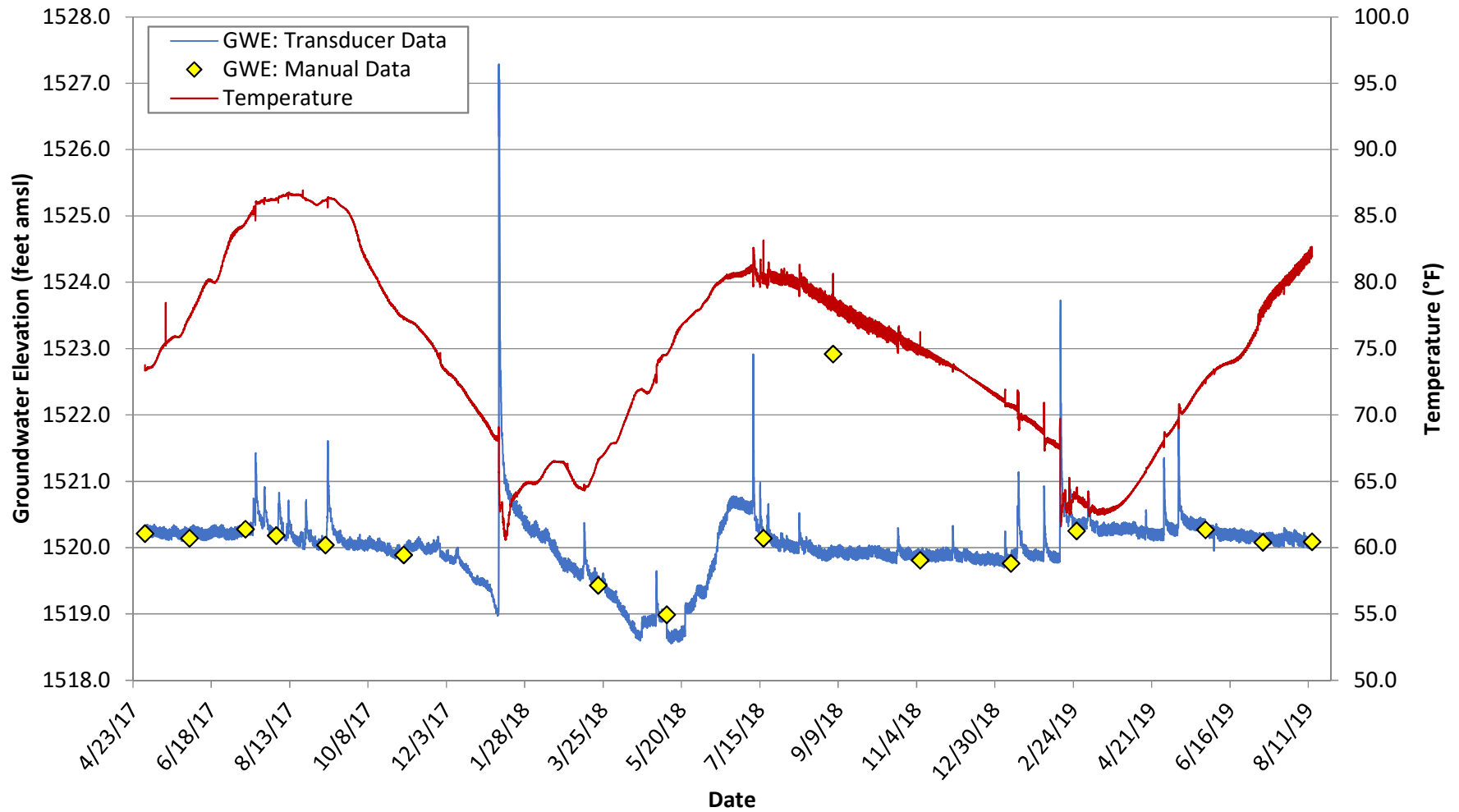
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. Transducer was removed from well on January 25, 2018 because well was destroyed.

WMW5.5S Hydrograph



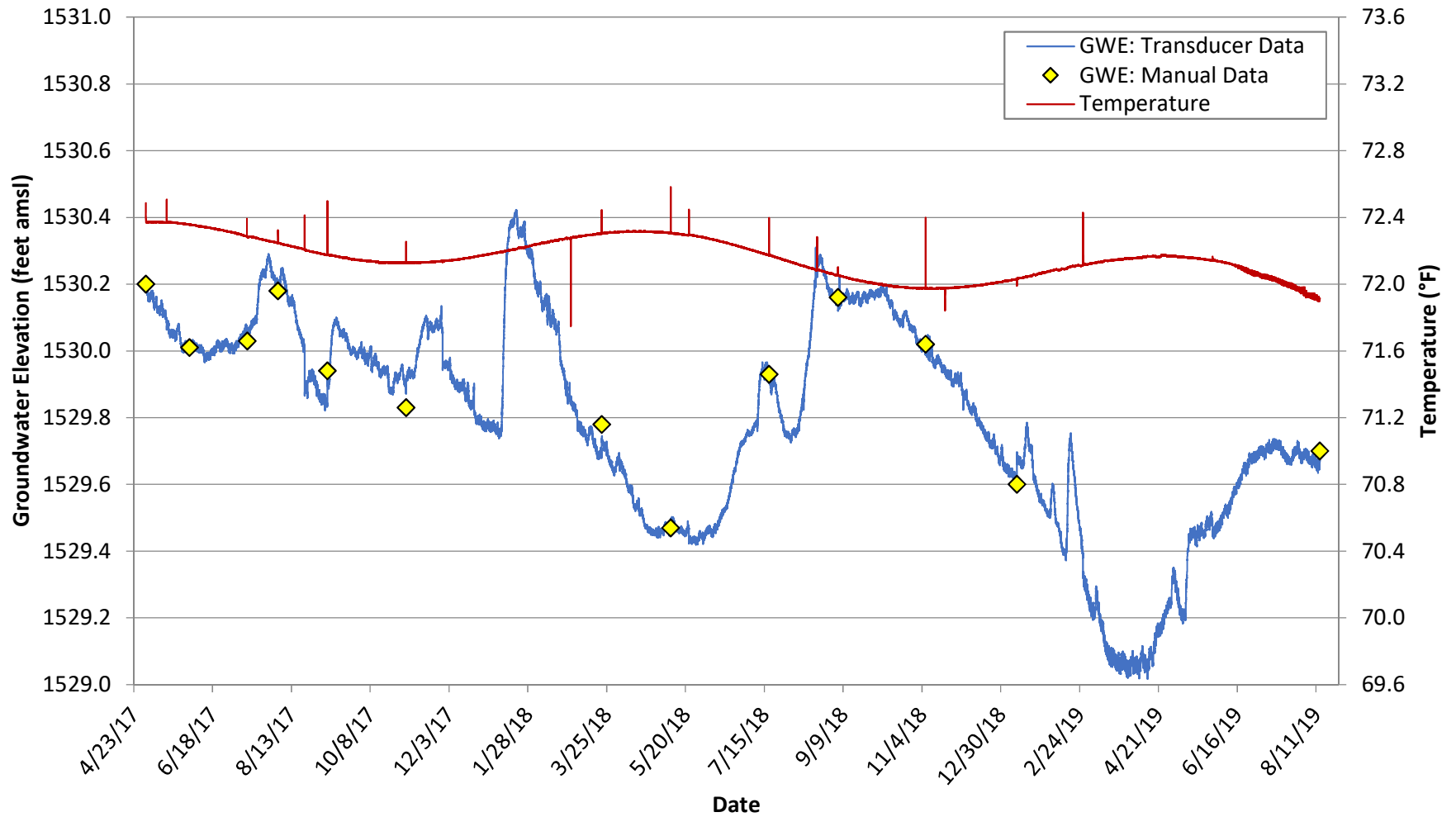
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW5.7N Hydrograph



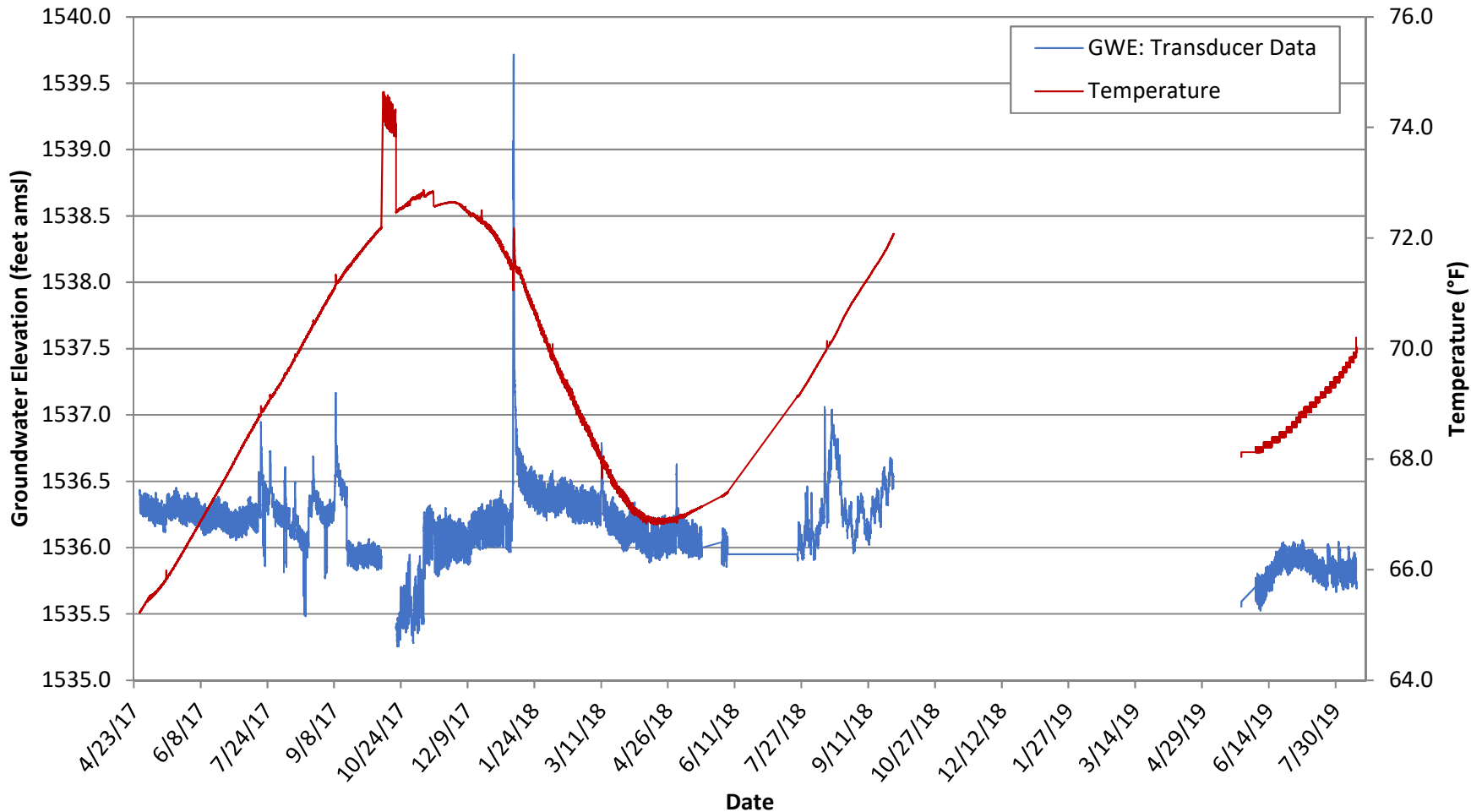
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. DTW data on 9/4/2018 not used to adjust transducer record.

WMW6.15N Hydrograph



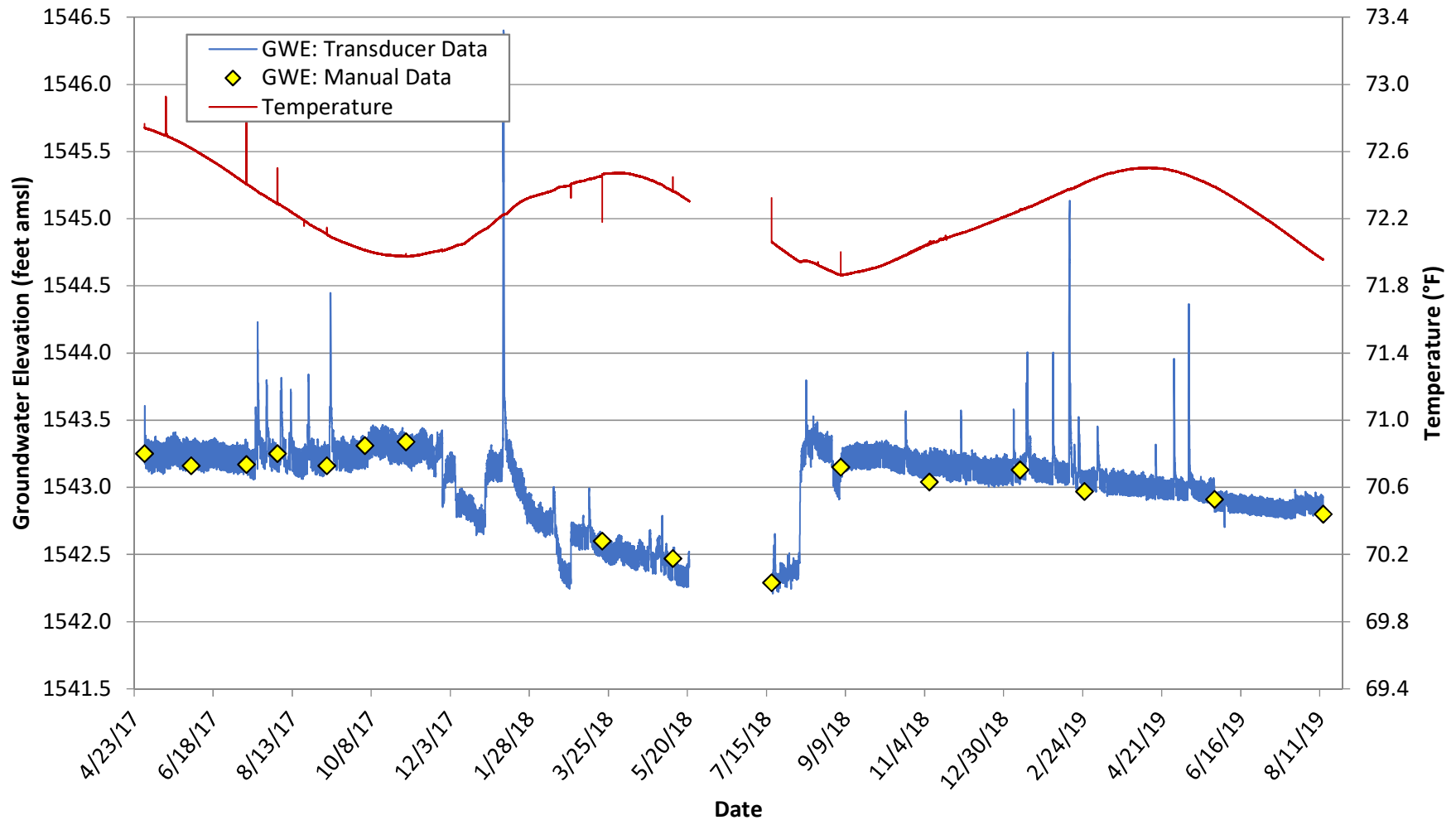
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW6.15S Hydrograph



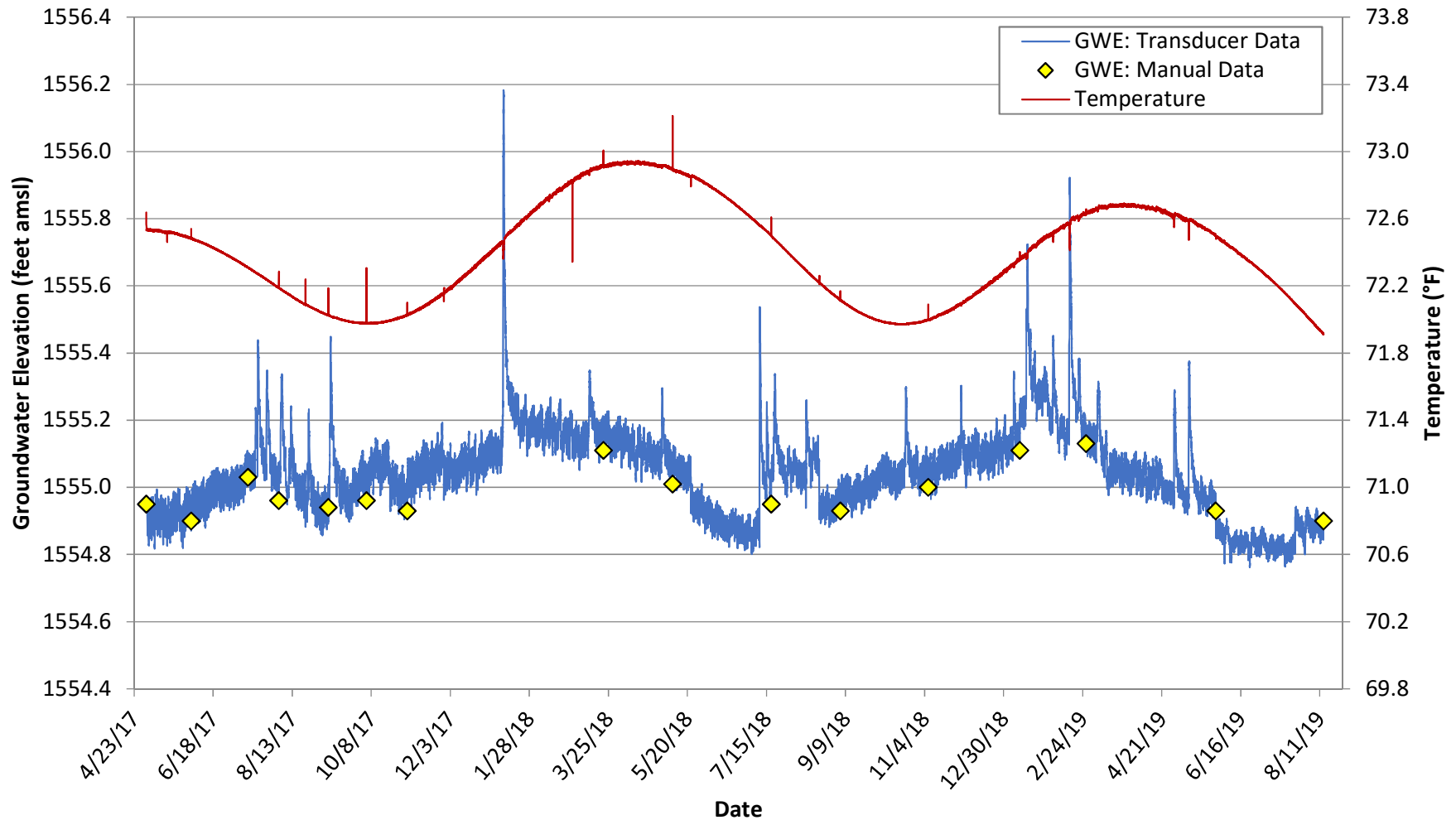
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were calculated using a reference elevation defined by Ramboll.
 3. Technical issue with transducer produced data gap from Fall 2018 to Summer 2019. No Mann Kendall trend analysis was conducted on this hydrograph.

WMW6.55S Hydrograph



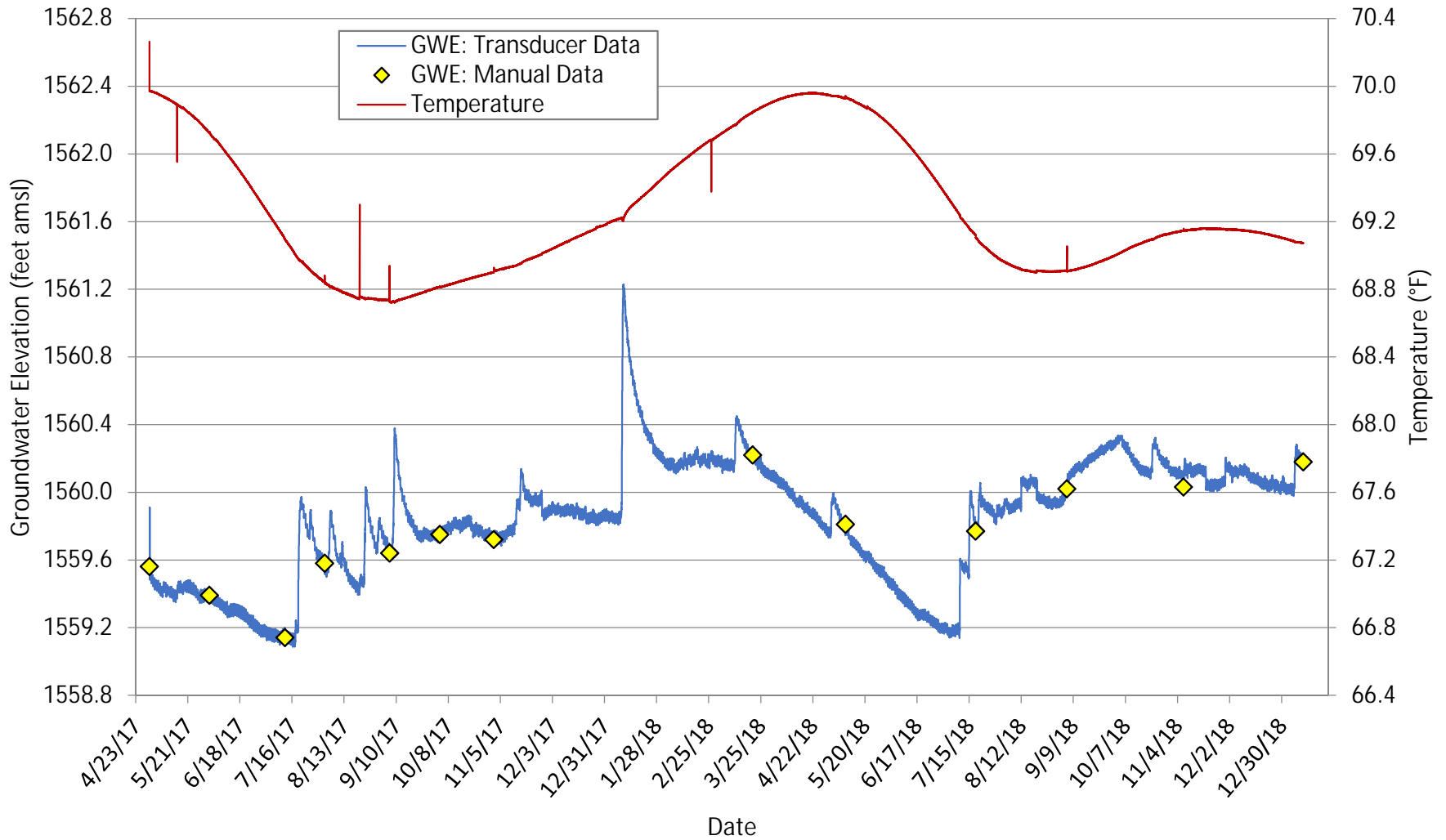
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. Transducer was unintentionally left outside of well on 5/21/2018. No data recorded between 5/21/2018 and 7/18/2018.

WMW6.9N Hydrograph



- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW6.9S Hydrograph



- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

Appendix D

Daily Field Reports

DAILY ACTIVITY REPORT

DATE:	11/1/17	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI – Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - S. side of 2V wash	Temp °F:	degrees 85°						
		Wind:	Still	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric R. Wang	GES	Staff Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED Onsite @ O&IS to perform the monthly groundwater well gauging and quarterly transducer downloading for all the wells located on the south side of the Las Vegas Wash. The Henderson Landfill gate was inaccessible on the Galleria roadside due to someone locking the wrong locks together. I had to hike from MW-20 to MW-13 to perform the well gauging & downloading. Upon performing the downloading of MW-13, the level reader froze up. I hiked back to the truck to retrieve the screw driver for the level reader to power off the device to restart the process. 3 readings from 10:15-10:45 will be omitted from the recording since the transducer was not inside the well. All south side wells were gauged and transducers downloaded and I was offsite for the office @ 1:00.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solanist Level loader		
" water level meter		

Material/Supplies Received at the Site:
Field Activities and Remarks Not Presented Above:

Name: Eric R. Wang

Date: 11/1/17

DAILY ACTIVITY REPORT

DATE:	11-2-17	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - N. side of 2V WASH	Temp °F:	degrees 82°						
		Wind:	Still	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite at the North side entrance to the Las Vegas Wash @ 0800, to perform the monthly groundwater well monitoring and quarterly transducer downloading. The level logger has continuously been sluggish & freezes during its operations, may need calibrating. Monitoring well LNDMM/A transducer did not record any readings since last download check 2 months ago, will check the transducer next month to ensure proper operation after today's reset. All 6 monitoring wells on the North side of the Las Vegas Wash was gauged & downloaded. Offsite to the Land well office to return the key to AH-30 @ 1200 and return to the GES office.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst level logger		
w. water level meter		

Material/Supplies Received at the Site:
Field Activities and Remarks Not Presented Above:

Name: Eric A Wang

Date: 11/2/17

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Data Log #	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
AA-30	36.0865571	-114.9742534	11/1/17	1308	19.41	yes 1309	yes	2069913 #37	yes	131400 131406	yes	Excellent condition Restarted @ 133000
COH2B1	36.0863473	-114.9861928	11/1/17	1323	16.72	yes 1324	yes	2069892 #38	yes	-6sec 132900 132847	yes	Excellent condition Restarted @ 134500
LNDMW1	36.0932094	-114.9572109	11/1/17	114100	37.03	yes 1142	yes	2069896 #32	yes	114700 114636 +24sec	yes	Excellent condition Restarted @ 120000
LNDMW2	36.0959057	-114.9581419	11/2/17	0936	34.52	yes 0937	*NO	2069894	NO	094300 094236 +24sec	yes	Excellent condition Restarted @ 094500 *NO Readings were recorded
MW-13	36.0893990	-114.9668492	11/1/17	1001	35.16	yes 1002	yes	2069903 #31	yes	110200 110214 -14sec	yes	Excellent condition - Level loaded Restarted @ 111500 Froze * See daily Report for Add'l info
MW-20	36.0913381	-114.9591051	11/1/17	0916	32.94	yes 0918	yes	2069901 #30	yes	092100 092029 +31sec	yes	Excellent condition Restarted @ 094500
PC-74	36.0875307	-114.9976758	11/1/17	1406	11.30	yes 1407	yes	2067239 #40	yes	141200 -51sec 141251	yes	Excellent condition Restarted @ 141500 @
PC-77	36.0863375	-114.9982664	11/1/17	1435	6.78	yes 1438	yes	2063359 #42	yes	144600 144409	+171sec yes	Excellent condition Restarted @ 150000
WMW3.5N	36.0976828	-114.9480654	11/2/17	0856	35.38	yes 0901	yes	2069895 #43	yes	091500 091530 -30sec	yes	Excellent condition Restarted @ 093000
WMW3.5S	36.0962514	-114.9451632	11/1/17	0839	43.69	yes 0839	yes	2065098/ #29	yes	084500 084532 -32sec	yes	Excellent condition Restarted @ 090000
WMW4.9N	36.0949374	-114.9664624	11/2/17	0955	31.75	yes 0956	yes	2069885 #44	yes	100400 100358 +2sec	yes	Excellent condition Restarted @ 101500
WMW4.9S	36.0909079	-114.9664822	11/1/17	120100	26.39	yes	yes	2069899 #33	yes	121000 120915 +45sec	yes	Excellent condition Restarted @ 121500

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Data Log #	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
WMW4.9S Barometer	36.0909079	-114.9664822	11/1/17	121100	11	yes 121100	yes	2069737 # 34	yes	121300 121358	yes	Barometer in Excellent condition Restarted @ 123000
WMW5.58S1	36.0891989	-114.9778061	11/1/17	124600	9.84	yes 124840	yes	2069897 # 36	yes	-58sec 125700 125529 +91secs	yes	Excellent condition Restarted @ 130000
WMW5.5S	36.0873319	-114.9754580	11/1/17	123100	14.78	yes 123200	yes	2069900 # 35	yes	123600 123635 -35sec	yes	Excellent condition Restarted @ 124500
WMW5.7N	36.0886006	-114.9798359	11/2/17	1022	8.61	yes 1023	yes	2069904 # 45	yes	102700 -8secs 102708	yes	Excellent condition Restarted @ 104500
WMW6.15N	36.0912006	-114.9865133	11/2/17	1046	22.72	yes 1047	yes	2069891 # 46	yes	105100 +6secs 105059	yes	Excellent condition Restarted @ 110000
WMW6.55S	36.0884676	-114.9942317	11/1/17	1424	15.91	yes 1425	yes	2069889 # 41	yes	142900 +27secs 142833	yes	Excellent condition Restarted @ 144500
WMW6.9N	36.0918121	-114.9986259	11/2/17	1102	18.23	yes 1104	yes	2068798 # 47	yes	110700 -87secs 110827	yes	Excellent condition Restarted @ 111500
WMW6.9S	36.0890141	-115.0002799	11/1/17	1350	10.88	yes 1351	yes	2067219 # 39	yes	135700 +36sec 135624	yes	Excellent condition Restarted @ 140000

Notes:

- Note the time that the transducer was pulled out and replaced, so that the appropriate data can be ignored.
- Note conditions of the rope and transducer; clean transducer if necessary.
- When checking transducer, compare the transducer's time to the Leveloader time, and calibrate if needed.
- Data to be downloaded quarterly (approx. beginning of August and November).
- Verify that the serial number for the Log ID downloaded matches the serial number of the transducer, and that data appears complete (should have data starting in April/May, recording every 15 minutes).
- Record transducer time, time of reference clock, and difference in time between the two.
- Synchronize transducer to Leveloader, and restart the transducer (erase previous data) so that a future start time is set to a 15-minute interval (10:15:00, etc.).

DAILY ACTIVITY REPORT

DATE:

3-20-18

PROJECT NAME:

NERT Regional
Groundwater RI -
Geophysical Pilot Test

SITES / LOCATIONS:

S. side of LV wash

Day:	S	M	<input checked="" type="radio"/> T	W	Th	F	S
Weather:	<input checked="" type="radio"/> Sunny	<input type="radio"/> Partly Sunny	<input type="radio"/> Cloudy	<input type="radio"/> Rain	<input type="radio"/> Snow		
Temp °F:	degrees 69°						
Wind:	<input checked="" type="radio"/> Still	<input type="radio"/> Moderate	<input type="radio"/> High	Direction:			
Humidity:	<input checked="" type="radio"/> Dry	<input type="radio"/> Moderate	<input type="radio"/> Humid	<input type="radio"/> Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED: Onsite @ 030 to start gauging and download all transducer data from all the monitoring wells located on the South Side of the Las Vegas Wash, w/ the exception of MW-13 & MW-20 (due to restrictions). Robert Huening of SNWA informed me that WNW-5851 was demolished/abandoned for water construction. A new monitoring well was recently installed in its place near the bike path. SNWA gave GES the transducer that was inside that well. GES also gauged 1 additional well WNW-6155 per AECOM request. All wells on the South side of the wash, with the exception of the coil land fill, was completed. Offsite @ 1600 for the office.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst water meter		
Level loader		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric R Wang

Date: 3-20-18

DAILY ACTIVITY REPORT

DATE: 3-21-18
 PROJECT NAME: NERT Regional Groundwater RI - Geophysical Pilot Test
 SITES / LOCATIONS: N. side of L.V. wash

Day:	S	<u>M</u>	T	<u>W</u>	Th	F	S
Weather:	<u>Sunny</u>	Partly Sunny	Cloudy	Rain	Snow		
Temp °F:	degrees <u>70°</u>						
Wind:	Still	<u>Moderate</u>	High	Direction:			
Humidity:	<u>Dry</u>	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
<u>Eric Wang</u>	<u>GES</u>	<u>Staff Geologist</u>

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED Onsite @ 0800 to begin drive to the NE well WMW3.5 N. Upon arrival at the well, the lock on the cap was still locked. Moving on to well LNMW2, the lock was also locked still. Carmen w/ AECOM was notified and a phone call to SMTA was placed to see if the locks can be unlocked today. According to SMTA staff with the keys, it wouldn't be possible until 3pm the earliest. I proceeded to gauge & download data from the 4 remaining wells on the property. Upon completion, Carmen instructed me to postpone these 2 wells until we get access to the Col Landfill wells before returning to the site. Offsite @ 1230 to return the Landwell company key for AA-30, then back to the office to download all data for AECOM use.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <u>Yes</u> No
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: _____

Date: _____

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
AA-30	36.0865571	-114.9742534	3-20-18	1317	20.58	yes 1318	yes	yes	132600 132601 -1 sec diff	yes 133000	Transducer in Excellent condition
COH2B1	36.0863473	-114.9861928	3-20-18	1353	16.15	yes 1255	yes	yes	140100 140101 -1 sec diff	yes 141500	Transducer in Excellent condition
LNDMW1	36.0932094	-114.9572109	3-20-18	1157	36.89	yes 120100	yes	yes	120800 120801 -1 sec diff	yes 121500	Transducer in excellent condition
** LNDMW2	36.0959057	-114.9581419	3-21-18								Locked postponed per comment
** MW-13	36.0893990	-114.9668492									No Access
** MW-20	36.0913381	-114.9591051									No Access
PC-74	36.0875307	-114.9976758	3-20-18	1450	10.77	yes 1452	yes	yes	145900 145901 -1 sec diff	yes 151500	Transducer in Excellent condition
PC-77	36.0863375	-114.9982664	3-20-18	1528	5.58	yes 1531	yes	yes	153900 153801 -1 sec diff	yes 1545	Transducer in Excellent condition
** WMW3.5N	36.0976828	-114.9480654	3-21-18								Locked postponed per comment
WMW3.5S	36.0962514	-114.9451632	3-20-18	1038	43.57	yes 1040	yes	yes	105100 105101 -1 sec diff	yes 110000	Transducer in excellent condition
WMW4.9N	36.0949374	-114.9664624	3-21-18	0928	31.96	yes 0931	yes	yes	093200 093201 -1 sec diff	yes 094500	Transducer in excellent condition
WMW4.9S	36.0909079	-114.9664822	3-20-18	1225	26.61	yes 1231	yes	yes	123800 123801 -1 sec diff	yes 130000	Transducer in excellent condition

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
WMW4.9S Barometer	36.0909079	-114.9664822	same	95	above	yes 1231	yes	yes	124600 124601 -1 sec diff	yes 13000	Barometer in excellent condition
WMW5.58S1	36.0891989	-114.9778061	New monitoring well 3-20-18	1337	17.52	Removed from old well	yes	yes		NO	well demolished, transducer retrieved by SIMA and given to GFS. Gauge now demolished well.
WMW5.5S	36.0873319	-114.9754580	3-20-18	1301	15.91	yes 1303	yes	yes	131000 131001 -1 sec diff	yes 131500	Transducer in excellent condition
WMW5.7N	36.0886006	-114.9798359	3-21-18	1005	9.07	yes 1007	yes	yes	101900 101401 -1 sec diff	yes 103000	Transducer in excellent condition
WMW6.15N	36.0912006	-114.9865133	3-21-18	1040	22.77	yes 1042	yes	yes	104700 104701	yes 110000	Transducer in excellent condition
WMW6.15S	36.0877433	-114.9878030	3-20-18	1422	7.90						** Do no pull up transducer **
WMW6.55S	36.0884676	-114.9942317	3-20-18	1438	16.65	yes 1440	yes	yes	144200 144201 -1 sec diff	yes 144500	Transducer in excellent condition
WMW6.9N	36.0918121	-114.9986259	3-21-18	1110	18.05	yes 1116	yes	yes	111800 111801 -1 sec diff	yes 113000	Transducer in excellent condition
WMW6.9S	36.0890141	-115.0002799	3-20-18	1511	10.38	yes 1513	yes	yes	151600 151601 -1 sec diff	yes 153000	Transducer in excellent condition.

*well data ended on 1/25/18 @ 10:00

Notes:

1. Note the time that the transducer was pulled out and replaced, so that the appropriate data can be ignored.
2. Note conditions of the rope and transducer; clean transducer if necessary.
3. When checking transducer, compare the transducer's time to the smart device time.
4. Data to be downloaded bimonthly
5. Verify that the serial number for the Log ID downloaded matches the serial number of the transducer, and that data appears complete.
6. Record transducer time, time of reference clock, and difference in time between the two.
7. Synchronize transducer to smart device, and restart the transducer (erase previous data) so that a future start time is set to a 15-minute interval (10:15:00, etc.).

DAILY ACTIVITY REPORT

DATE:	5-9-18		Day:	S	M	T	(W)	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test		Weather:	(Sunny)	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	North-south side of wash		Temp °F:	degrees 106						
			Wind:	Still	(Moderate)	High	Direction:			
			Humidity:	(Dry)	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	G E S	Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED: onsite @ 0645 to perform monitoring well gauging and transducer downloading on the north side of the wash. Upon arriving @ WNW 3.5N, the keys for that lock would not insert into the lock. Cameron was contacted and the well will be skipped for this month offsite from the north side of the wash @ 0930 for mandatory meetings. Back onsite @ 1100 to start on the south side of the wash. Finished the day @ WNW 1.5 S, which the transducer gave me error messages which didn't allow downloading. Will try to download this transducer tomorrow. offsite @ 1605 for the office.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET (Yes) No
--	--

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst level logger		
IPad		
Solinst water level meter		
Material/Supplies Received at the Site:		
Field Activities and Remarks Not Presented Above:		

Name: Eric Wang

Date: 5-9-18

DAILY ACTIVITY REPORT

DATE:	5-10-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	South side of Wash	Temp °F:	degrees 100°						
		Wind:	Still	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite @ the Coff Landfill @ 0700 to perform monitoring well gauging and transducer downloading. met w/ Stanley consultants for the surveying of the surface water transducers, plus the downloading of transducer data from those areas (S3.8, S3.75, S3.50, S4.6, S4.65, R4.65, S4.95 & S5.3) finished with the surface water transducers @ 1200 and I continued with the monitoring wells. Wmw 5.55 transducer worked today for downloading & restart. This wells transducer was restarted @ 1315 and inserted back into the well today. Last monitoring well w/ the Parameter Wmw 4.93 was completed @ 1300, offsite to the landfill office to return MA30 key @ 1330, then back to GES.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Surveying equipment (Stanley consultants)		
Solinst level/reader		
" water level meter		
Material/Supplies Received at the Site:		
Field Activities and Remarks Not Presented Above:		

Name: Eric Wang

Date: 5-10-18

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
AA-30	36.0865571	-114.9742534	5-9-18	1525	21.02	yes 1531	yes	yes	none	yes 1545	Excellent condition
COH2B1	36.0863473	-114.9861928	5-9-18	1510	16.32	yes 1512	yes	yes	None	yes 1515	Excellent condition
LNDMW1	36.0932094	-114.9572109	5-10-18	1226	36.92	yes 1231	yes	yes	None	yes 1245	Excellent condition
LNDMW2	36.0959057	-114.9581419	5-9-18	0718	34.43	yes 0720	yes	yes	None	yes 0745	Excellent condition
MW-13	36.0893990	-114.9668492	5-10-18	0740	35.87	yes 0742	yes	yes	None	yes 0800	Excellent condition
MW-20	36.0913381	-114.9591051	5-10-18	0805	32.81	yes 0807	yes	yes	None	yes 0830	Excellent condition
PC-74	36.0875307	-114.9976758	5-9-18	1432	11.35	yes 1435	yes	yes	None	yes 1445	Excellent condition
PC-77	36.0863375	-114.9982664	5-9-18	1402	6.54	yes 1404	yes	yes	None	yes 1415	Excellent condition
WMW3.5N	36.0976828	-114.9480654	5-9-18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Key did not open lock
WMW3.5S	36.0962514	-114.9451632	5-10-18	0843	43.55	yes 0846	yes	yes	None	yes 0900	Excellent condition
WMW4.9N	36.0949374	-114.9664624	5-9-18	0746	32.10	yes 0748	yes	yes	None	yes 0800	Excellent condition
WMW4.9S	36.0909079	-114.9664822	5-10-18	1246	26.77	yes 1247	yes	yes	None	yes 1300	Excellent condition

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
WMW4.9S Barometer	36.0909079	-114.9664822	5-10-18	N/A	N/A	yes 1253	yes	yes	None	yes 1300	Excellent condition
WMW5.58S1	36.0891989	-114.9778061	5-9-18	1520	18.04	N/A	N/A	N/A	N/A	N/A	moved well - No Transducer inside
WMW5.5S	36.0873319	-114.9754580	5-9-18	1538	16.56	yes 1540	yes	yes	None	yes 1315 (5-10-18)	Excellent condition - Transducer had communication errors, was able to download and restart on 5-10-18
WMW5.7N	36.0886006	-114.9798359	5-9-18	0805	9.51	yes 0807	yes	yes	None	yes 0815	Excellent condition
WMW6.15N	36.0912006	-114.9865133	5-9-18	0822	23.08	yes 0831	yes	yes	None	yes 0845	Excellent condition
WMW6.15S	36.0877433	-114.9878030	5-9-18	1505	8.99						** Do no pull up transducer **
WMW6.55S	36.0884676	-114.9942317	5-9-18	1447	16.78	yes 1449	yes	yes	None	yes 1500	Excellent condition
WMW6.9N	36.0918121	-114.9986259	5-9-18	0847	18.15	yes 0849	yes	yes	None	yes 0900	Excellent condition
WMW6.9S	36.0890141	-115.0002799	5-9-18	1417	10.79	yes 1419	yes	yes	None	yes 1430	Excellent condition

Notes:

- Note the time that the transducer was pulled out and replaced, so that the appropriate data can be ignored.
- Note conditions of the rope and transducer; clean transducer if necessary.
- When checking transducer, compare the transducer's time to the smart device time.
- Data to be downloaded bimonthly
- Verify that the serial number for the Log ID downloaded matches the serial number of the transducer, and that data appears complete.
- Record transducer time, time of reference clock, and difference in time between the two.
- Synchronize transducer to smart device, and restart the transducer (erase previous data) so that a future start time is set to a 15-minute interval (10:15:00, etc.).

Field Measurements-Transducer Monitoring
 NERT RI-Downgradient Study Area
 Henderson, NV

Well ID	Latitude	Longitude	Date of Download (mm/dd/yy)	Time of Download (mm/dd/yy)	Verified Data?	Record Time: Transducer/reference/ Difference (hh:mm:ss)	Transducer Synchronized & Reset	Comments
S3.5	N/A	N/A	5-10-18	1005	yes	0905/1005 -1hr Diff.	yes	Excellent condition, Transducer was synced, reset for 15 min intervals
S3.75	↓	↓	↓	0945	yes	0845/0945 -1hr Diff.	yes	
S3.8				0920	yes	0820/0920 -1hr Diff	yes 0930	
S4.6				1045	yes	0945/1045 -1hr Diff	yes	
S4.65				1103	yes	1003/1103 -1hr Diff	yes	
B4.65				1210	yes	1110/1210 -1hr Diff	yes	Excellent condition, Barometer was synced, reset for 15 min intervals
S4.75				1050	yes	0950/1050 -1hr Diff	yes	Excellent condition, Transducer was synced, reset for 15 min intervals
S5.3				1130	yes	1030/1130 -1hr Diff	yes	ll ll

DAILY ACTIVITY REPORT

DATE:	7-11-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI – Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - S. side of Wash	Temp °F:	degrees 98°						
		Wind:	Still	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist
Joe Capotino	AECOM	" "

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite @ 0830 to perform the transducer downloading in conjunction with the "Low-Flow" groundwater sampling. The only well with a transducer we sampled today was LINDMN-1. The transducer was pulled @ 0946, downloaded and reset after the groundwater sampling was complete. The transducer was reset @ 1145.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst Levelator		
" water level meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric A Wang

Date: 7-11-18

DAILY ACTIVITY REPORT

DATE:	7-12-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - S. side of WASH	Temp °F:	degrees 96°						
		Wind:	Still	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Enclwang	G&S	Staff Geologist
Joe Capotrio	AECOM	" "

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite @ 0600 to perform the transducer downloading in conjunction with the "Low-Flow" groundwater sampling. The two wells located inside the Henderson Landfill (mw-13 & mw-20) were pulled, downloaded and reset after the groundwater sampling was complete. Transducer in mw-13 was reset @ 0900, and mw-20 @ 1530. Off site @ 1600

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solonst Leveloader		
" water level meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric N. Manning

Date: 7-12-18

DAILY ACTIVITY REPORT

DATE:	7-13-18	Day:	S	M	T	W	Th	<u>F</u>	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	<u>Sunny</u>	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - S. Side of wash	Temp °F:	degrees <u>98°</u>						
		Wind:	<u>Still</u>	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	<u>Humid</u>	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GCS	Staff Geologist
Joe Capotrio	ARCON	" "

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite @ 0615 to perform the transducer downloading in conjunction with the "Low-Flow" groundwater sampling. Four (4) wells located on the S. side of the wash where transducers were located were pulled, downloaded and reset. Transducers downloaded today were: AA30, COA2B1, WNW4.9S, and WNW5.1S. Offsite @ 1400 for the office.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solomat Leveloader		
" water level meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric Wang

Date: 7-13-18

DAILY ACTIVITY REPORT

DATE:	7-16-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - No. & S. sides of LV Wash	Temp °F:	degrees 106°						
		Wind:	Still	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist
Joe Capetrio	AECOM	" "

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

+the

WORK COMPLETED onsite @ 0700 to perform transducer downloading in conjunction with the "Low Flow" groundwater sampling. Only one (1) well was visited today with a transducer located inside monitoring well WNW 3.5S was the first well visited today. The transducer was pulled, downloaded prior to groundwater sampling and synced & reset after sampling was complete. The transducer was restarted @ 0845.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET Yes No Yes
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
SCLIMIST Levellogger		
" water level meter		
Material/Supplies Received at the Site: Field Activities and Remarks Not Presented Above:		

Name: Eric Wang

Date: 7-16-18

DAILY ACTIVITY REPORT

DATE:

7-17-18

PROJECT NAME:

NERT Regional
Groundwater RI -
Geophysical Pilot Test

SITES / LOCATIONS:

NERT - N. & S. Sides
of LV Wash

Day:	S	M	<input checked="" type="radio"/> T	W	Th	F	S
Weather:	<input checked="" type="radio"/> Sunny	<input type="radio"/> Partly Sunny	<input type="radio"/> Cloudy	<input type="radio"/> Rain	<input type="radio"/> Snow		
Temp °F:	degrees 104						
Wind:	<input checked="" type="radio"/> Still	<input type="radio"/> Moderate	<input type="radio"/> High	Direction:			
Humidity:	<input type="radio"/> Dry	<input type="radio"/> Moderate	<input checked="" type="radio"/> Humid	<input type="radio"/> Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist
Joe Capotno	AECOM	" "

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite @ 0700 to perform the transducer downloading in conjunction with the "Low Flow" groundwater sampling. ~~Only~~ four wells left to sample had transducers in them to download (WmW3.5N, LVDMWA, WmW4.9N & WmW5.7N). The transducers were pulled, downloaded prior to groundwater sampling and synced & reset after sampling was complete. After the completion of groundwater sampling, Joe & I went to the NERT facility to properly dispose of the purged groundwater, offsite @ 1500 for the office.

<p>LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.</p>	<p>SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No</p>
--	--

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst levellogger		
" water level meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric Wang

Date: 7-17-18

DAILY ACTIVITY REPORT

DATE:	7-18-18	Day:	S	M	T	<u>W</u>	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	<u>Sunny</u>	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - N. & S. Sides of LV wash	Temp °F:	degrees 104°						
		Wind:	<u>Still</u>	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	<u>Humid</u>	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist
Billy Malone	GES	Inspector

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED Onsite on the N. side of the wash @ 0700 to pull & download transducers from wells wmw6.15N & wmw6.9N. Then traveled to the south side of the wash to perform the transducer downloading on the surface water stand pipes. Billy Malone of GES was my safety lookout person while entering the wash areas. All the surface water transducers & Barometer were downloaded w/ the exception of S4.65 & S5.3. These two locations were engulfed in reeds and could not be located. After the surface water transducers, I continued on with the remaining S. side of wash transducer wells (PC-74, PC-77, wmw6.15S, wmw6.9S & wmw6.55S*) and the Barometer inside wmw4.9S. Plus, I gauged wmw6.15S with the set transducer inside. Offsite @ 1600

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst leveloader		
- water level meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above: * wmw6.55S: upon arrival at this well location, I observed the transducer was pulled out of the well and left on a rock. The transducer would not connect to the Solinst software, so per AEGOM's request, a spare transducer was utilized in its place.

Name: Eric Wang

Date: 7-18-18

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
AA-30	36.0865571	-114.9742534	7-13-18	0832	18.55	yes 0833	yes	yes	083400/ 083402 -2secs	yes 0930	Excellent condition
COH2B1	36.0863473	-114.9861928	7-13-18	0651	16.21	yes 0652	yes	yes	065500/ 065502 -2secs	yes 0830	Excellent condition
LNDMW1	36.0932094	-114.9572109	7-11-18	0946	36.68	yes 0946	yes	yes	094800/ 094802 -2secs	yes 1145	Excellent condition
LNDMW2	36.0959057	-114.9581419	7-17-18	1016	34.22	yes 1017	yes	yes	102100/ 102103 -3secs	yes 1130	Excellent condition
MW-13	36.0893990	-114.9668492	7-12-18	0801	34.92	yes 0801	yes	yes	080600/ 080602 -2secs	yes 0900	Excellent condition
MW-20	36.0913381	-114.9591051	7-12-18	1403	32.70	yes 1404	yes	yes	140600/ 140601 -1secs	yes 1530	Excellent condition
PC-74	36.0875307	-114.9976758	7-18-18	1307	11.61	yes 1309	yes	yes	131100/ 131102 -3secs	yes 1315	Excellent condition
PC-77	36.0863375	-114.9982664	7-18-18	1238	6.93	yes 1239	yes	yes	124100/ 124104 -4secs	yes 1245	Excellent condition * New well box
WMW3.5N	36.0976828	-114.9480654	7-17-18	0738	35.17	yes 0740	yes	yes	075000/ 075003 -3secs	yes 1000	Excellent condition
WMW3.5S	36.0962514	-114.9451632	7-16-18	0720	43.31	yes 0721	yes	yes	072200/ 072203 -3secs	yes 0845	Excellent condition
WMW4.9N	36.0949374	-114.9664624	7-17-18	1137	31.58	yes 1138	yes	yes	124900/ 124903 -3secs	yes 1300	Excellent condition
WMW4.9S	36.0909079	-114.9664822	7-13-18	1231	26.20	yes 1232	yes	yes	123300/ 123302 -2secs	yes 1345	Excellent condition * well cap was open when opening vault.

Field Measurements - Transducer Monitoring
NERT RI - Downgradient Study Area
Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
WMW4.9S Barometer	36.0909079	-114.9664822	7/18/18	1520	-	yes 1520	yes	yes	152200/ 152204 -4secs	yes 1530	Excellent Condition
WMW5.58S1	36.0891989	-114.9778061	7/13/18	10.50	16.60	-	-	-	-	-	Replacement well No Transducer
WMW5.5S	36.0873319	-114.9754580	7/13/18	0946	13.55	yes 0946	yes	yes	095000/ 095002 ~2secs	yes 1045	Excellent Condition
WMW5.7N	36.0886006	-114.9798359	7/17/18	1310	8.36	yes 1311	yes	yes	131700/ 131703 ~3secs	yes 1400	Excellent Condition
WMW6.15N	36.0912006	-114.9865133	7/18/18	0732	22.62	yes 0733	yes	yes	073500/ 073504 -4secs	yes 0745	Excellent Condition
WMW6.15S	36.0877433	-114.9878030	7/18/18	1405	9.03						** Do no pull up transducer **
WMW6.55S	36.0884676	-114.9942317	7/18/18	1331	16.96	* Pulled out on 5/21/18	*yes	*yes	0 sec	Spare set for 1445	* Transducer was pulled out & left on a rock. Replaced w/ transducer # 42069886
WMW6.9N	36.0918121	-114.9986259	7/18/18	0746	18.21	yes 0747	yes	yes	075000/ 075004 -4secs	yes 0800	Excellent Condition
WMW6.9S	36.0890141	-115.0002799	7/18/18	1252	10.83	yes 1254	yes	yes	125700/ 125703 -3secs	yes 1300	Excellent condition

Notes:

- Note the time that the transducer was pulled out and replaced, so that the appropriate data can be ignored.
- Note conditions of the rope and transducer; clean transducer if necessary.
- When checking transducer, compare the transducer's time to the smart device time.
- Data to be downloaded bimonthly
- Verify that the serial number for the Log ID downloaded matches the serial number of the transducer, and that data appears complete.
- Record transducer time, time of reference clock, and difference in time between the two.
- Synchronize transducer to smart device, and restart the transducer (erase previous data) so that a future start time is set to a 15-minute interval (10:15:00, etc.).

Field Measurements-Transducer Monitoring
NERT RI-Downgradient Study Area
Henderson, NV

Well ID	Latitude	Longitude	Date of Download (mm/dd/yy)	Time of Download	Verified Data?	Record Time: Transducer/reference/ Difference (hh:mm:ss)	Transducer Synchronized & Reset	Comments
S3.5			7/18/18	0825	yes	082600/082604 - 4 secs	yes 0830	
S3.75			7/18/18	0850	yes	085200/085203 - 3 secs	yes 0915	
S3.8			7/18/18	0840	yes	084200/084203 - 3 secs	yes 0845	
S4.6			7/18/18	0949	yes	095200/095203 - 3 secs	yes 1000	
S4.65			*7/18/18	*1005	-	-	-	could not locate stand pipe in tall, overgrown reeds
B4.65			7/18/18	1304	yes	130500/130504 - 4 secs	yes 1315	
S4.75			7/18/18	1038	yes	104000/104003 - 3 secs	yes 1045	
S5.3			*7/18/18	*1130	-	-	-	could not locate stand pipe in tall, overgrown reeds

* Date visited location

DAILY ACTIVITY REPORT

DATE:

9-6-18

PROJECT NAME:

NERT Regional
Groundwater RI -
Geophysical Pilot Test

SITES / LOCATIONS:

NERT - S. side of
2v wash

Day:	S	M	T	W	Th	F	S
Weather:	<input checked="" type="radio"/> Sunny	<input type="radio"/> Partly Sunny	<input type="radio"/> Cloudy	<input type="radio"/> Rain	<input type="radio"/> Snow		
Temp °F:	degrees 95						
Wind:	<input checked="" type="radio"/> Still	<input type="radio"/> Moderate	<input type="radio"/> High	Direction:			
Humidity:	<input type="radio"/> Dry	<input checked="" type="radio"/> Moderate	<input type="radio"/> Humid	<input type="radio"/> Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED

onsite @ 1030 to complete the ground water well gauging and transducer downloading on the remaining four monitoring wells and one surface water location. At 1345, I began the transducer installation at the new monitoring well locations on the south side of the wash. (WMLWS585, NERT 5.9151, NERT 5.4951) Plus, I replaced the transducer inside WMLWS585 with a spare transducer, since the designated transducer no longer communicates with the Solonist software. Offsite @ 1605

<p>LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED:</p> <p>Reviewed Health Safety Plan and THAs, and biological awareness document.</p>	<p>SAFETY REQUIREMENTS HAVE BEEN MET</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solonist level loader		
" water level meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric R. Wang

Date: 9-6-18

DAILY ACTIVITY REPORT

DATE:	9-7-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	<input checked="" type="radio"/> Sunny	<input type="radio"/> Partly Sunny	<input type="radio"/> Cloudy	<input type="radio"/> Rain	<input type="radio"/> Snow		
SITES / LOCATIONS:	NERT - N. & S. Side of LV wash	Temp °F:	degrees 95°						
		Wind:	<input checked="" type="radio"/> Still	<input type="radio"/> Moderate	<input type="radio"/> High	Direction:			
		Humidity:	<input type="radio"/> Dry	<input checked="" type="radio"/> Moderate	<input type="radio"/> Humid	<input type="radio"/> Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED
 onsite @ 0645 to complete the transducer installation inside the new monitoring wells located on both north and south side of the LV wash. Refer to the attached Transducer Installation worksheet for additional information. All transducers were installed and was offsite at 1300 to return well keys to Landwell & NDEF.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solanist leveloader		
" water level meter		

Material/Supplies Received at the Site:
Field Activities and Remarks Not Presented Above:

Name: Eric Wang

Date: 9-7-18

Field Measurements - Transducer Installation

NERT RI - Downgradient Study Area
Henderson Nevada

Well ID	Expected Transducer Depth (feet)	Expected Rope Length (feet)	Date & Time of Install	PRE-INSTALLATION Depth to Groundwater (feet btoc)	Total Well Total Depth (feet btoc)	Water Column (feet)	Transducer Serial No.	Transducer Future Start Time	POST-INSTALLATION Depth to Groundwater (feet btoc)	Estimated Transducer Depth (feet btoc)	Comments
NERT5.91S1	33	38	9-6-18 1415	12.87	49.70	36.83	0042081460	1500	12.85	33'	
NERT5.49S1	38	43	9-6-18 1515	26.90	39.75	12.85	0042086023	1600	26.90	37.75'	
NERT5.11S1	40	45	9-7-18 1215	20.80	44.75	23.95	0042086183	1245	20.80	40'	
NERT4.93S1	47	52	9-7-18 1150	27.57	54.05	26.48	0042087067	1215	27.57	47'	
NERT4.71S1	45	50	9-7-18 1110	28.87	46.73	17.86	0042086019	1145	28.86	44.75	
NERT4.51S1	46	51	9-7-18 1025	26.31	50.00	23.69	0042081153	1100	26.31	46'	
NERT4.38N1	38	43	9-7-18 0715	32.85	39.51	6.66	0042087052	0800	32.87	37.50	
NERT4.21N1	53	58	9-7-18 0810	35.54	54.61	19.07	0042081156	0900	35.54	53'	
NERT3.80S1	17.5	22.5	9-7-18 0955	10.62	19.40	8.78	0042081484	1015	10.62	17.5'	
WMW5.58S	37	42	9-6-18 1345	17.04	47.83	30.79	0042069897	1430	17.01	37'	Used to be installed in WMW5.58S1; change name to WMW5.58S.

Notes:

Length of transducer is approximately 5.5" from the "zero point" to the top of the eyelet (where kevlar rope is tied).

Transducer should be installed (a) 20 feet below the groundwater surface, or (b) 2 feet above the measured total depth of the well (if less than 22 feet of water column).

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
AA-30	36.0865571	-114.9742534	9-5-18	1358	19.19	yes 1359	yes	yes	140200 140201 -1sec	yes 1415	Excellent condition changed measurement from m to Ft
COH2B1	36.0863473	-114.9861928	9-5-18	1236	16.34	yes 1238	yes	yes	124000 124001 -1sec	yes 1245	''
LNDMW1	36.0932094	-114.9572109	9-5-18	1438	36.94	yes 1440	yes	yes	144300 144301 -1sec	yes 1445	''
LNDMW2	36.0959057	-114.9581419	9-5-18	0750	34.41	yes 0753	yes	yes	081300 081301 -1sec	yes 0830	'' * Had communication error for 20 mins prior to download.
MW-13	36.0893990	-114.9668492	9-6-18	1118	35.19	yes 1120	yes	yes	112200 112201 -1sec	yes 1130	Excellent condition changed measurement from m to Ft
MW-20	36.0913381	-114.9591051	9-6-18	1144	32.85	yes 1146	yes	yes	114700 114701 -1sec	yes 1200	''
PC-74	36.0875307	-114.9976758	9-5-18	1313	11.20	yes 1316	yes	yes	131800 131801 -1sec	yes 1330	Excellent condition changed measurement from m to Ft
PC-77	36.0863375	-114.9982664	9-5-18	1340	6.39	yes 1341	yes	yes	134300 134301 -1sec	yes 1345	''
WMW3.5N	36.0976828	-114.9480654	9-5-18	0731	35.32	yes 0733	yes	yes	073700 073701 -1sec	yes 0745	''
WMW3.5S	36.0962514	-114.9451632	9-6-18	1049	43.62	yes 1051	yes	yes	105300 105301 -1sec	yes 1100	''
WMW4.9N	36.0949374	-114.9664624	9-5-18	0826	31.76	yes 0831	yes	yes	083600 083601 -1sec	yes 0845	Excellent condition changed measurement from m to Ft
WMW4.9S	36.0909079	-114.9664822	9-6-18	1210	26.40	yes 1211	yes	yes	121200 121201 -1sec	yes 1230	''

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (Note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
WMW4.9S Barometer	36.0909079	-114.9664822	9-6-18	—	—	yes 1310	yes	yes	131300 131301 -1Sec	yes 1315	Excellent condition changed measurement from Kpa to PSI
WMW5.58S1	36.0891989	-114.9778061	9-6-18	13:40	17.04	*Installed new transducer	No	No	—	yes 1430	Re-inserted transducer from previous well
WMW5.5S	36.0873319	-114.9754580	9-5-18	1407	14.16	yes 1409	No	NO	—	NO	Transducer will not connect with levellogger or optic reader. Needs replacement
WMW5.7N	36.0886006	-114.9798359	9-5-18	0850	5.58	yes 0855	yes	yes	085600 085601 -1sec	yes 0900	Excellent condition changed measurement from M to Ft
WMW6.15N	36.0912006	-114.9865133	9-5-18	0907	22.39	yes 0912	yes	yes	091300 091301 -1sec	yes 0915	✓
WMW6.15S	36.0877433	-114.9878030	9-5-18	1250	9.19						** Do not pull up transducer **
WMW6.55S	36.0884676	-114.9942317	9-5-18	1301	6.10	yes 1302	yes	yes	130500 130501 -1sec	yes 1315	Excellent condition
WMW6.9N	36.0918121	-114.9986259	9-5-18	0921	18.23	yes 0923	yes	yes	092500 092501 -1sec	yes 0930	Excellent condition changed measurement from M to Ft
WMW6.9S	36.0890141	-115.0002799	9-5-18	1326	10.58	yes 1328	yes	yes	132900 132901 -1sec	yes 1345	✓

Notes:

- Note the time that the transducer was pulled out and replaced, so that the appropriate data can be ignored.
- Note conditions of the rope and transducer; clean transducer if necessary.
- When checking transducer, compare the transducer's time to the smart device time.
- Data to be downloaded bimonthly
- Verify that the serial number for the Log ID downloaded matches the serial number of the transducer, and that data appears complete.
- Record transducer time, time of reference clock, and difference in time between the two.
- Synchronize transducer to smart device, and restart the transducer (erase previous data) so that a future start time is set to a 15-minute interval (10:15:00, etc.).

Field Measurements-Transducer Monitoring
 NERT RI-Downgradient Study Area
 Henderson, NV

Well ID	Latitude	Longitude	Date of Download (mm/dd/yy)	Time of Download (mm/dd/yy)	Verified Data?	Record Time: Transducer/reference/ Difference (hh:mm:ss)	Transducer Synchronized & Reset	Comments
S3.5			9-5-18	1031	yes	103500 103501 -1sec	yes 1045	Changed measurement from m to Ft and temperature from °C to °F
S3.75			"	1047	yes	105200 105201 -1sec	yes 1100	LL
S3.8			"	1107	yes	111200 111201 -1sec	yes 1115	LL
S4.6			9-6-18	1245	yes	124700 124701 -1sec	yes 1300	changed measurements from m to Ft + °C to °F
S4.65			N/A	—	—	—	—	overgrown could not access
B4.65			9- 6 -18	1300	yes	130200 130201 -1sec	yes 1315	Changed measurements from Kpa to PSI + °C to °F
S4.75			9-5-18	1158	yes	120300 120301 -1sec	yes 1215	changed measurement from m to Ft and temperature from °C to °F
S5.3			N/A	—	—	—	—	overgrown could not access

DAILY ACTIVITY REPORT

DATE:	11-5-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	<u>Sunny</u>	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT SURFACE WATER LOCATIONS	Temp °F:	degrees 78						
		Wind:	<u>Still</u>	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Armand Rodrigues	GES	GEOLOGIST
Daniel Swell	EAGLE DRILLING	DRILLER
Derrick Leuk	II	DRILLERS ASSISTANT

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED
<p>ONSITE @ 7 & BEGIN BRUSH CUTTING @ 84.05. Removed ~ 100' x 100' SECTION of BRUSH TO LOCATE STAND PIPE. FINISH CUTTING & FOUND STANDPIPE @ ~ 1000 AM. DOWNLOAD DATA & PROCEED TO 55-3. Removed ~ 80' x 80' SECTION OF BRUSH TO LOCATE STAND PIPE. LOCATED STANDPIPE @ ~ 1 PM. DOWNLOAD DATA & MOVE UP SURF. WATER LINE. ALL WAREHOUSE / Hedge CLIPPER WORK @ REMAINING LOCATIONS. OFFSITE @ ~ 330 PM</p>

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
GPS, SAINST LEVELLOADER, SAINST WIREZ LEVEL WEEPER, MATHERE,	11-5-18	11-5-18
HEDGE CLIPPERS, BILLY GOAT HYDRNIC BRUSH CUTTER	11-5-18	11-5-18

Material/Supplies Received at the Site: Field Activities and Remarks Not Presented Above:

Name:

Date: 11-5-18

DAILY ACTIVITY REPORT

DATE: 11-6-18

PROJECT NAME: NERT Regional Groundwater RI - Geophysical Pilot Test

SITES / LOCATIONS: NERT N. Side of WASH

Day:	S	M	T	W	Th	F	S
Weather:	<u>Sunny</u>	Partly Sunny	Cloudy	Rain	Snow		
Temp °F:	degrees <u>78°F</u>						
Wind:	<u>Still</u>	Moderate	High	Direction:			
Humidity:	<u>Dry</u>	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
<u>Armando RODRIGUES</u>	<u>GES</u>	<u>PROJECT GEOLOGIST</u>

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED

GNSITE @ 0800 TO BEGIN NOVEMBER TRANSDUCER DOWNLOADS IN N. Side of WASH
12M DEPARTING NORTH SIDE & HEADING TO SOUTH - LEFT SITE @ ~ 0300PM - REFER TO TRANSDUCER MONITORING
FIELD MEASUREMENT SHEET RE ADDITIONAL INFORMATION

<p>LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED:</p> <p>Reviewed Health Safety Plan and THAs, and biological awareness document.</p>	<p>SAFETY REQUIREMENTS HAVE BEEN MET</p> <p style="text-align: right;"><input checked="" type="checkbox"/> No</p>
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
<u>SOUNIST LEVELLOADER</u>	<u>11-6-18</u>	<u>11-6-18</u>
<u>SOUNIST WATER LEVEL WEDGE</u>	<u>11-6-18</u>	<u>11-6-18</u>

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: 

Date: 11-6-18

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
AA-30	36.0865571	-114.9742534	11-9-18	0945	19.06	Yes 0940	Yes	Yes	09:43:23 No Diff.	Yes 09:48:33	Excellent Condition
COH2B1	36.0863473	-114.9861928	11-7-18	1006	16.36	Yes 1004	Yes	Yes	1005:37 No Diff.	Yes 10:05:49	
LNDMW#2	36.0932094	-114.9572109	11-6-18	0934	34.43	Yes 0931	Yes	Yes	09:33:11 No Diff.	Yes 09:33:51	
LNDMW#1	36.0959057	-114.9581419	11-6-18	02:39	36.89	Yes 02:35	Yes	Yes	02:39:11 No Diff.	Yes 02:59:25	
MW-13	36.0893990	-114.9668492	11-9-18	11:50	35.20	Yes 11:47	Yes	Yes	11:50:31 No Diff.	Yes 11:50:35 Yes 11:50:35	
MW-20	36.0913381	-114.9591051	11-9-18	11:36	32.85	Yes 10:34	Yes	Yes	11:35:39 No Diff.	Yes 11:35:47	
PC-74	36.0875307	-114.9976758	11-7-18	0834	10.95	Yes 0833	Yes	Yes	08:34:09 No Diff.	Yes 08:37:23	
PC-77	36.0863375	-114.9982664	11-7-18	0851	5.96	Yes 0849	Yes	Yes	08:50:38 No Diff.	Yes 08:50:51	
WMW3.5N	36.0976828	-114.9480654	11-5-18	0844	35.24	Yes 0843	Yes	Yes	08:43:56 No Diff.	Yes 08:45:39	
WMW3.5S	36.0962514	-114.9451632	11-6-18	01:05	43.64	Yes 0101	Yes	Yes	01:04:37 No Diff.	Yes 01:01:44	
WMW4.9N	36.0949374	-114.9664624	11-6-18	1013	31.75	Yes 1010	Yes	Yes	10:12:23 No Diff.	Yes 10:12:32	
WMW4.9S	36.0909079	-114.9664822	11-9-18	1033	26.42	Yes 1030	Yes	Yes	10:33:24 No Diff.	Yes 10:33:34	
WMW4.9S Barometer	36.0909079	-114.9664822	11-9-18	--	--	Yes 01:25	Yes	Yes	01:26:28 No Diff.	Yes 01:26:35	
WMW5.58S	36.0871246	-114.9794919	11-9-18	0919	17.10	Yes 0918	Yes	Yes	09:18:57 No Diff.	Yes 09:19:02	
WMW5.5S	36.0873319	-114.9754580	11-9-18	0955	14.20	Yes 0956	Yes	Yes	0954:34 No Diff.	Yes 0954:47	
WMW5.7N	36.0886006	-114.9798359	11-6-18	1056	8.69	Yes 1050	Yes	Yes	1055:32 No Diff.	Yes 1055:42	
WMW6.15N	36.0912006	-114.9865133	11-6-18	1124	22.53	Yes 1120	Yes	Yes	1123:48 No Diff.	Yes 1124:00	Roots in well casing.
WMW6.15S	36.0877433	-114.9878030	11-7-18	0925	10.11						Do not pull up Transducer
WMW6.55S	36.0884676	-114.9942317	11-7-18	0913	16.21	Yes 0911	Yes	Yes	0913:24 No Diff.	Yes 0913:35	Excellent Condition
WMW6.9N	36.0918121	-114.9986259	11-6-18	1141	18.16	Yes 1141	Yes	Yes	1143:27 No Diff.	Yes 1143:37	
WMW6.9S	36.0890141	-115.0002799	11-7-18	0817	10.57	Yes 0814	Yes	Yes	0817:28 No Diff.	Yes 0817:40	

Field Measurements - Transducer Monitoring
NERT RI - Downgradient Study Area
Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (note time) (1)(2)(3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
NERT5.91S1	36.0870240	-114.9828930	11-7-18	1022	13.02	Yes 1019	Yes	Yes	102212 N=DIFF	Yes 102240	
NERT5.49S1	36.0883100	-114.9765210	11-9-18	0931	27.19	Yes 0929	Yes	Yes	093119 N=DIFF	Yes 093130	
NERT 5.11S1	36.0898060	-114.9707810	11-9-18	1006	20.92	Yes 1004	Yes	Yes	100553 NO DIFF	Yes 100602	
NERT 4.93S1	36.0900920	-114.9679530	11-9-18	1021	28.59	Yes 1019	Yes	Yes	102100 NO DIFF	Yes 102108	
NERT4.71S1	36.0910570	-114.9645320	11-9-18	1045	28.86	Yes 1043	Yes	Yes	104457 NO DIFF	Yes 104515	
NERT 4.51S1	36.0924340	-114.9606310	11-9-18	1057	26.30	Yes 1055	Yes	Yes	105716 N=DIFF	Yes 105727	
NERT 4.38S1	36.0959460	-114.9599230	11-7-18	0709	32.82	Yes 0708	Yes	Yes	070919 NO DIFF	Yes 070935	
NERT4.21N1	36.0954300	-114.9566400	11-6-18	0908	35.54	Yes 0908	Yes	Yes	091010 NO DIFF	Yes 022052	
NERT3.80S1	36.0949070	-114.9485490	11-6-18	0221	10.61	Yes 0219	Yes	Yes	02-2021 NO DIFF	Yes 091902	
S3.5	36.0594200	-115.1583500	11-6-18	--	--	Yes 0138	Yes	Yes	N/A	Yes 0138:21	DID NOT CHECK TIME DIFF DUE TO IMPRACTICITY OF BRINGING PHONE/PAD/ LEVELLOADER / CLIPBOARD INTO WASH
S3.75			11-5-18	--	--	Yes 0350	Yes	Yes	N/A	Yes 0351:52	
S3.8	36.0958400	-114.9469800	11-5-18	--	--	Yes 03:25	Yes	Yes	N/A	Yes 03:26:42	11
S4.6	36.0936800	-114.9586300	11-9-18	--	--	Yes 12:50	Yes	Yes	N/A	Yes 12:51:42	DID NOT CHECK TIME DIFF DUE TO 11
S4.65	36.0934300	-114.9595700	11-5-18	--	--	Yes 1006	Yes	Yes	N/A	Yes 100718	11
B4.65	36.0934800	-114.9599300	--	--	--	--	Yes	Yes	--	--	COULD NOT LOCATE BATTERY, TWINE MISSING AS WELL
S4.75	36.0923400	-114.9632500	11-5-18	--	--	Yes 02:34	Yes	Yes	N/A	Yes 02:37:01	11
S5.3	36.0896800	-114.9730200	11-5-18	--	--	Yes 11:20	Yes	Yes	N/A	Yes 11:21:21	11

Notes:

1. Note the time that the transducer was pulled out and replaced, so that the appropriate data can be ignored.
2. Note conditions of the rope and transducer; clean transducer if necessary.
3. When checking transducer, compare the transducer's time to the Leveloader time, and calibrate if needed.
4. Data to be downloaded quarterly (approx. beginning of August and November)

DAILY ACTIVITY REPORT

DATE:	11-7-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	<u>Sunny</u>	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NE S side of LV WASH	Temp °F:	degrees 70						
		Wind:	<u>Still</u>	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Atencio Rodrigues	GES	Geologist


VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED
ONSITE 0645 TO CONTINUE TRANSDUCER DOWNLOADS ON THE NORTH & SOUTH SIDE OF THE LV WASH. REFER TO TRANSDUCER MONITORING FIELD MEASUREMENT SHEET FOR ADDITIONAL INFORMATION. OFF SITE @ 0215 P.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
SOUND LEVELMETER, SOUND WATER LEVEL METER	11-7-18	11-7-18

Material/Supplies Received at the Site: Field Activities and Remarks Not Presented Above:

Name: 

Date: 11-7-18

DAILY ACTIVITY REPORT

DATE:	11-9-18	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	S. SIDE OF WASH	Temp °F:	degrees 70						
		Wind:	SEB	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Armando RODRIGUES	GTEB	GEOLOGIST

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED

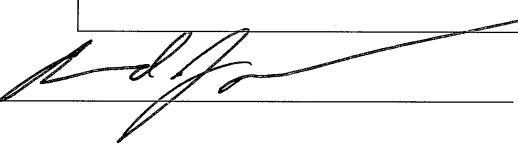
ON SITE @ 0730AM TO COMPLETE TRANSDUCER DOWNLOADS ON S. SIDE OF WASH. BAROMETER 84-65 WAS MISSING & COULD NOT BE DOWNLOADED. LEFT SITE @ 140PM - RE FOR TO TRANSDUCER MONITORING FIELD MEASUREMENT SHEET FOR ADDITIONAL INFORMATION

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
SOUNST LEVELLOADER, SOUNST WATER LEVEL METER	11-9-18	11-9-18

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: 

Date: 11-9-18

DAILY ACTIVITY REPORT

DATE:	1/9/19	Day:	S	M	T	<u>W</u>	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI – Geophysical Pilot Test	Weather:	<u>Sunny</u>	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - W WASH	Temp °F:	degrees 60°						
		Wind:	<u>Still</u>	Moderate	High	Direction:			
		Humidity:	Dry	<u>Moderate</u>	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite @ 0700 to access the north side of the wash to perform water gauging & transducer downloading for this month. The SNWA key received from NDEP did not work on the locks, so I proceeded to access the 2 wells on the north side that did not require a key and then traveled to the south side to perform the same activities. I completed 18 monitoring wells today and two surface water transducers (S3.50 + S3.80). I will meet with NDEP in the morning to receive the new set of keys to finish all the wells tomorrow. offsite @ 1530.

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
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Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst Level logger		
" water meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric Wang

Date: 1/9/19

DAILY ACTIVITY REPORT

DATE:	1/10/19	Day:	S	M	T	W	Th	F	S
PROJECT NAME:	NERT Regional Groundwater RI - Geophysical Pilot Test	Weather:	Sunny	Partly Sunny	Cloudy	Rain	Snow		
SITES / LOCATIONS:	NERT - LV WASH	Temp °F:	degrees 65						
		Wind:	Still	Moderate	High	Direction:			
		Humidity:	Dry	Moderate	Humid	Rain			

Circle or shade the appropriate day, weather, wind, and humidity

PERSONNEL ON-SITE	Employer	Job Title
Eric Wang	GES	Staff Geologist

VISITORS ON-SITE	Employer	Purpose of Visit	Time In	Time Out

WORK COMPLETED onsite @ 0715 on the north side of the wash to await NDRP to pass along a new set of well keys. Began well gauging & transducer downloading @ 0830. I finished all the north side wells and then proceeded for the south side to finish the surface water transducers. The Barometer for the surface water is confirmed missing and presumed washed away. The remaining monitoring wells on the south side were downloaded with the exception of well 6.9S & well 9.9S. These 2 transducers gave me communication errors. Will pull and try downloading at the office. The Barometer data was downloaded @ 1558. Offsite @ 1615

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED: Reviewed Health Safety Plan and THAs, and biological awareness document.	SAFETY REQUIREMENTS HAVE BEEN MET <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Equipment at the Site (includes Subcontractor supplied equipment):	Date Arrived	Date Removed
Solinst Leveladder		
" water meter		

Material/Supplies Received at the Site:

Field Activities and Remarks Not Presented Above:

Name: Eric Wang

Date: 1/10/19

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & Inspected? (note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
AA-30	36.0865571	-114.9742534	1/9/19	1142	19.39	yes-1146	yes	yes	114800/ 114801 -1sec	yes-1200	Excellent Condition-100% Battery Life
COH2B1	36.0863473	-114.9861928	1/10/19	1316	16.59	yes-1318	yes	yes	132000/ 132001 -1sec	yes-1330	↓ ↓
LNDMW1	36.0932094	-114.9572109	1/9/19	1304	36.79	yes-1306	yes	yes	130900/ 130901 -1sec	yes-1315	
LNDMW2	36.0959057	-114.9581419	1/10/19	0957	34.41	yes-0901	yes	yes	090300/ 090301 -1sec	yes-0915	
MW-13	36.0893990	-114.9668492	1/9/19	1346	35.24	yes-1347	yes	yes	135000/ 135001 -1sec	yes-1400	
MW-20	36.0913381	-114.9591051	1/9/19	1327	32.68	yes-1328	yes	yes	133000/ 133001 -1sec	yes-1345	
PC-74	36.0875307	-114.9976758	1/9/19	1017	10.92	yes-1018	yes	yes	102100/ 102101 -1sec	yes-1030	
PC-77	36.0863375	-114.9982664	1/9/19	1001	5.95	yes-1002	yes	yes	100600/ 100601 -1sec	yes-1015	
WMW3.5N	36.0976828	-114.9480654	1/10/19	0833	35.15	yes-0835	yes	yes	083700/ 083701 -1sec	yes-0845	
WMW3.5S	36.0962514	-114.9451632	1/9/19	1403	43.49	yes-1405	yes	yes	140700/ 140701 -1sec	yes-1415	
WMW4.9N	36.0949374	-114.9664624	1/10/19	0918	31.76	yes-0920	yes	yes	092200/ 092201 -1sec	yes-0930	
WMW4.9S	36.0909079	-114.9664822	1/10/19	1433	26.38	yes-1435	NO	NO	N/A	NO	* Communication error could not download data
WMW4.9S Barometer	36.0909079	-114.9664822	1/10/19	1433	same	yes-1435	yes	yes	160300/ 160301 -1sec	yes-1615	* Excellent condition- 100% Battery Life Disregard data after 1430
WMW5.58S	36.0871246	-114.9794919	1/10/19	1253	17.15	yes-1255	yes	yes	125600/ 125601 -1sec	yes-1300	Excellent Condition-100% Battery Life
WMW5.5S	36.0873319	-114.9754580	1/9/19	1131	14.45	yes-1132	yes	yes	113400/ 113401 -1sec	yes-1145	↓ ↓
WMW5.7N	36.0886006	-114.9798359	1/10/19	0939	8.74	yes-0941	yes	yes	094300/ 094301 -1sec	yes-1000	
WMW6.15N	36.0912006	-114.9865133	1/10/19	0958	22.95	yes-1001	yes	yes	100200/ 100201 -1sec	yes-1015	
WMW6.15S	36.0877433	-114.9878030	1/9/19	1039	9.63						Do not pull up Transducer
WMW6.55S	36.0884676	-114.9942317	1/10/19	1327	16.12	yes-1331	yes	yes	133300/ 133301 -1sec	yes-1345	↓ ↓
WMW6.9N	36.0918121	-114.9986259	1/10/19	1016	18.05	yes-1016	yes	yes	101900/ 101901 -1sec	yes-1030	
WMW6.9S	36.0890141	-115.0002799	1/10/19	1346	10.42	yes-1348	NO	NO	N/A	NO	* Communication error could not download data

Field Measurements - Transducer Monitoring
 NERT RI - Downgradient Study Area
 Henderson Nevada

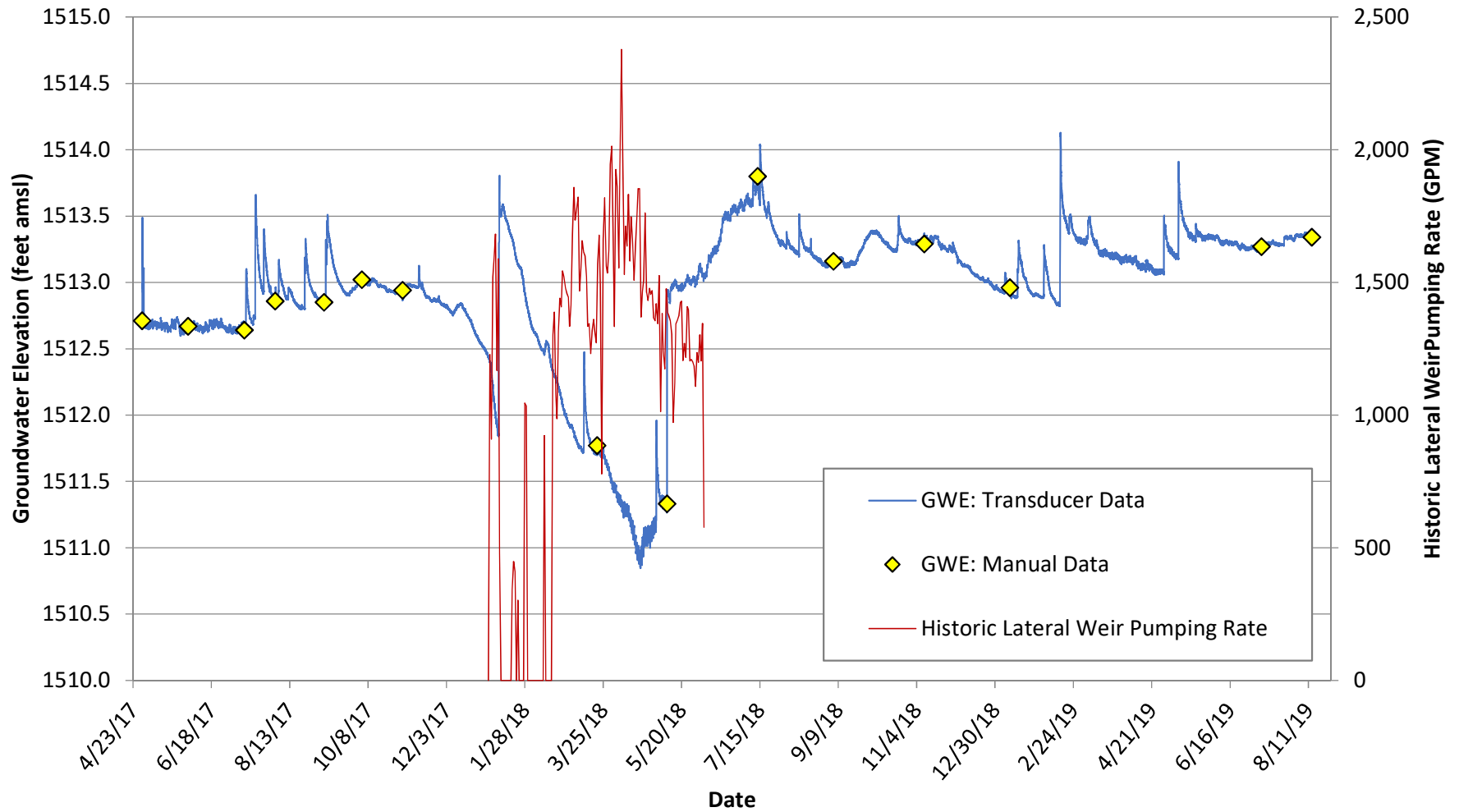
Well ID	Latitude	Longitude	Date of DTW Measurement (mm/dd/yy)	Time of DTW Measurement (hh:mm)	Depth to Groundwater (feet)	Transducer pulled up & inspected? (note time) (1) (2) (3)	Download Data? (4)	Verified Data? (5)	Record Time: Transducer / Reference / Difference (hh:mm:ss) (6)	Transducer Synchronized & Reset? (7)	Comments / Condition of Transducer
NERT5.91S1	36.0870240	-114.9828930	1/9/19	1101	13.98	yes-1102	yes	yes	110500/ 110501 -1sec	yes-1115	Excellent condition - 100% Battery Life
NERT5.49S1	36.0883100	-114.9765210	1/9/19	1116	27.44	yes-1117	yes	yes	111800/ 111801 -1sec	yes-1130	
NERT 5.11S1	36.0898060	-114.9707810	1/9/19	1210	21.04	yes-1212	yes	yes	121300/ 121301 -1sec	yes-1230	
NERT 4.93S1	36.0900920	-114.9679530	1/9/19	1225	27.66	yes-1227	yes	yes	122900/ 122901 -1sec	yes-1245	
NERT4.71S1	36.0910570	-114.9645320	1/9/19	1237	28.81	yes-1239	yes	yes	124000/ 124001 -1sec	yes-1245	
NERT 4.51S1	36.0924340	-114.9606310	1/9/19	1250	26.18	yes-1252	yes	yes	125400/ 125401 -1sec	yes-1300	
NERT 4.38S1	36.0959460	-114.9599230	1/9/19	0841	32.72	yes-0844	yes	yes	084700/ 084701 -1sec	yes-0900	
NERT4.21N1	36.0954300	-114.9566400	1/9/19	0816	35.53	yes-0818	yes	yes	082100/ 082101 -1sec	yes-0830	
NERT3.80S1	36.0949070	-114.9485490	1/9/19	1450	10.51	yes-1451	yes	yes	145300/ 145301 -1sec	yes-1500	
S3.5	36.0594200	-115.1583500	1/9/19	1422	-	NO	yes	yes	142400/ 142401 -1sec	yes-1430	
S3.75			1/10/19	1126	-	NO	yes	yes	112800/ 112801 -1sec	yes-1130	
S3.8	36.0958400	-114.9469800	1/9/19	1438	-	NO	yes	yes	144000/ 144001 -1sec	yes-1445	
S4.6	36.0936800	-114.9586300	1/10/19	1149	-	NO	yes	yes	115300/ 115301 -1sec	yes-1200	
S4.65	36.0934300	-114.9595700	1/10/19	1201	-	NO	yes	yes	120300/ 120301 -1sec	yes-1215	
B4.65	36.0934800	-114.9599300	-	-	-	-	-	-	-	-	
S4.75	36.0923400	-114.9632500	1/10/19	1218	-	NO	yes	yes	122000/ 122001 -1sec	yes-1230	
S5.3	36.0896800	-114.9730200	1/10/19	1235	-	NO	yes	yes	123800/ 123801 -1sec	yes-1245	

- Notes:
1. Note the time that the transducer was pulled out and replaced, so that the appropriate data can be ignored.
 2. Note conditions of the rope and transducer; clean transducer if necessary.
 3. When checking transducer, compare the transducer's time to the Leveloader time, and calibrate if needed.
 4. Data to be downloaded quarterly (approx. beginning of August and November)

Appendix E

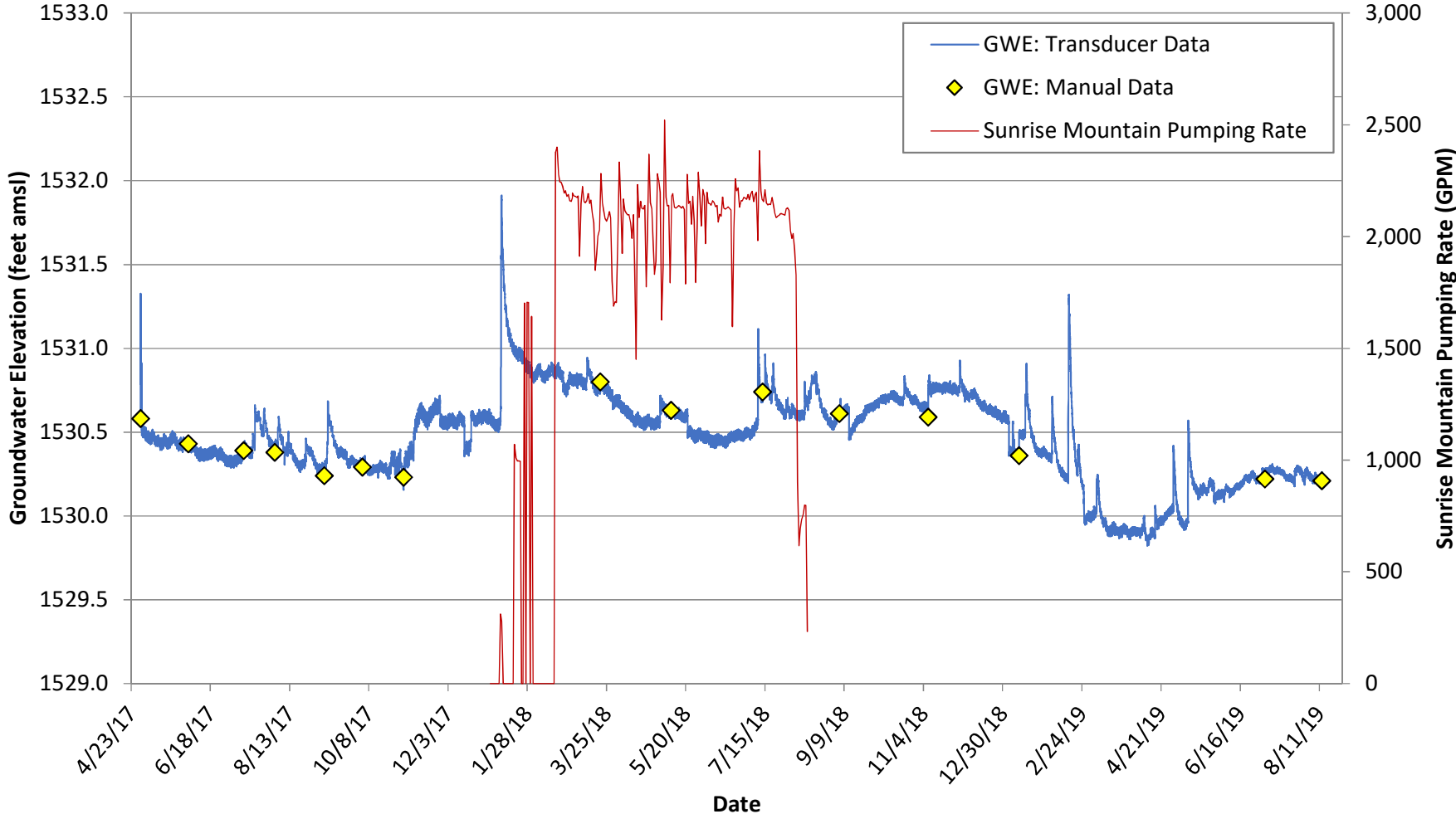
Groundwater Hydrographs and Dewatering Data

AA-30 Hydrograph and Historic Lateral Weir Pumping



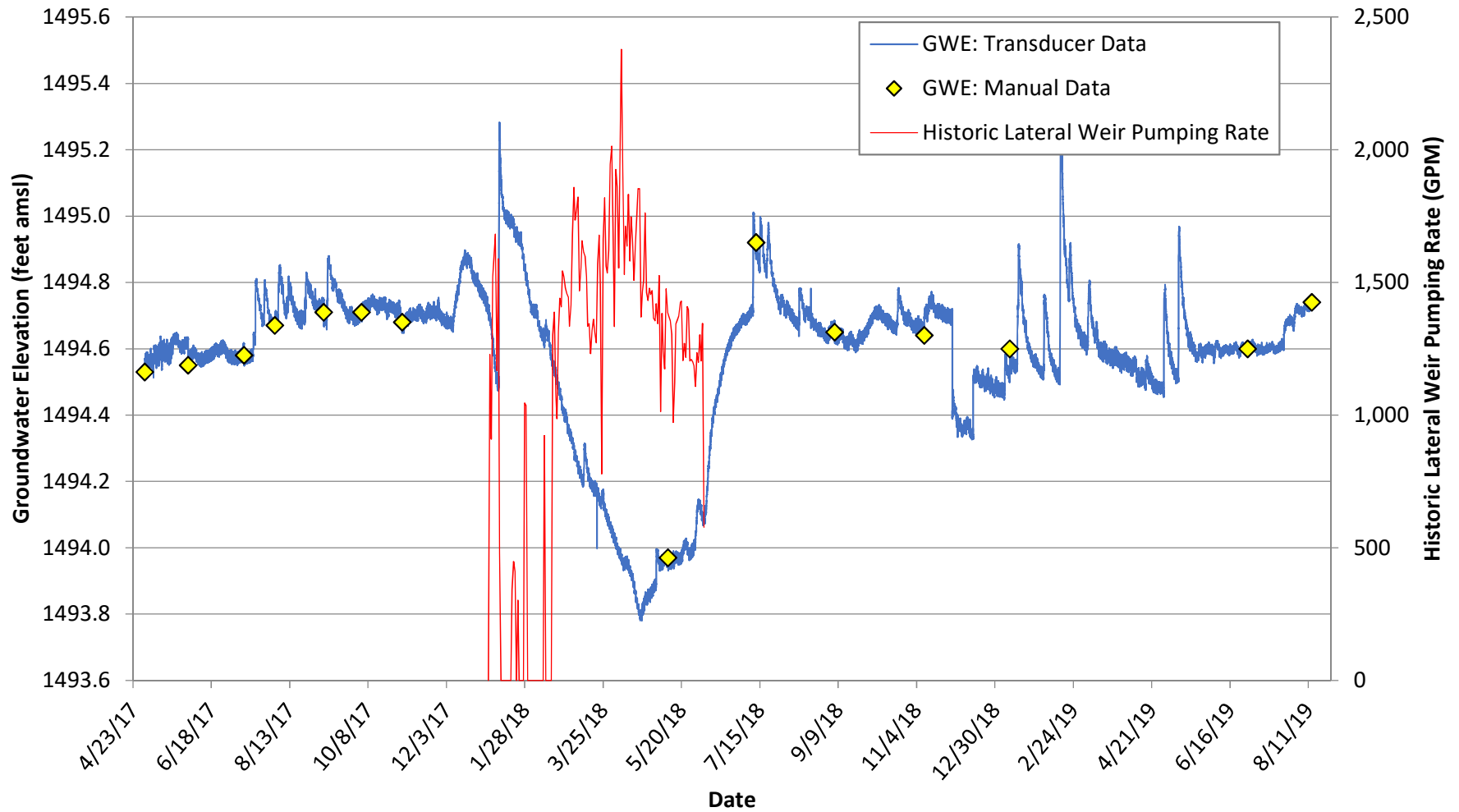
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

COH2B1 Hydrograph and Sunrise Mountain Pumping



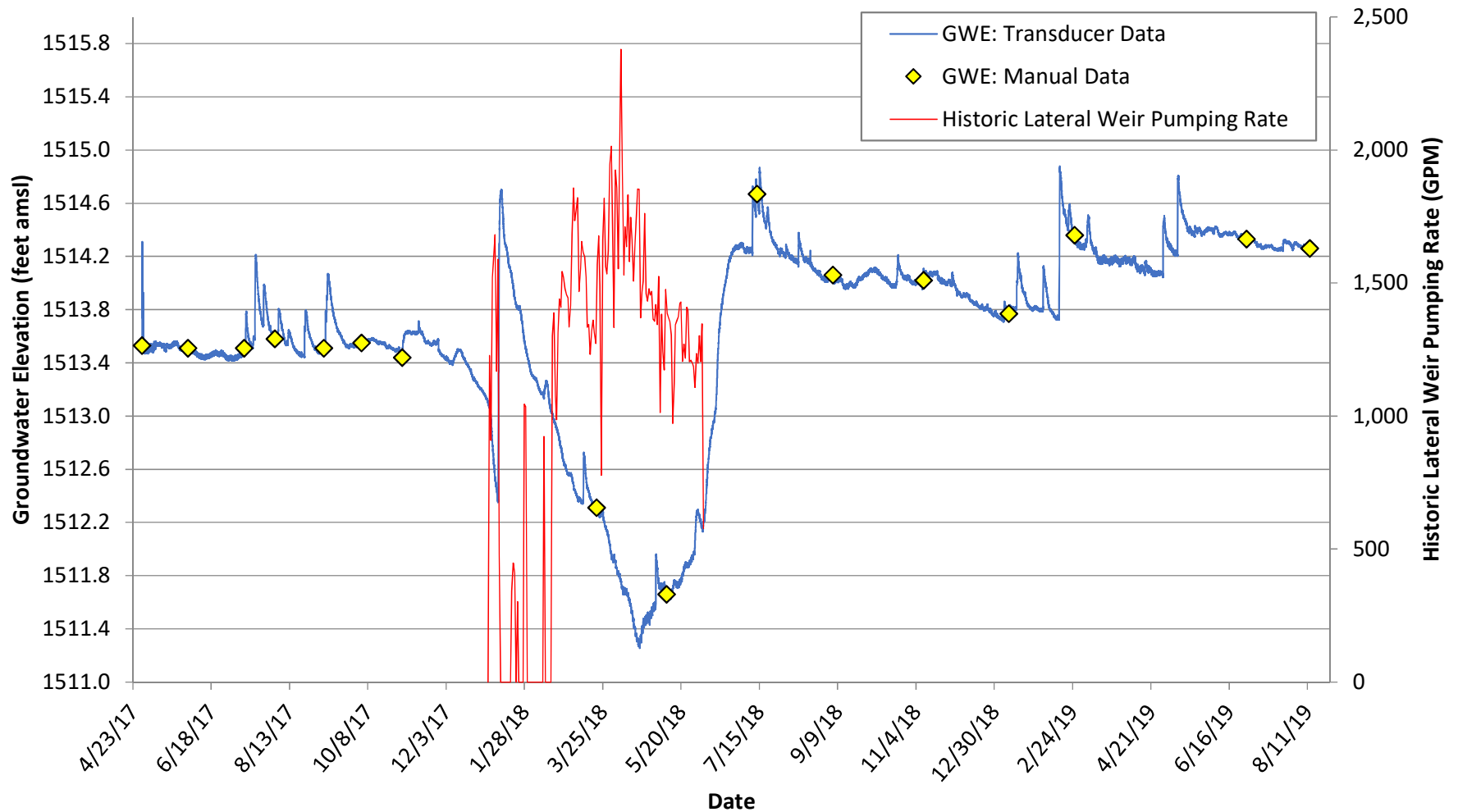
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

MW-13 Hydrograph and Historic Lateral Weir Pumping



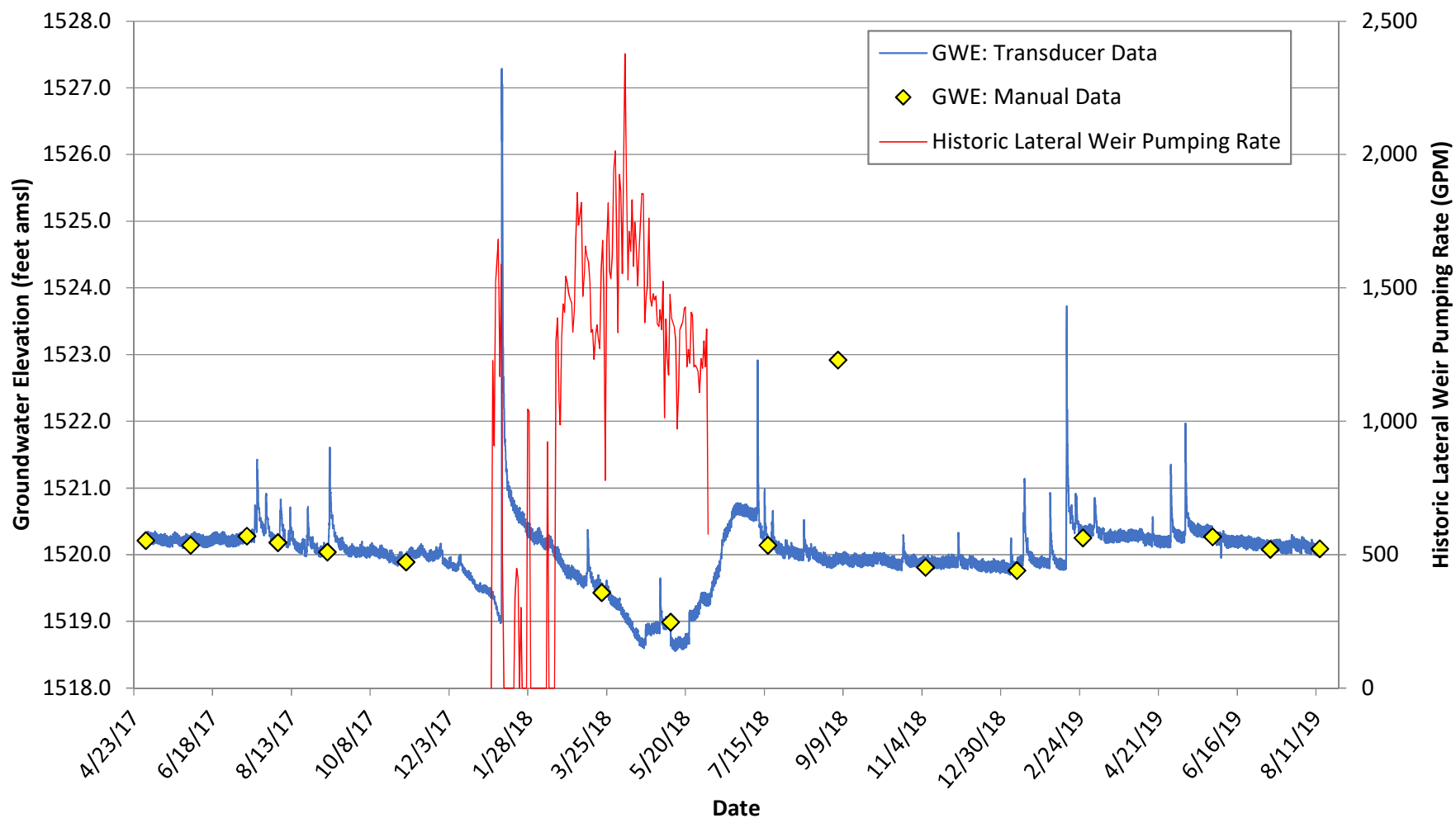
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW5.5S Hydrograph and Historic Lateral Weir Pumping



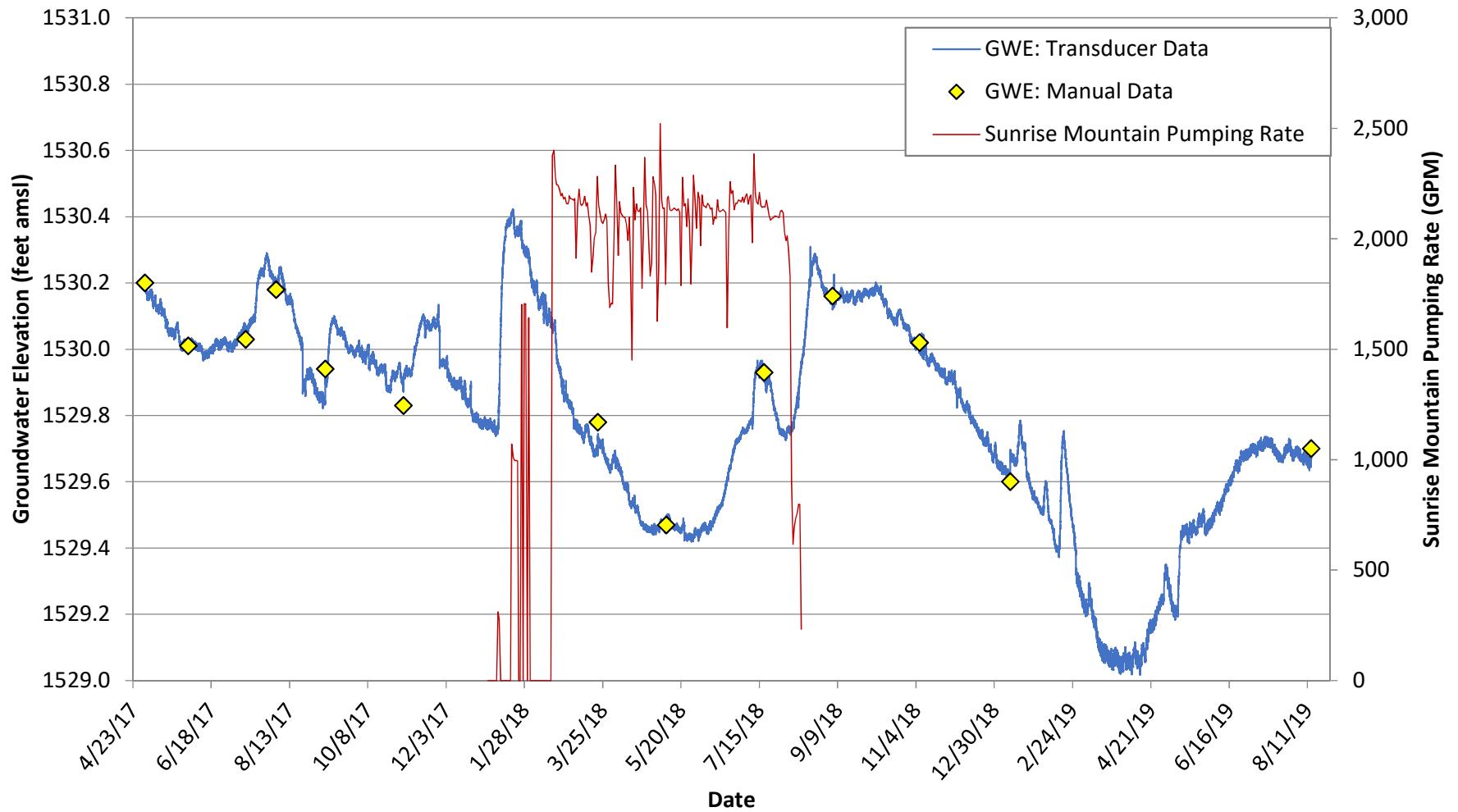
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW5.7N Hydrograph and Historic Lateral Weir Pumping



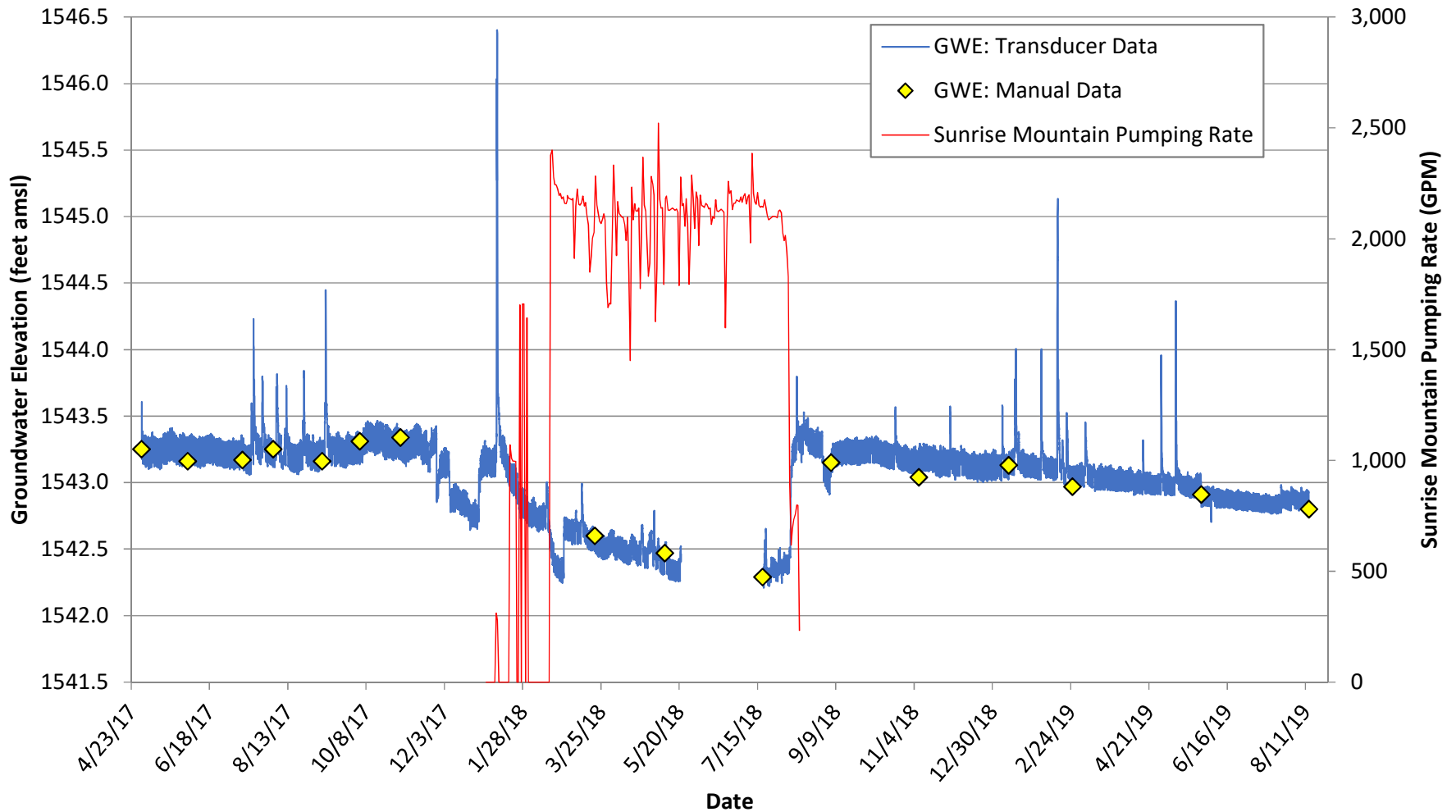
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. DTW data on 9/4/2018 not used to adjust transducer record.

WMW6.15N Hydrograph and Sunrise Mountain Pumping



- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.

WMW6.55S Hydrograph and Sunrise Mountain Pumping

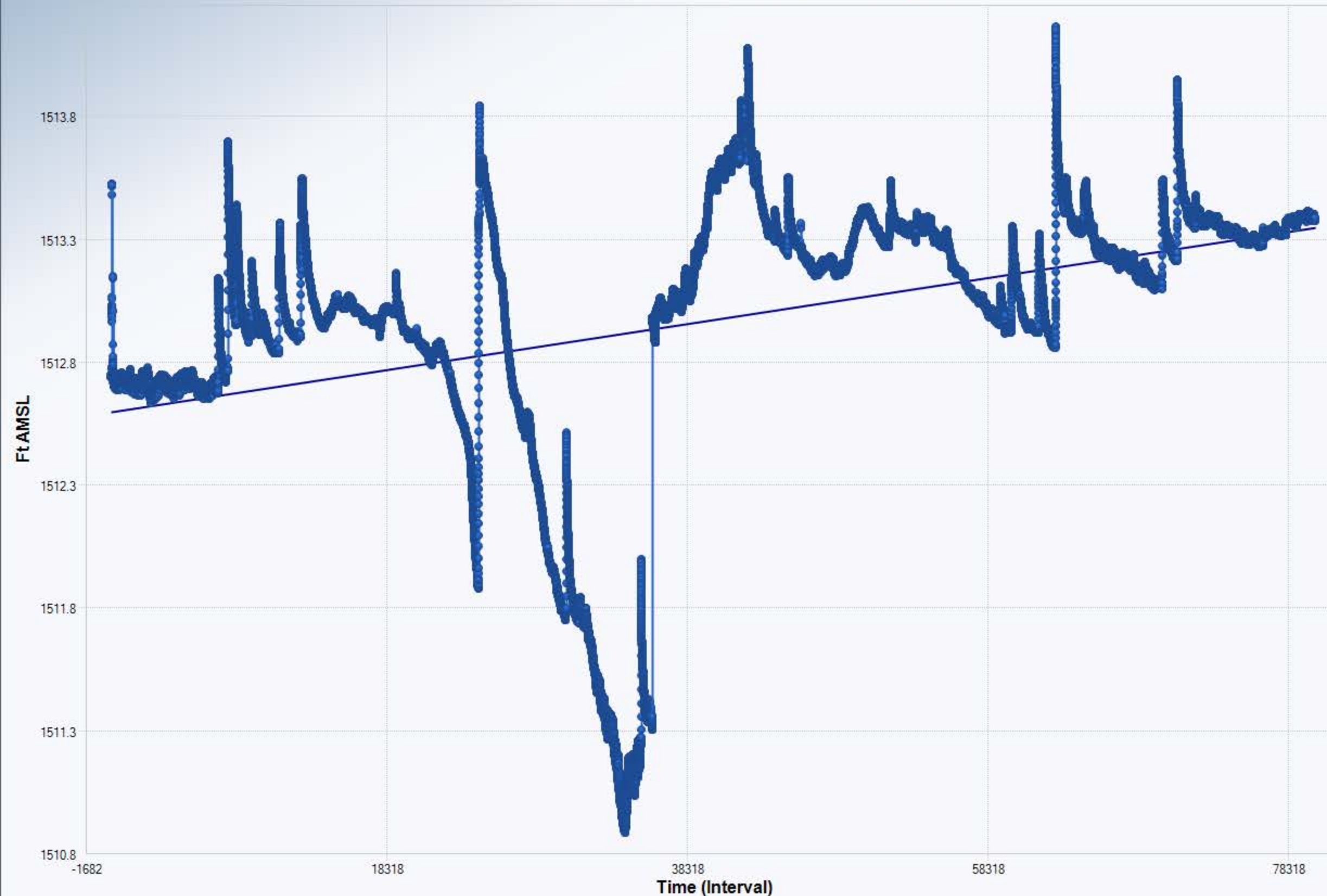


- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Groundwater elevations based on transducer data were corrected to correlate with manual data using water level meter.
 3. Transducer was unintentionally left outside of well on 5/21/2018. No data recorded between 5/21/2018 and 7/18/2018.

Appendix F

Trend Tests

AA-30 Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

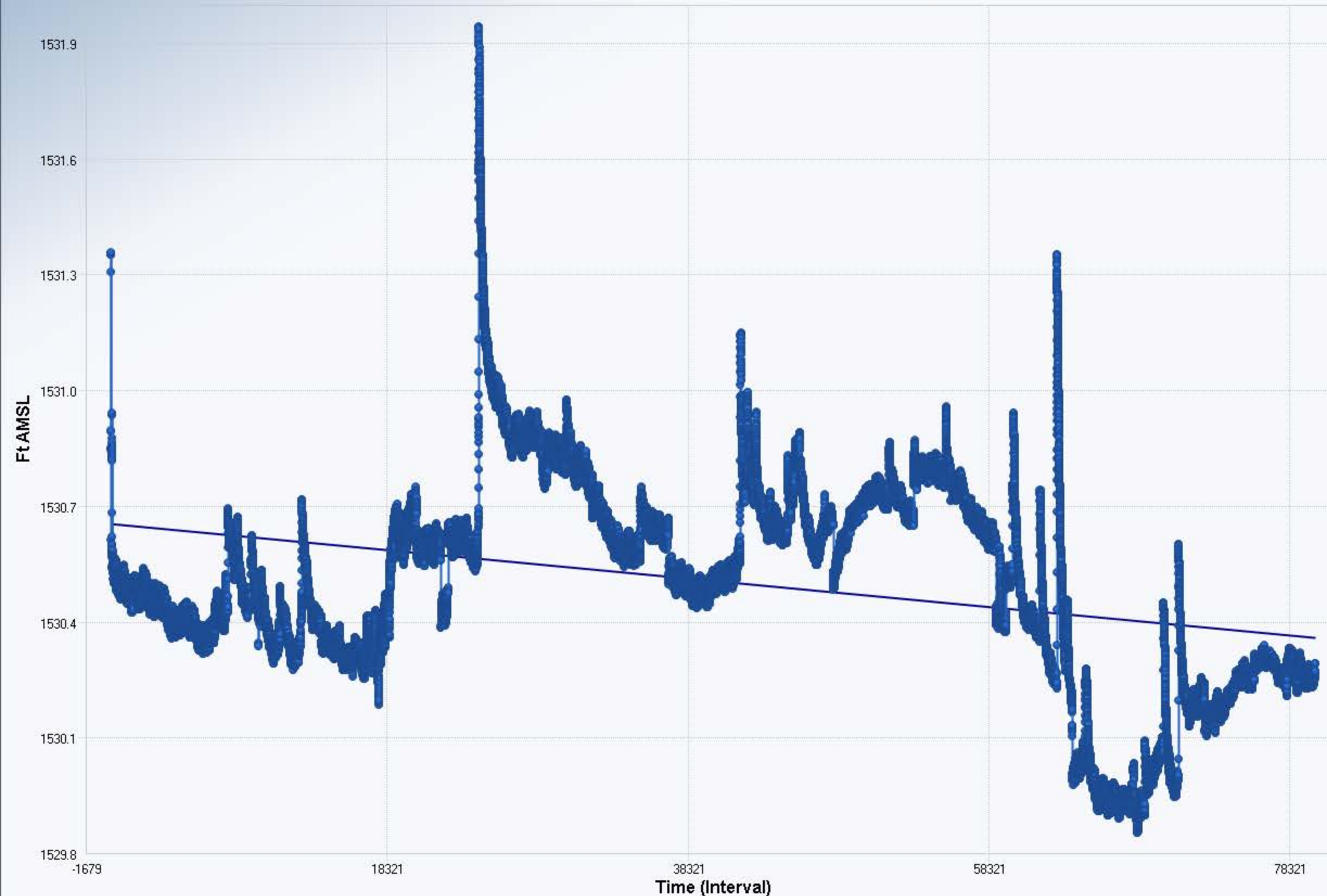
n	80,136
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,561,784.5568
Standardized Value of S	157.8868
M-K Test Value (S)	1,193,906,103
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,512.5592

Statistically significant evidence of an increasing trend at the specified level of significance.

COH-2B1 Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

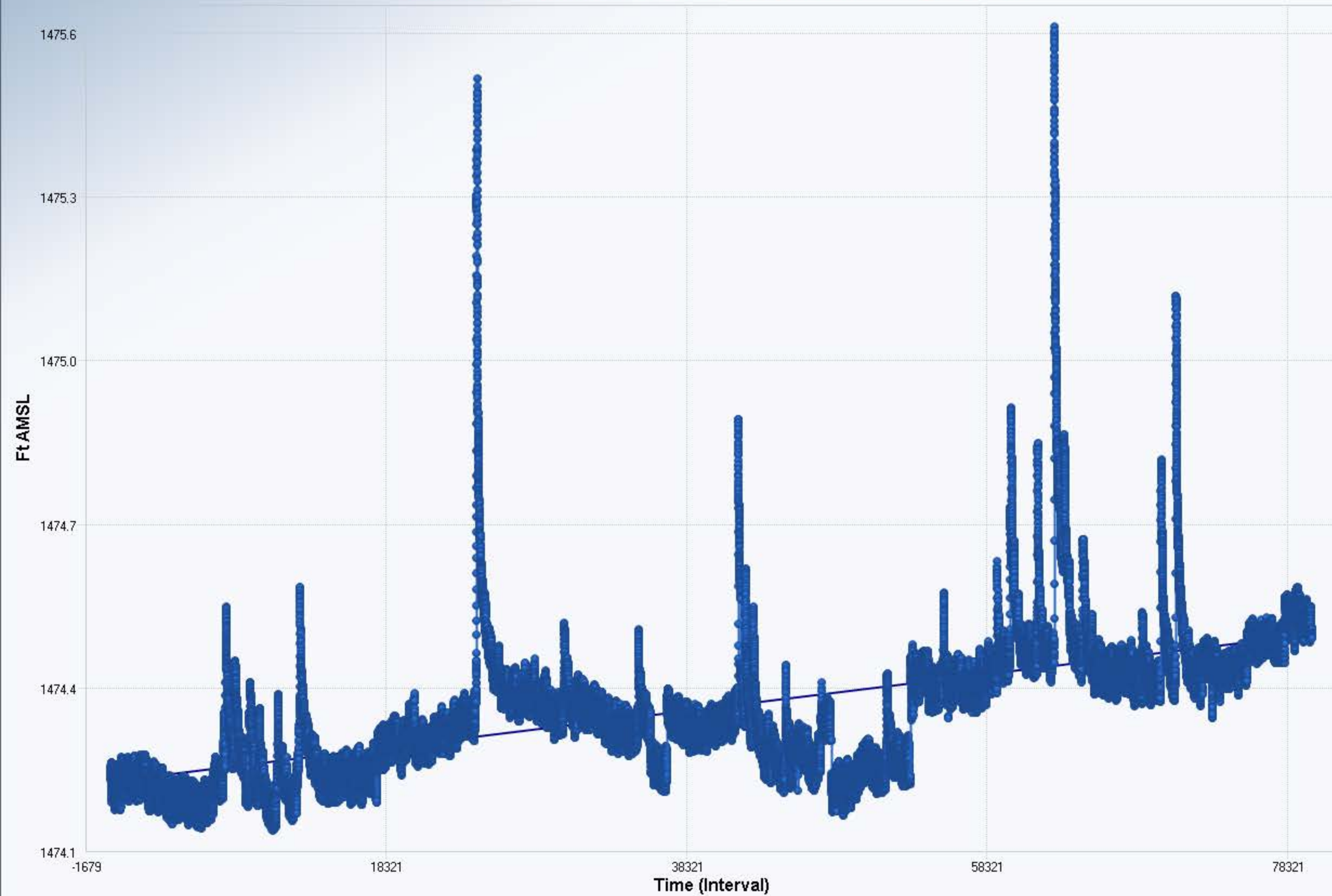
n	80,016
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,544,805.8314
Standardized Value of S	-61.3384
M-K Test Value (S)	-462,786,579
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,530.6230

Statistically significant evidence of a decreasing trend at the specified level of significance.

LNDMW1 Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

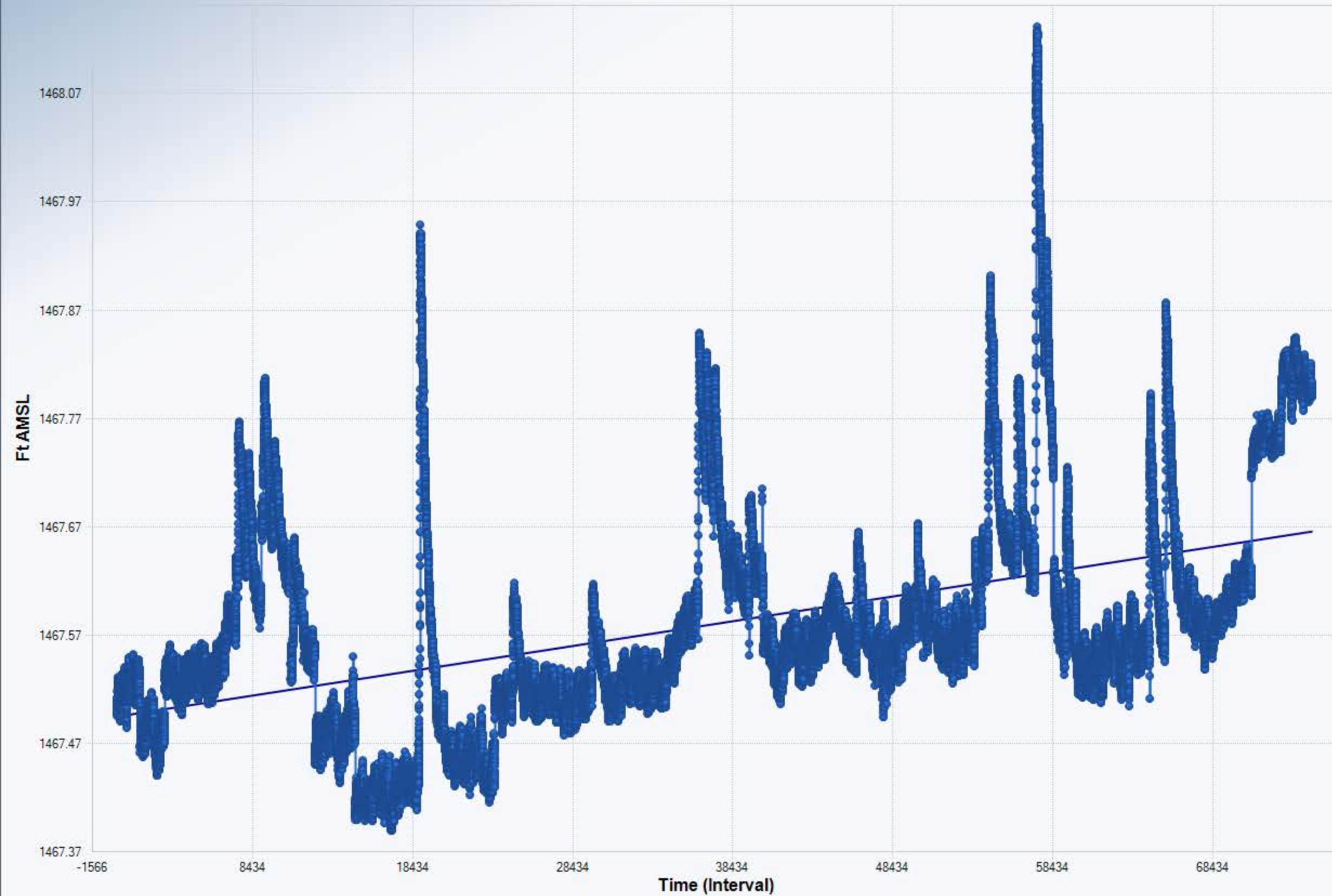
n	79,981
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,539,855.8950
Standardized Value of S	224.7392
M-K Test Value (S)	1,694,501.251
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,474.1983

Statistically significant evidence of an increasing trend at the specified level of significance.

LNDMW2 Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

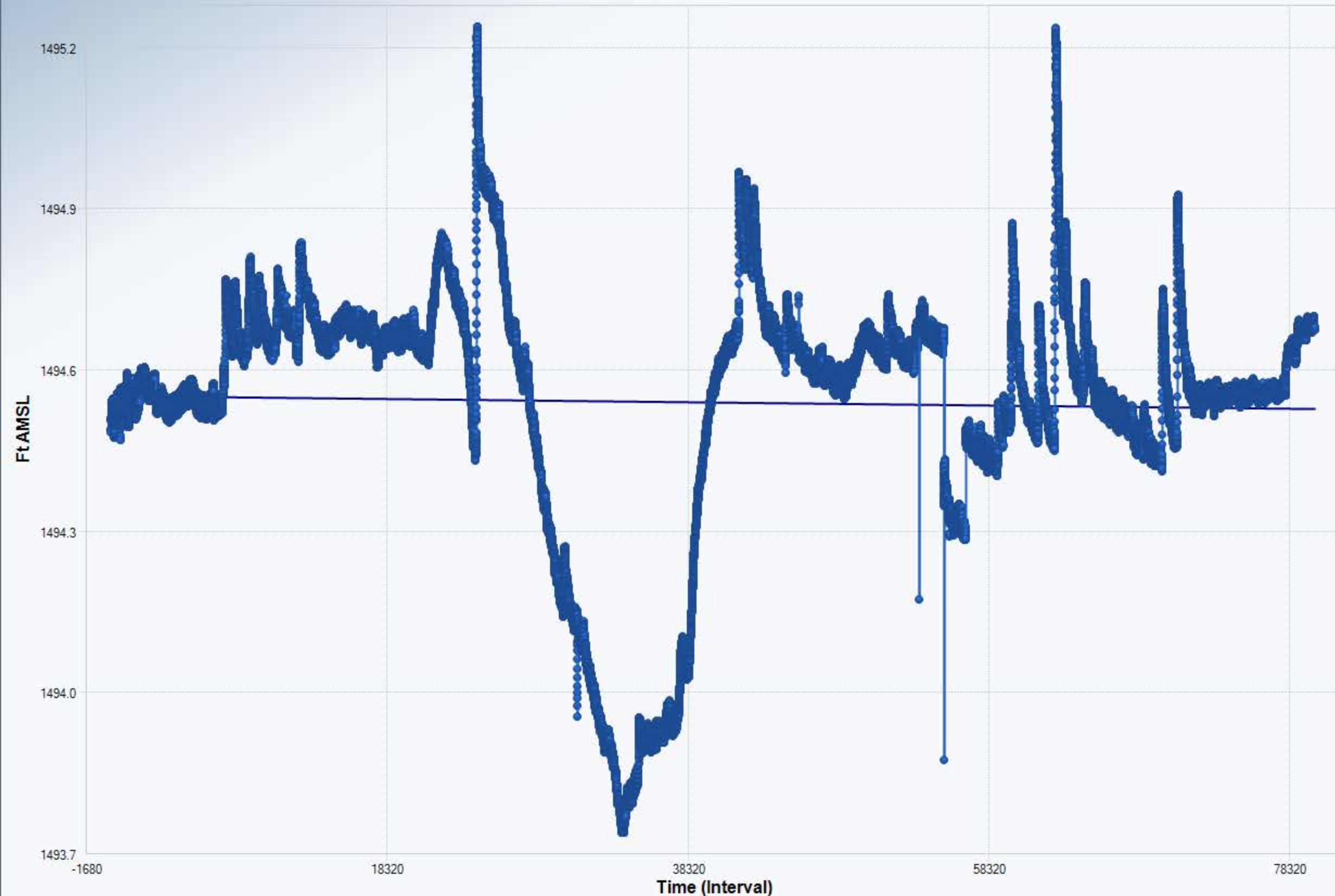
n	74,642
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6,797,637.5081
Standardized Value of S	165.7695
M-K Test Value (S)	1,126,841,294
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,467.4969

Statistically significant evidence of an increasing trend at the specified level of significance.

MW-13 Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

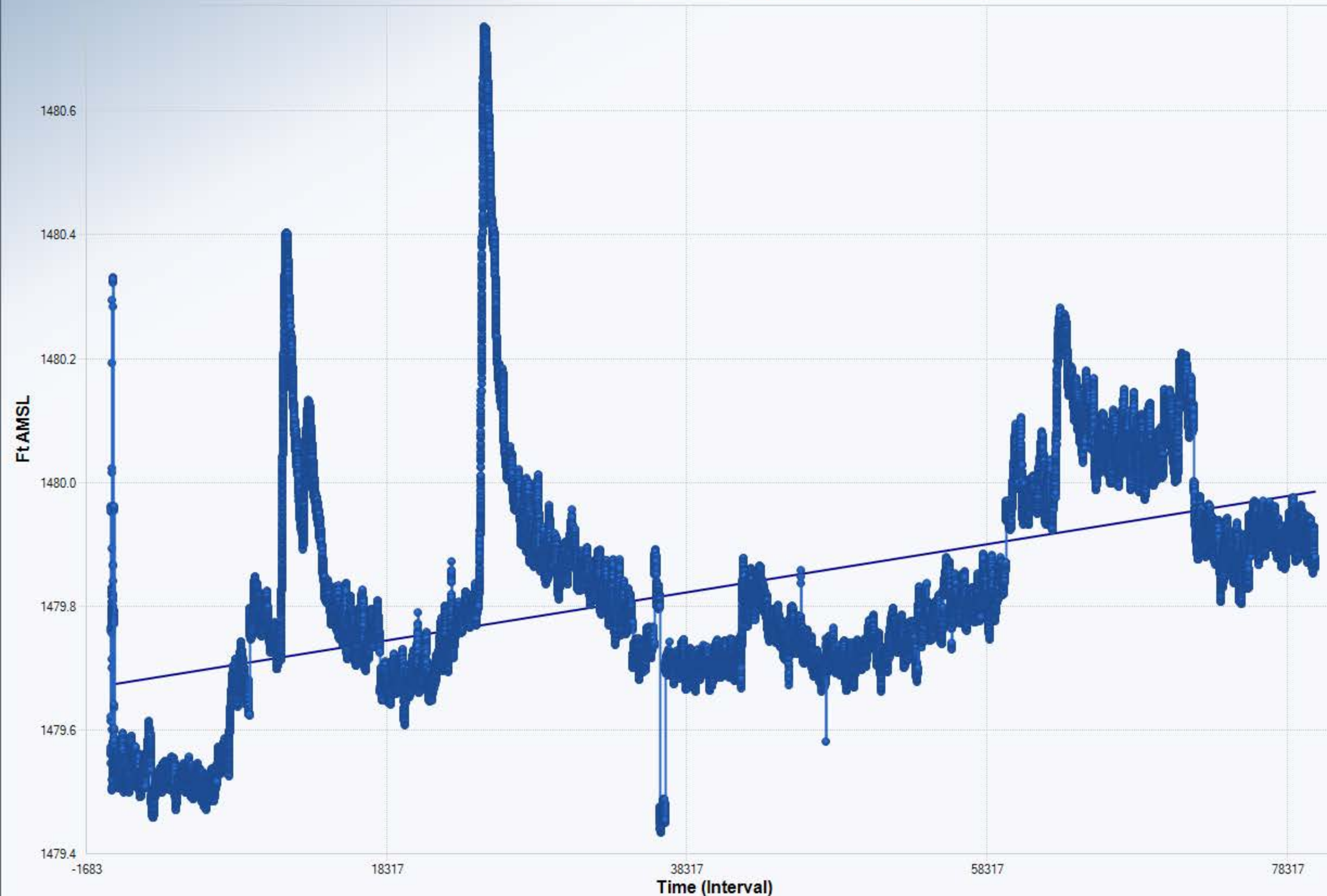
n	80,030
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,546,786.0224
Standardized Value of S	-38.3954
M-K Test Value (S)	-289,762,052
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,494.5961

Statistically significant evidence of a decreasing trend at the specified level of significance.

MW-20 Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

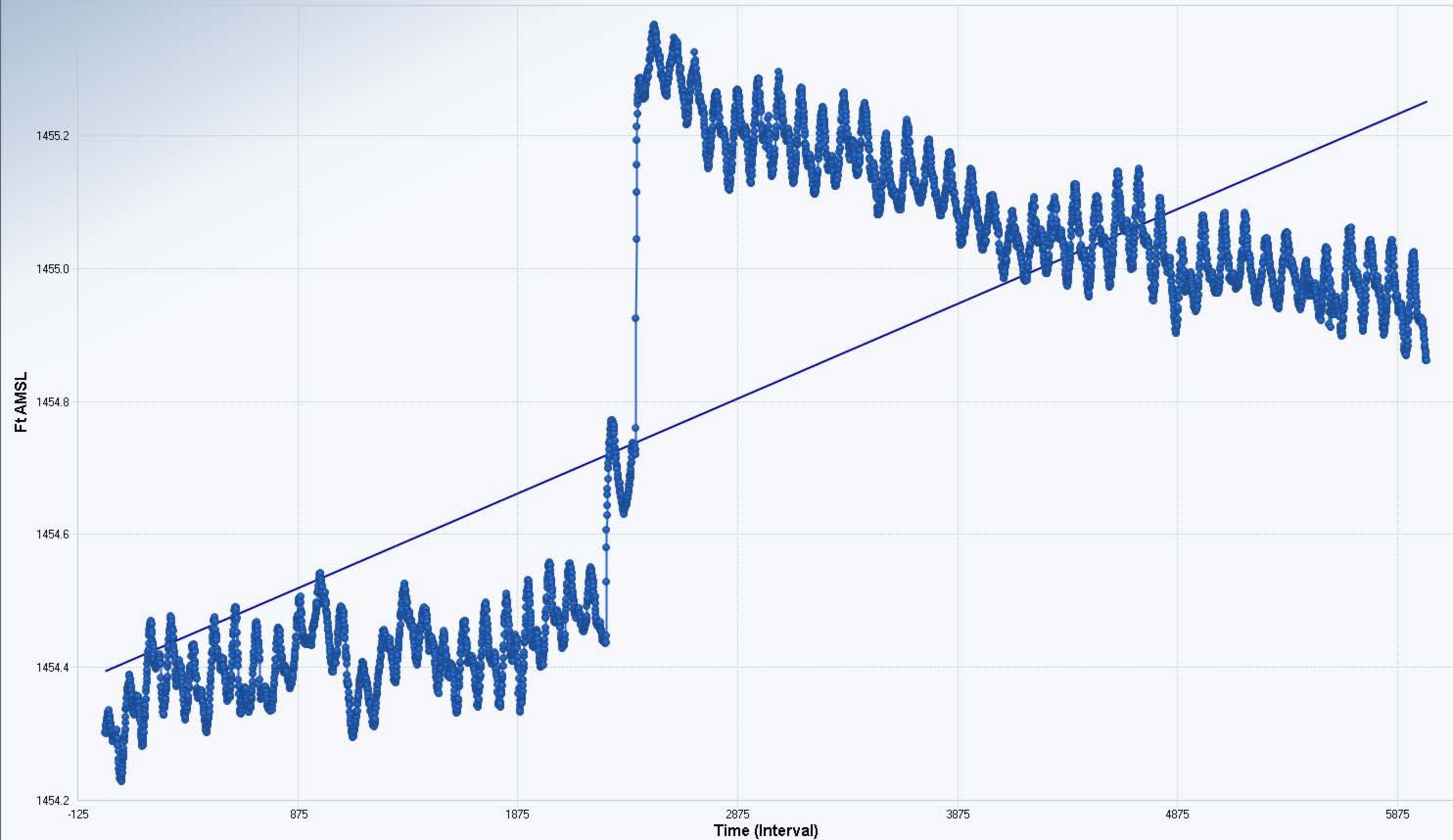
n	80,201
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,570,986.5897
Standardized Value of S	165.5892
M-K Test Value (S)	1,253,673,603
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,479.6635

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT3.35S1 Groundwater Elevation June 2019 - August 2019



Mann-Kendall Trend Analysis

n	6,008
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	155,248.6355
Standardized Value of S	33.8203
M-K Test Value (S)	5,250,563
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0001
OLS Regression Intercept	1,454.3727

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT3.40S1 Groundwater Elevation June 2019 - August 2019



Mann-Kendall Trend Analysis

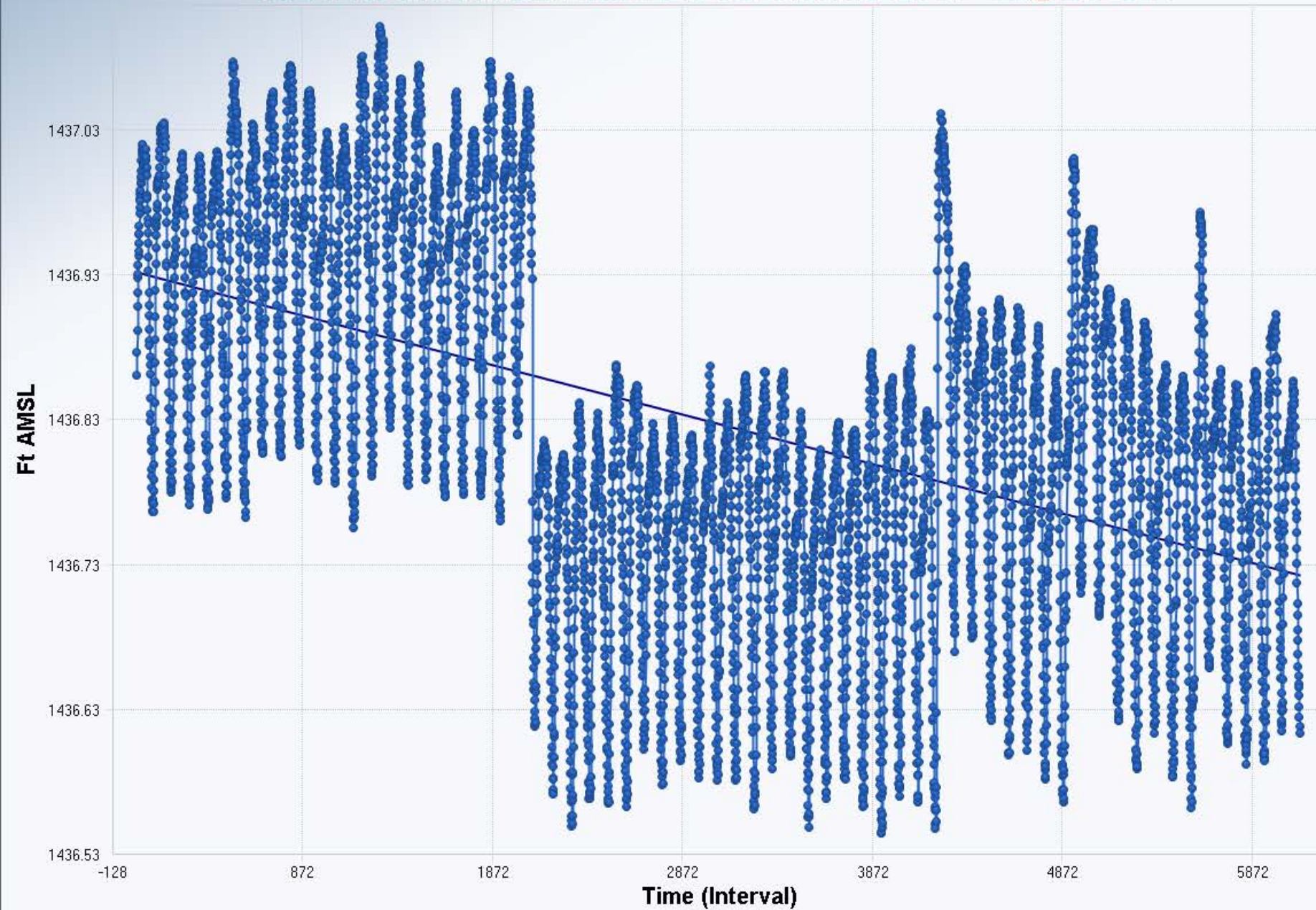
n	6,016
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	155,558.3210
Standardized Value of S	70.0023
M-K Test Value (S)	10,889.437
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,436.3382

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT3.58N1 Groundwater Elevation June 2019 - August 2019



Mann-Kendall Trend Analysis

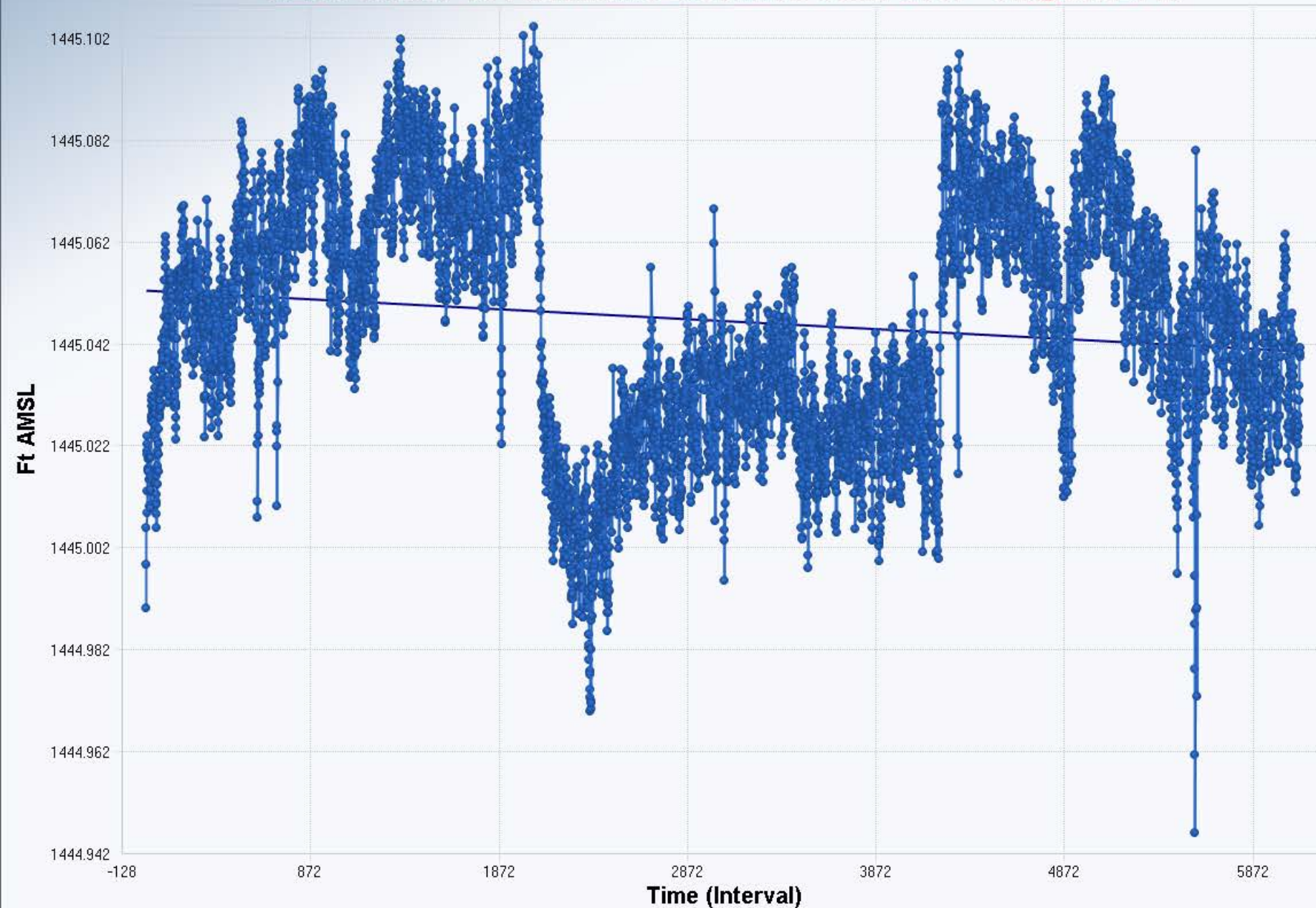
n	6,125
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	159,805.1840
Standardized Value of S	-34.2139
M-K Test Value (S)	-5,467,556
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,436.9286

Statistically significant evidence of a decreasing trend at the specified level of significance.

NERT3.60N1 Groundwater Elevation June 2019 - August 2019



Mann-Kendall Trend Analysis

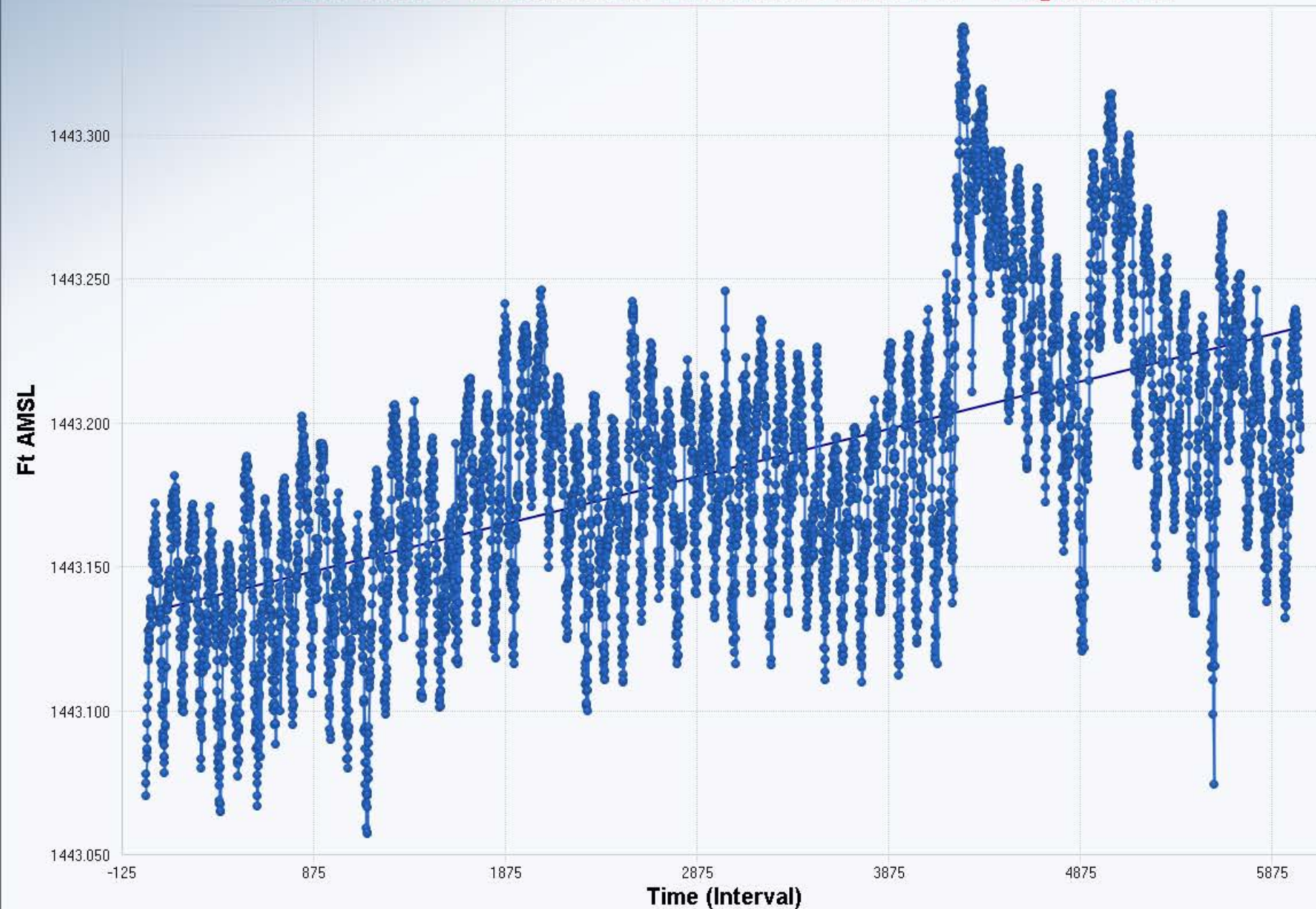
n	6,123
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	159,726.2104
Standardized Value of S	-8.3989
M-K Test Value (S)	-1,341,524
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,445.0523

Statistically significant evidence of a decreasing trend at the specified level of significance.

NERT3.63S1 Groundwater Elevation June 2019 - August 2019

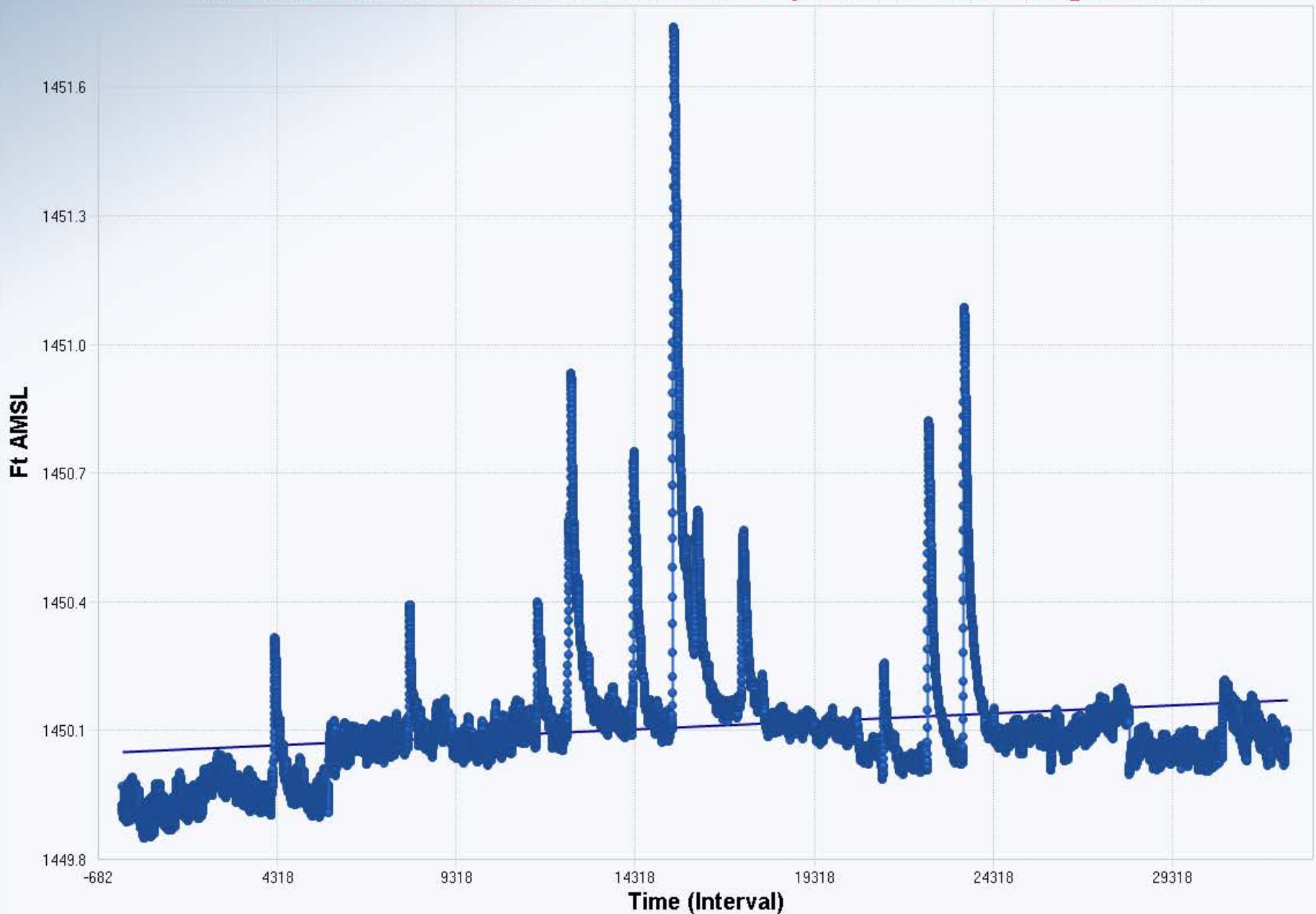


Mann-Kendall Trend Analysis	
n	6,024
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	155,868.8969
Standardized Value of S	48.7731
M-K Test Value (S)	7,602.208
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	1,443.1337

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT3.80S1 Groundwater Elevation September 2018 - August 2019

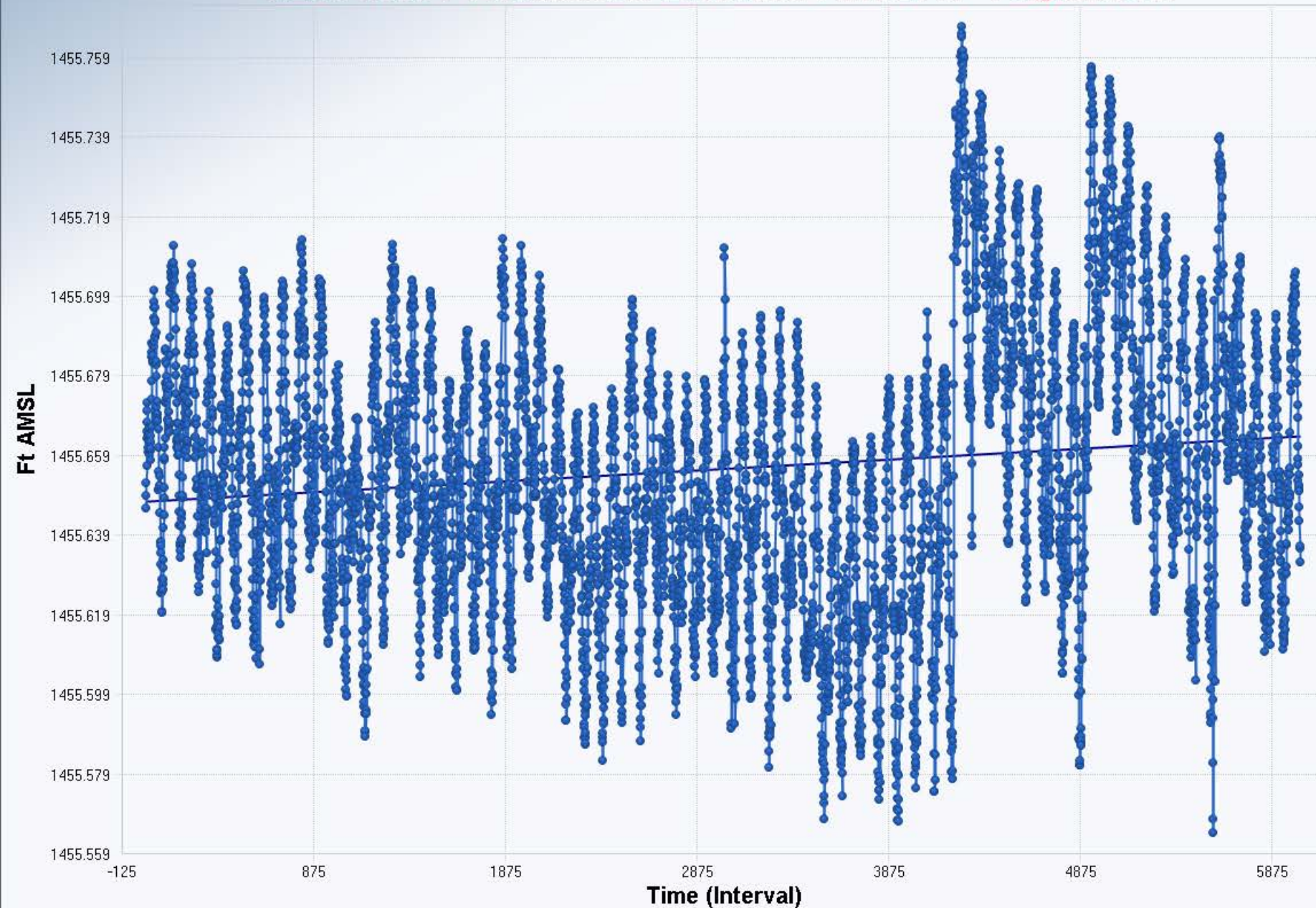


Mann-Kendall Trend Analysis	
n	32,536
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,956,297.7601
Standardized Value of S	58.3984
M-K Test Value (S)	114,244.664
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	1,450.0712

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT3.98S1 Groundwater Elevation June 2019 - August 2019



Mann-Kendall Trend Analysis

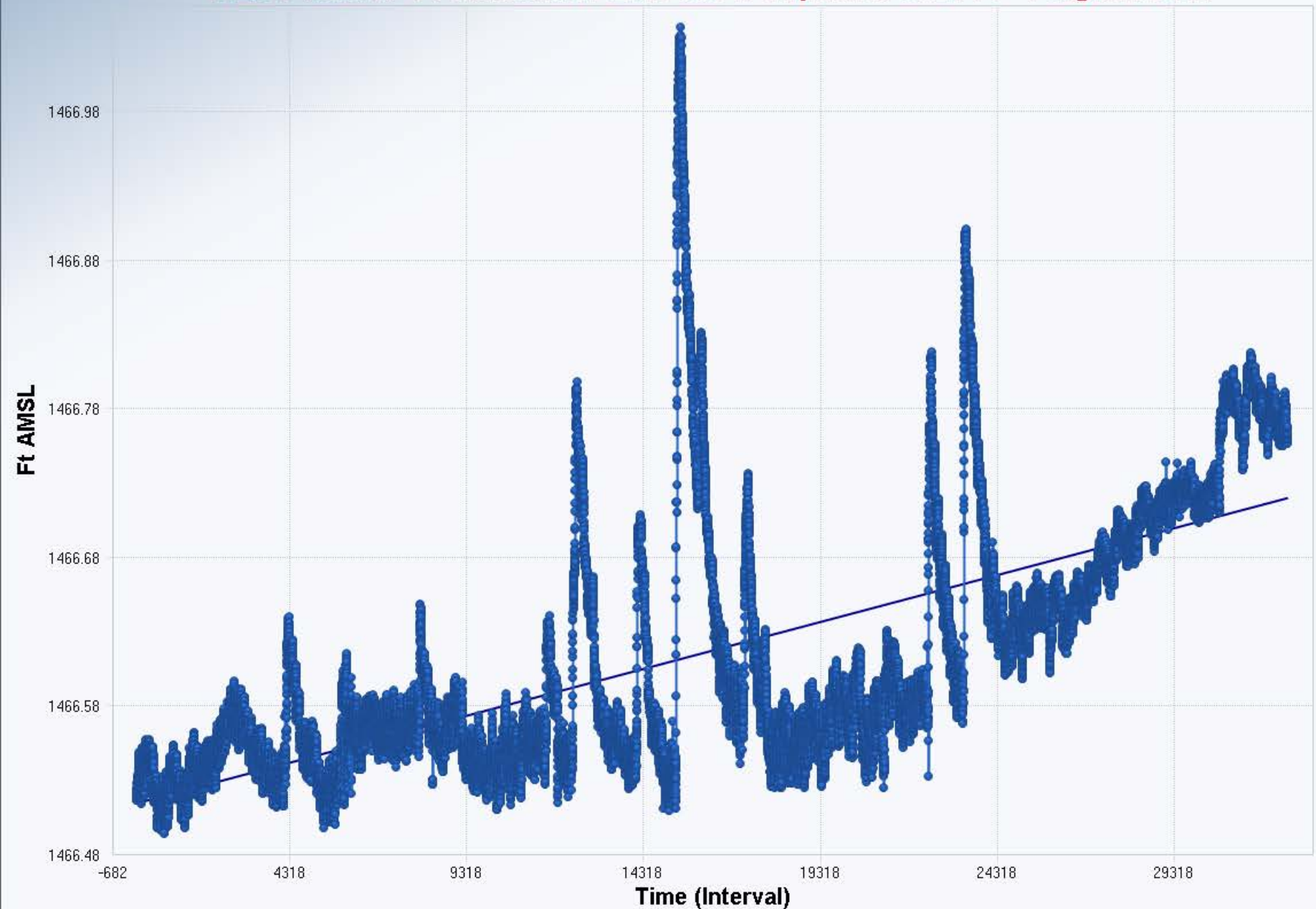
n	6,023
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	155,830.0387
Standardized Value of S	6.6643
M-K Test Value (S)	1,038,503
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,455.6474

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.21N1 Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis	
n	32,527
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,955,486.1085
Standardized Value of S	154.9854
M-K Test Value (S)	303,071.729
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	1,466.5167

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.38N1 Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis

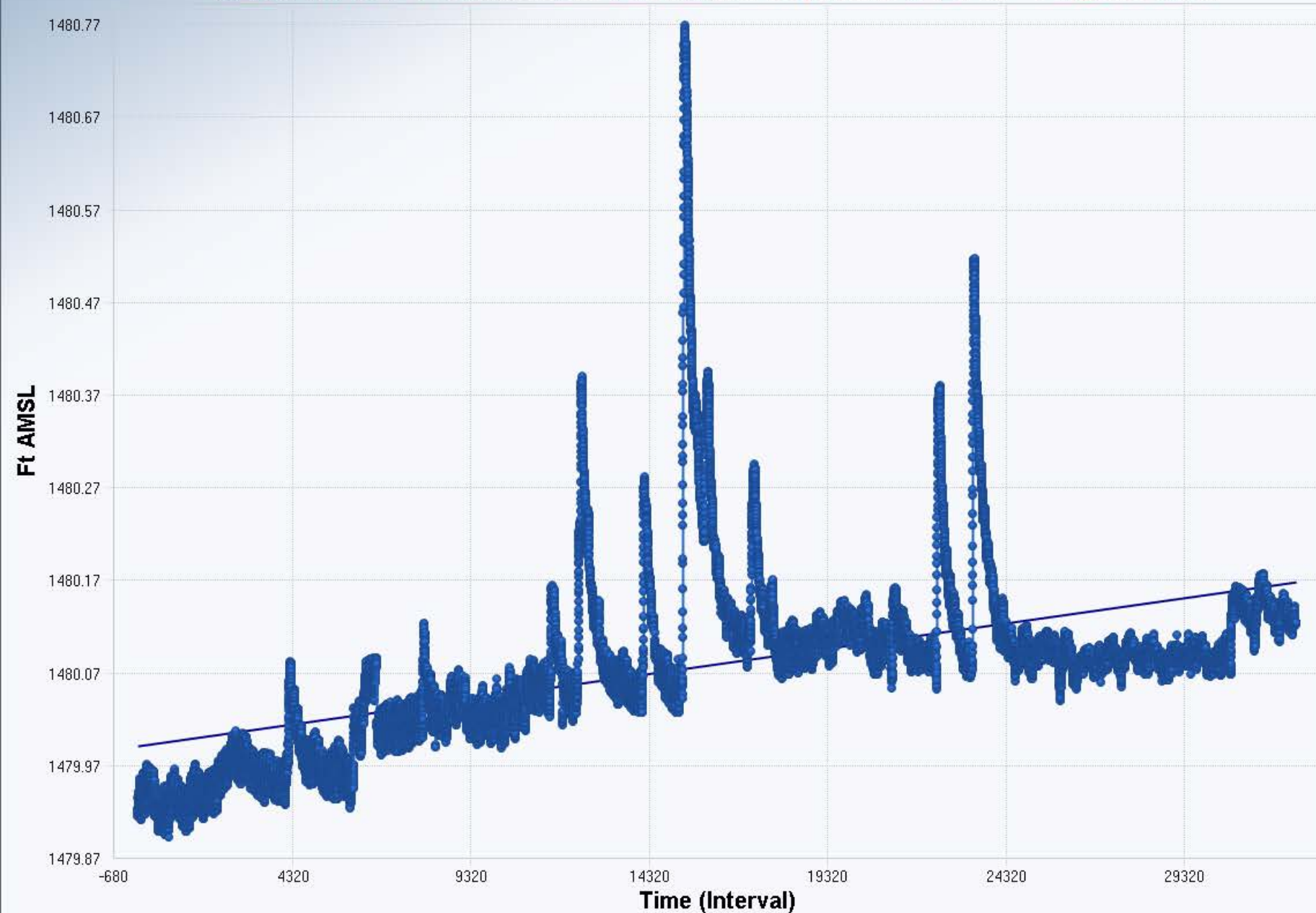
n	32,644
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,966,046.3343
Standardized Value of S	161.6514
M-K Test Value (S)	317,814,126
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,472.2115

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.51S1 Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis

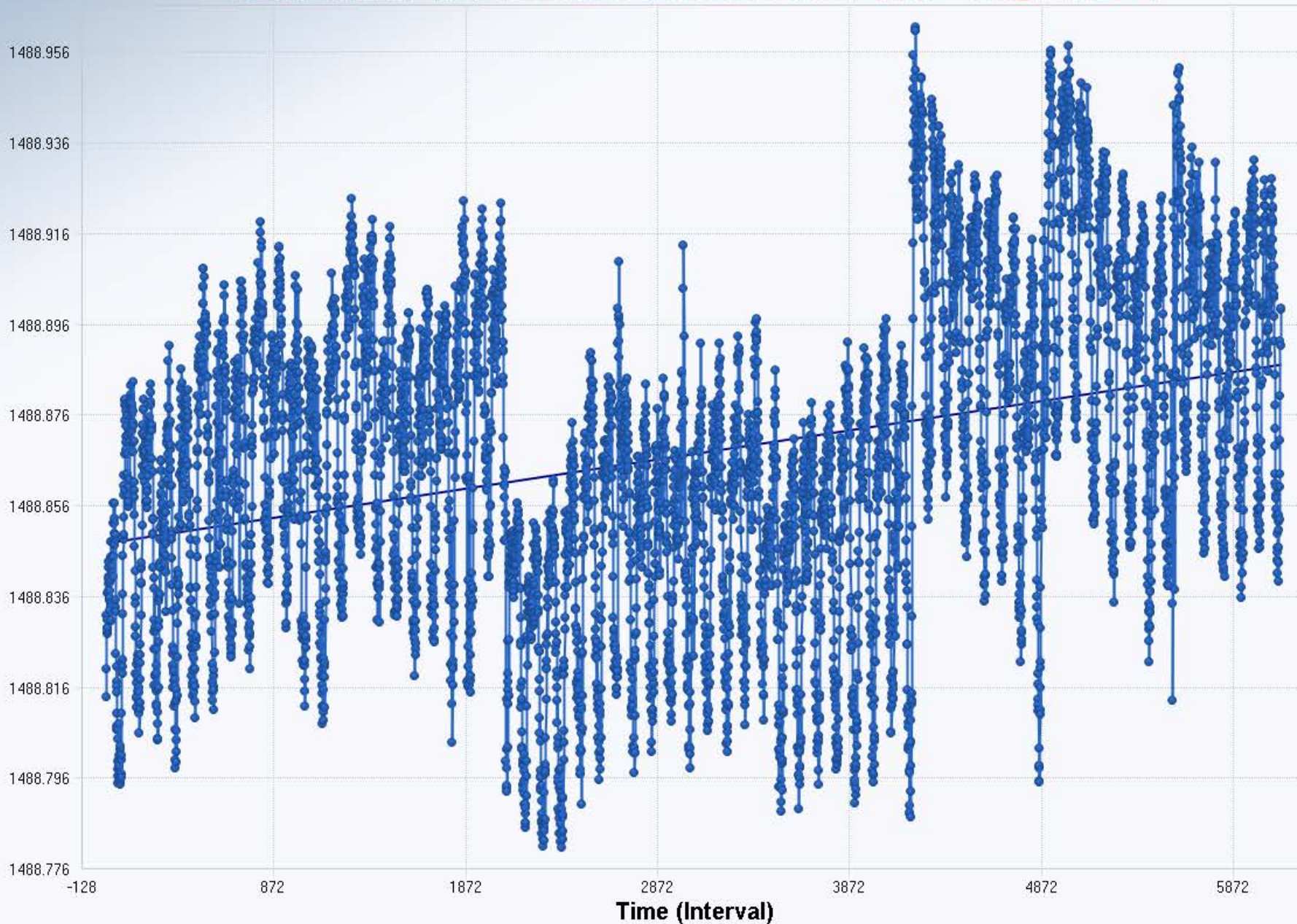
n	32,440
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,947,645.8744
Standardized Value of S	137.1220
M-K Test Value (S)	267,065.181
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,479.9854

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.65N1 Groundwater Elevation June 2019 - August 2019



Mann-Kendall Trend Analysis

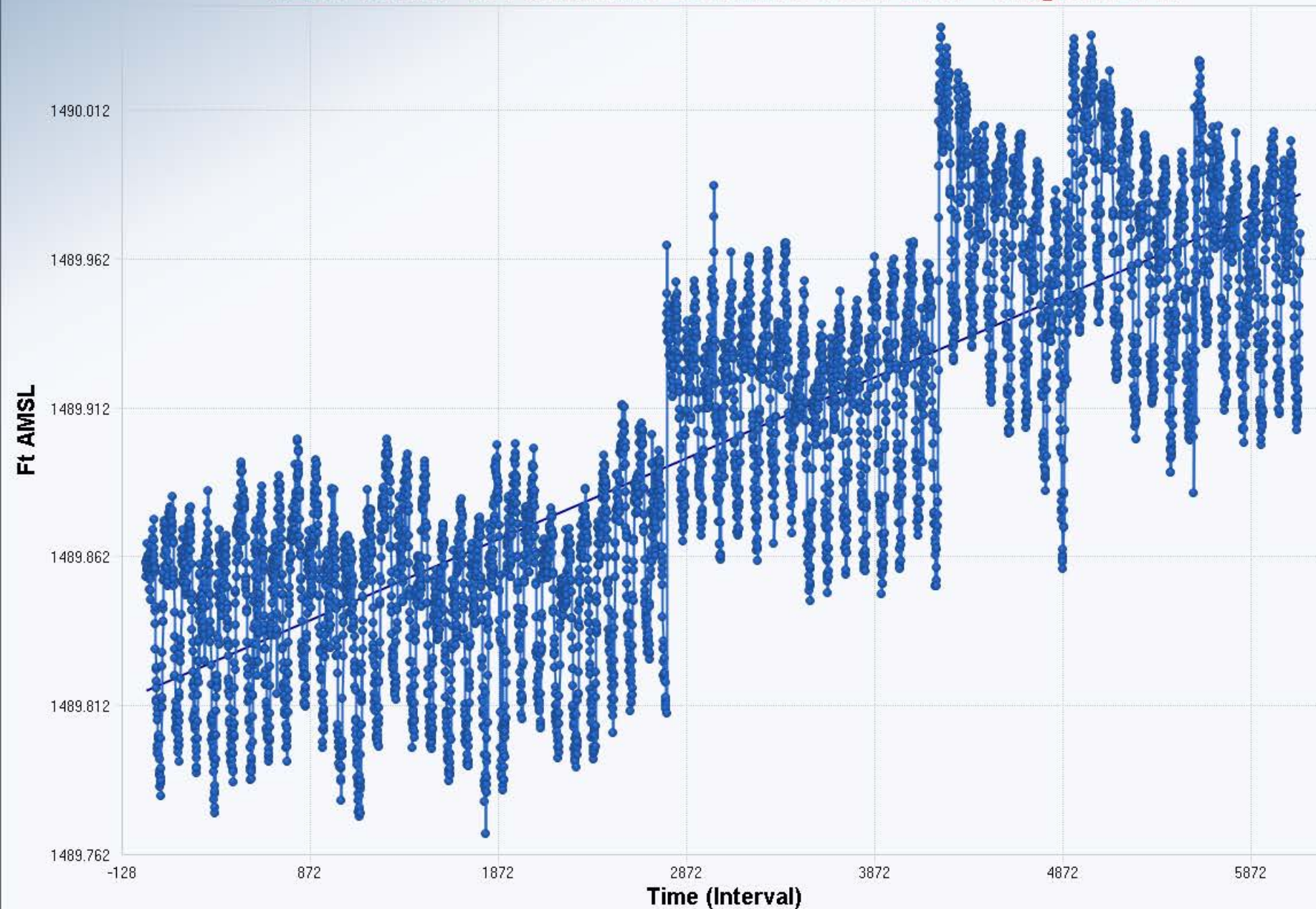
n	6,122
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	159,687.6423
Standardized Value of S	23.8755
M-K Test Value (S)	3,812,618
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,488.8483

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.70N1 Groundwater Elevation June 2019 - August 2019

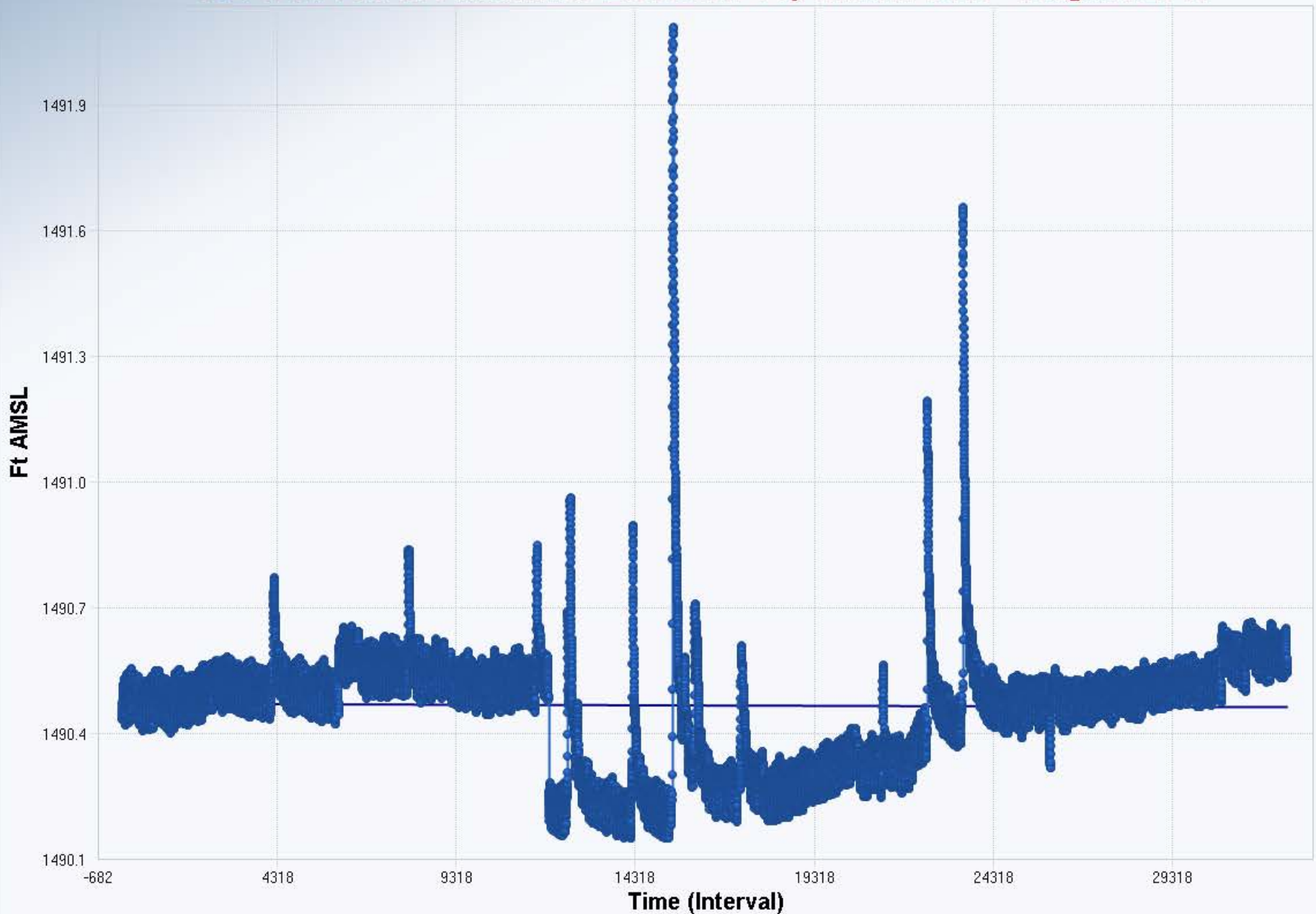


Mann-Kendall Trend Analysis	
n	6,131
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	160,039.8538
Standardized Value of S	68.8972
M-K Test Value (S)	11,026,303
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	1,489.8166

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.71S1 Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis

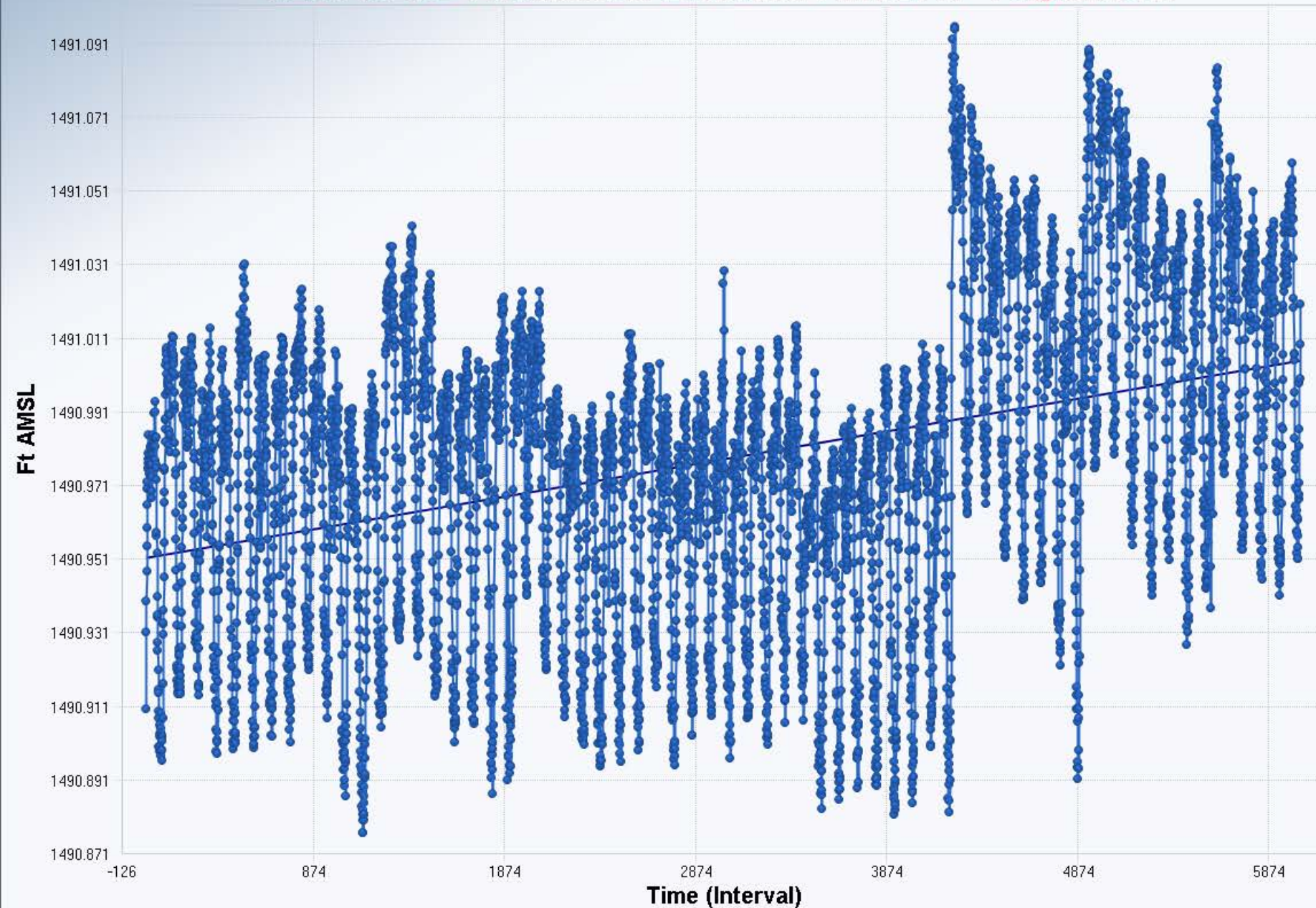
n	32,538
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,956,478.2631
Standardized Value of S	9.0976
M-K Test Value (S)	17,799.261
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,490.4641

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.71S2 Groundwater Elevation June 2019 - August 2019



Mann-Kendall Trend Analysis

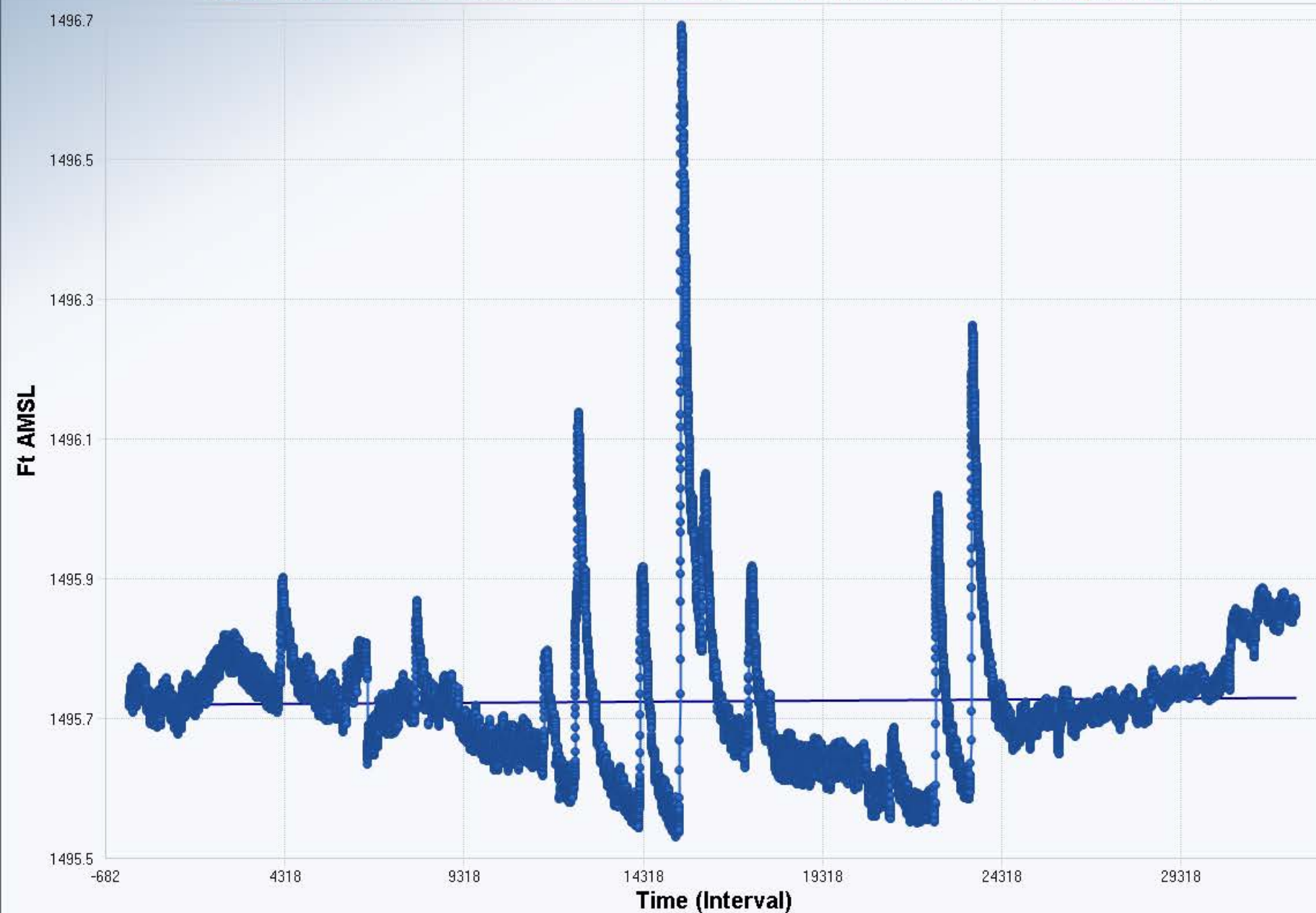
n	6,040
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	156,490.2728
Standardized Value of S	24.5492
M-K Test Value (S)	3,841.710
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,490.9510

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT4.93S1 Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis

n	32,529
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,955,666.4479
Standardized Value of S	-4.5981
M-K Test Value (S)	-8,992.336
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,495.7266

Statistically significant evidence
of a decreasing trend at the
specified level of significance.

NERT5.11S1 Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis

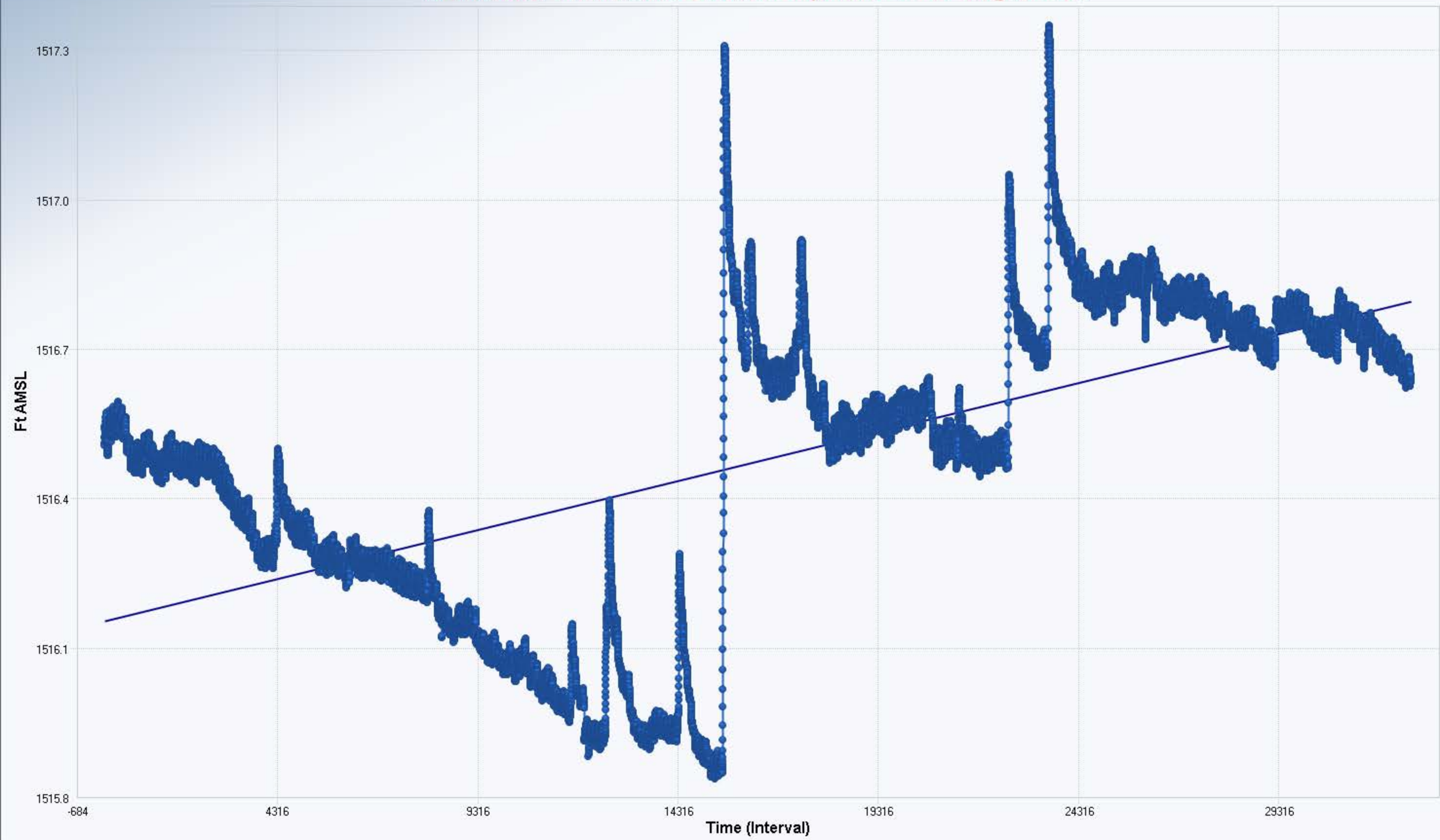
n	32,532
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,955,937.0307
Standardized Value of S	24.2458
M-K Test Value (S)	47,423,348
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,501.9660

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT5.49S1 Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis

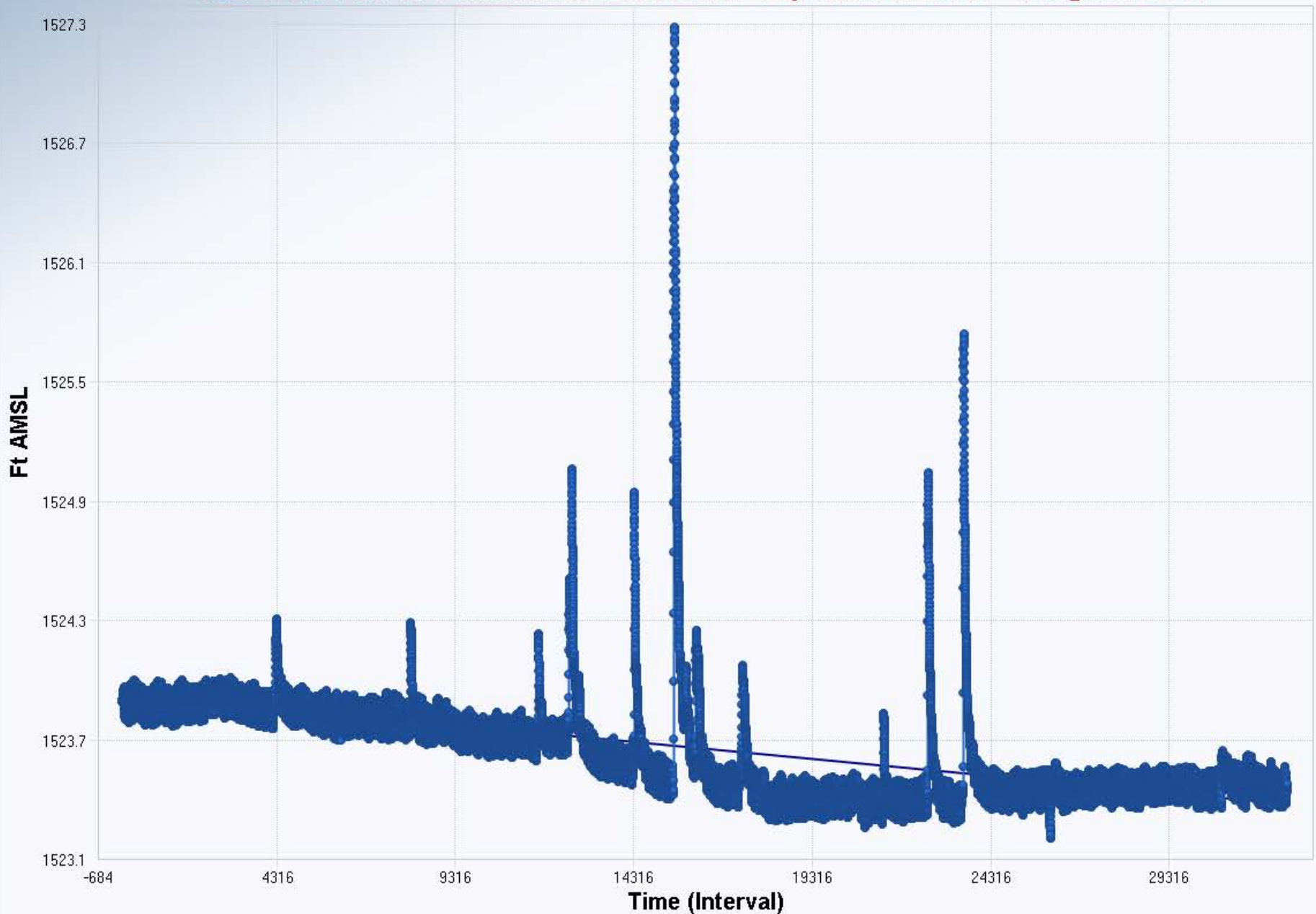
n	32,623
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,964,149.6189
Standardized Value of S	90.6420
M-K Test Value (S)	178,034.507
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,516.1042

Statistically significant evidence of an increasing trend at the specified level of significance.

NERT5.91S1 Groundwater Elevation September 2018 - August 2019

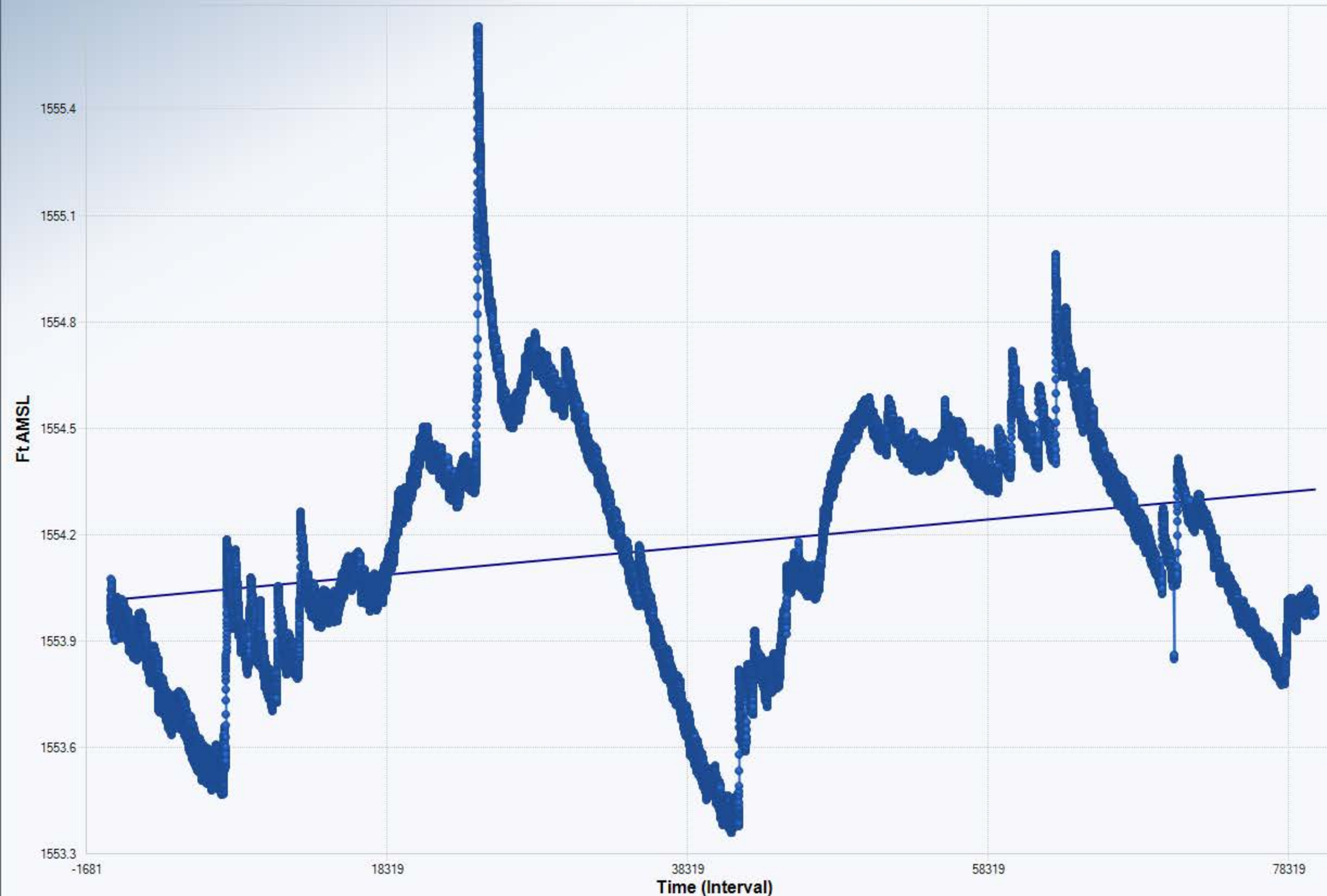


Mann-Kendall Trend Analysis	
n	32,626
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,964,420.5517
Standardized Value of S	-150.4700
M-K Test Value (S)	-295,586.357
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	1,523.9291

Statistically significant evidence of a decreasing trend at the specified level of significance.

PC-74 Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

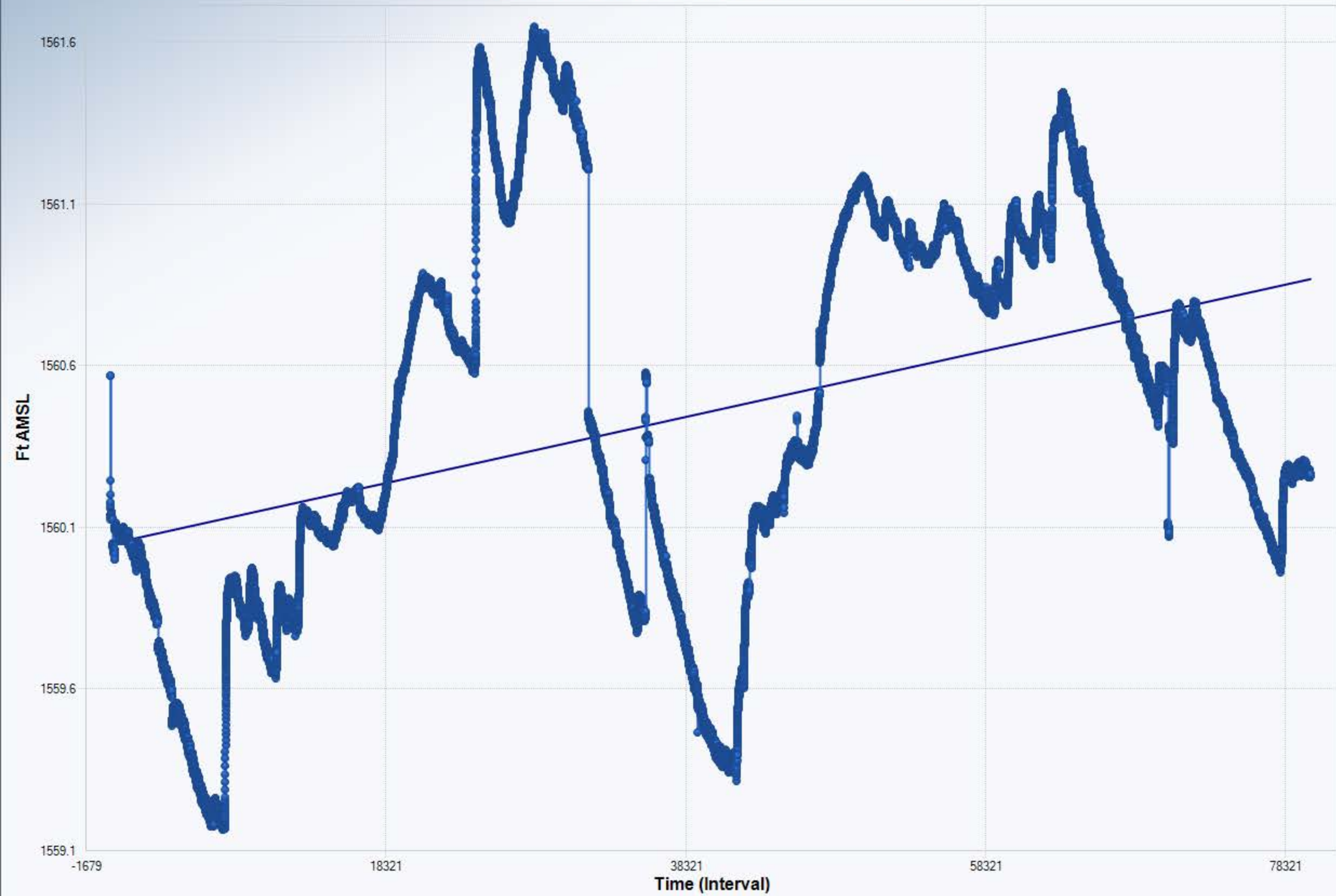
n	80,120
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,559,520.0028
Standardized Value of S	68.8946
M-K Test Value (S)	520,810,469
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,553.9986

Statistically significant evidence of an increasing trend at the specified level of significance.

PC-77 Groundwater Elevation April 2017 - August 2019

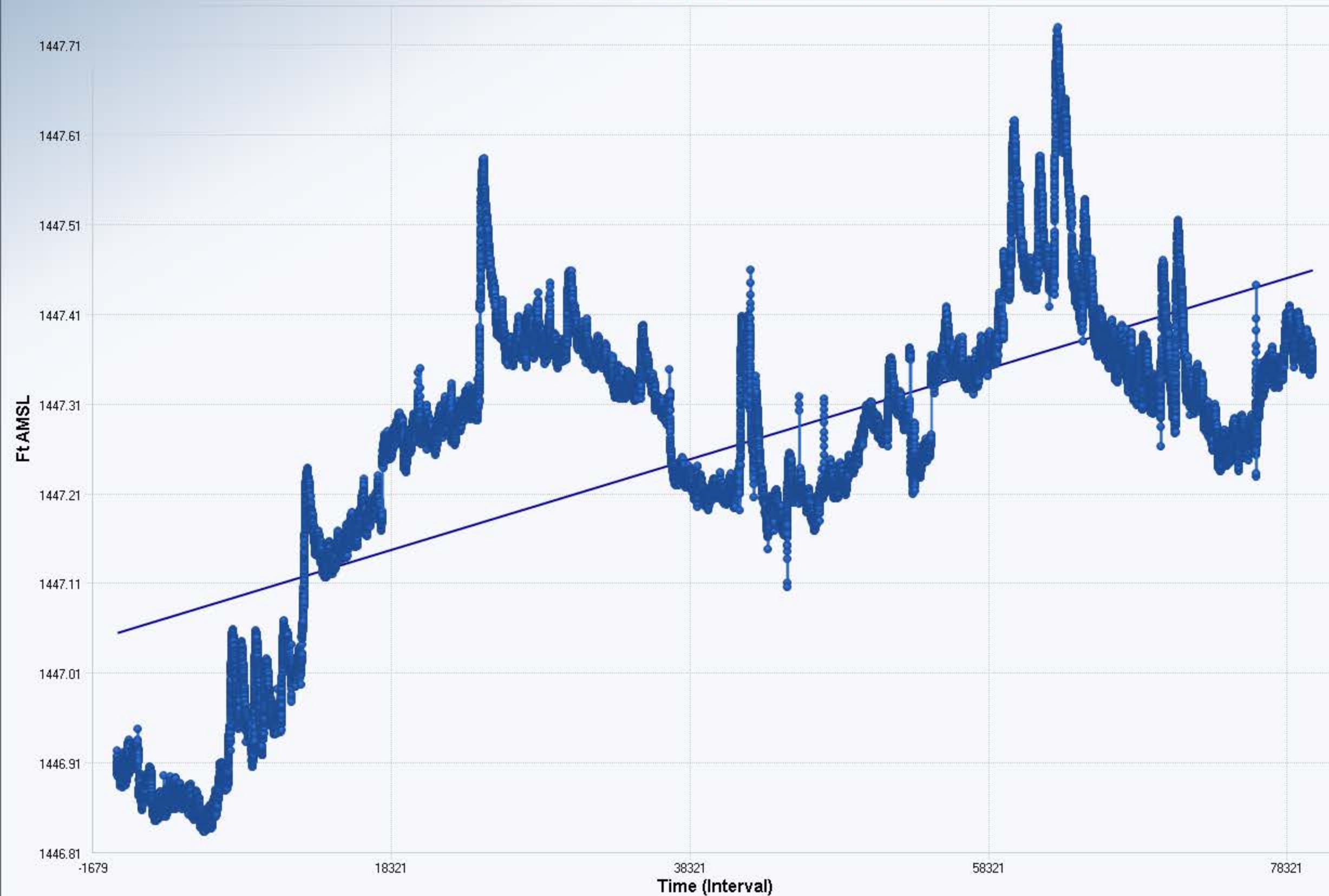


Mann-Kendall Trend Analysis	
n	80,017
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,544,947.3273
Standardized Value of S	104.2613
M-K Test Value (S)	786,646,080
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	1,560.0065

Statistically significant evidence of an increasing trend at the specified level of significance.

WMW3.5N Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

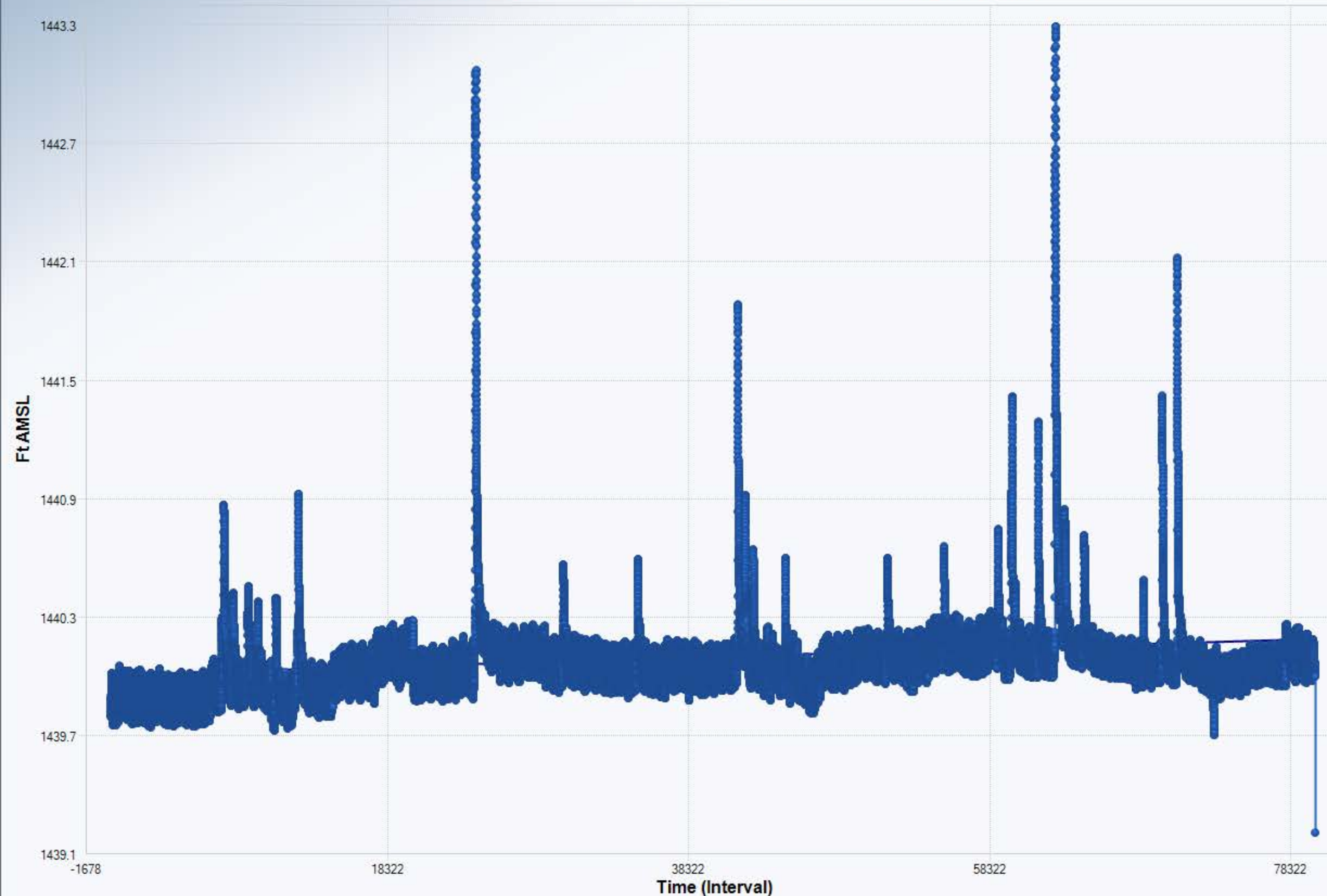
n	80,015
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,544,664.3353
Standardized Value of S	188.6330
M-K Test Value (S)	1,423,172.748
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,447.0524

Statistically significant evidence of an increasing trend at the specified level of significance.

WMW3.5S Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

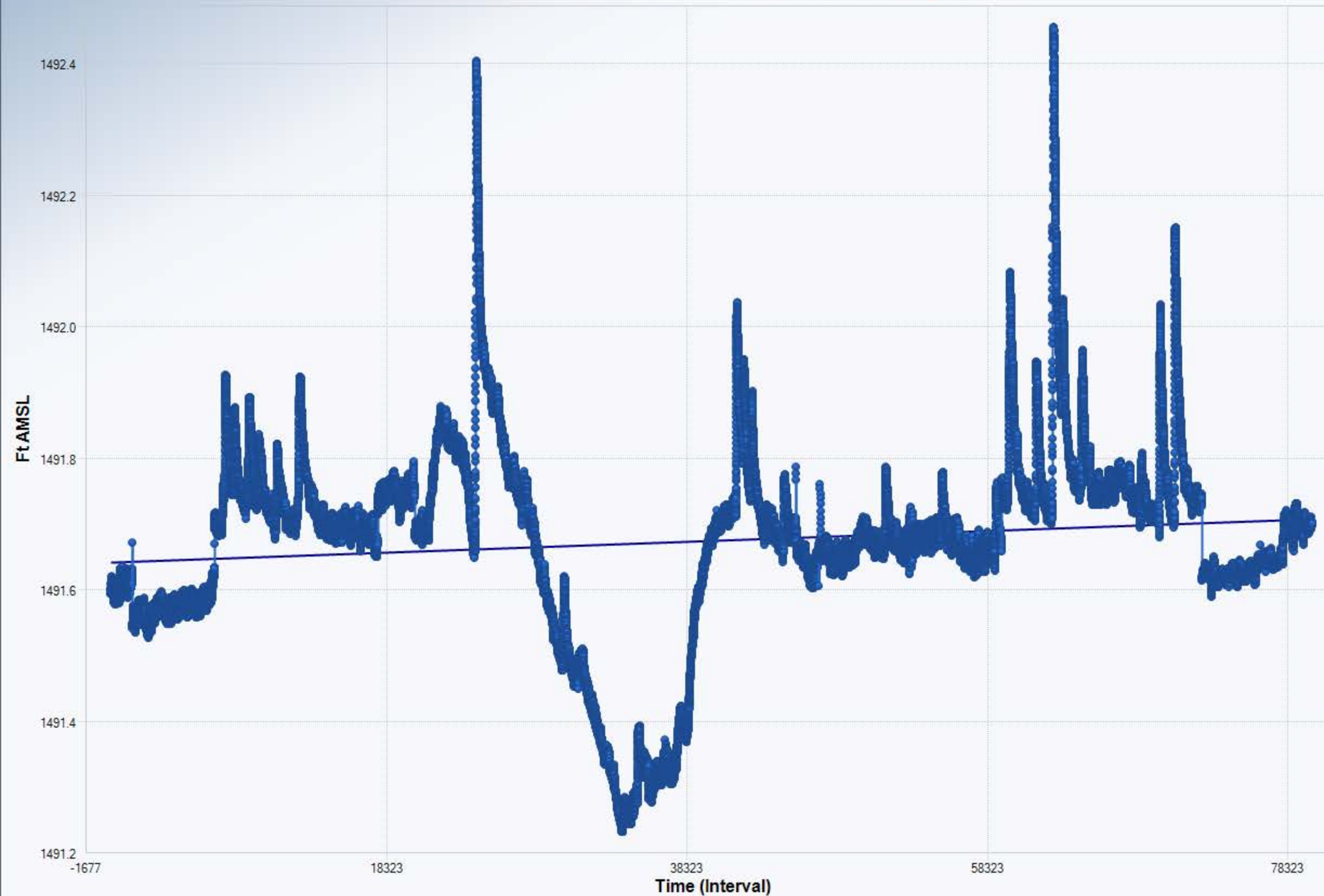
n	79,930
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,532,645.6218
Standardized Value of S	113.9781
M-K Test Value (S)	858,556.316
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,439.9656

Statistically significant evidence of an increasing trend at the specified level of significance.

WMW4.9N Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

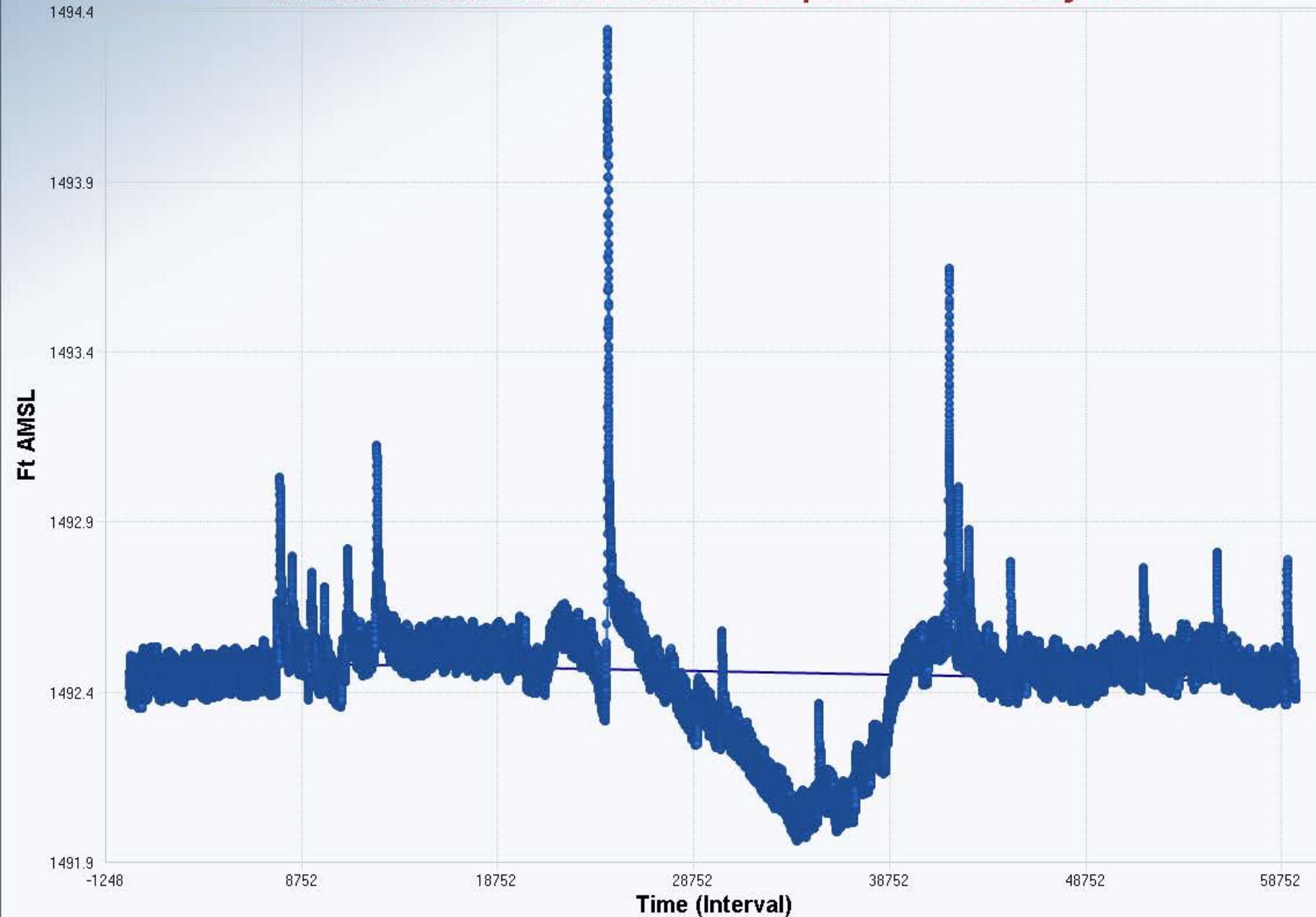
n	79,929
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,532,504.1597
Standardized Value of S	31.3258
M-K Test Value (S)	235,961,852
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,491.5943

Statistically significant evidence of an increasing trend at the specified level of significance.

WMW4.9S Groundwater Elevation April 2017 - January 2019



Mann-Kendall Trend Analysis

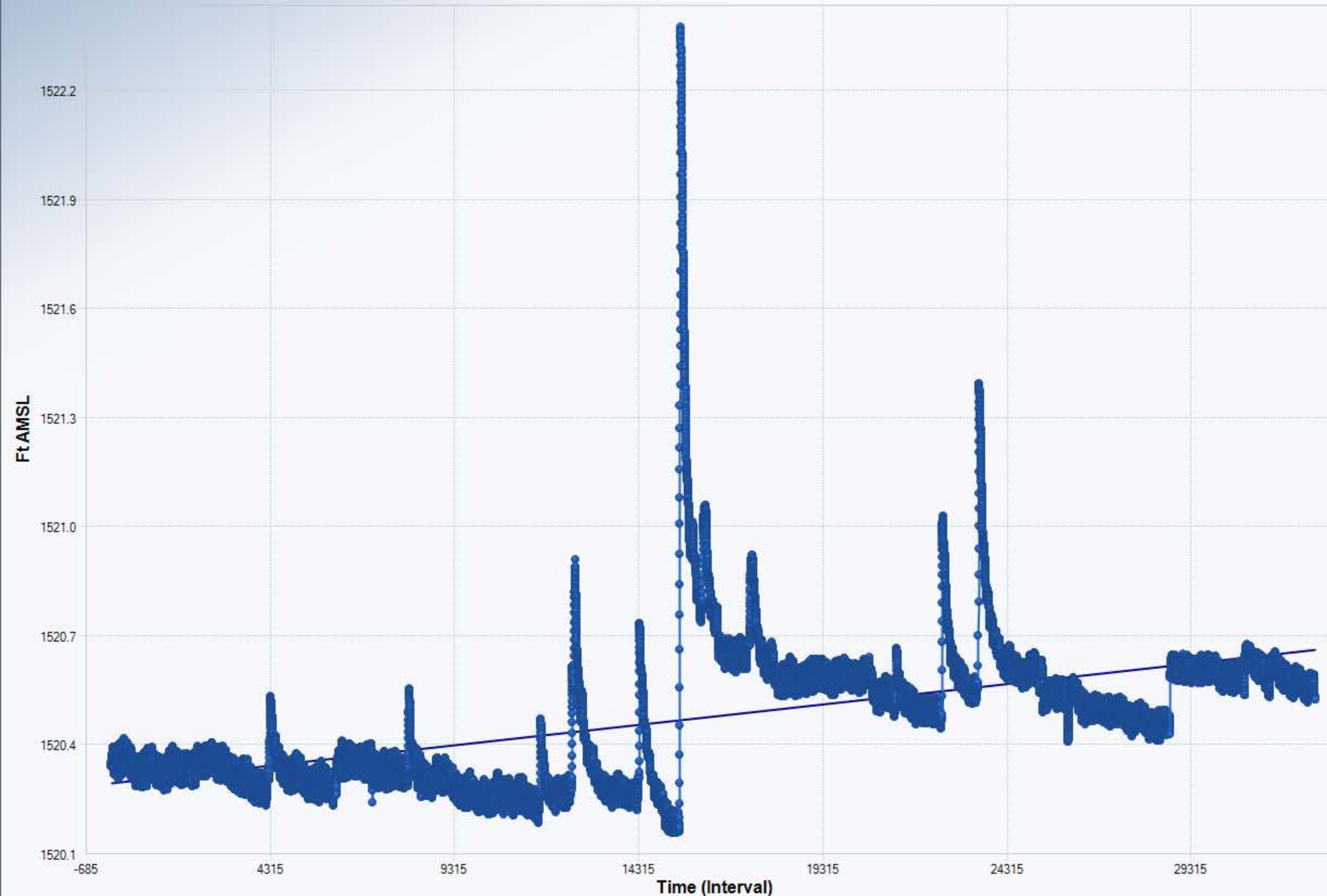
n	59,478
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4,835,247.9545
Standardized Value of S	-26.4883
M-K Test Value (S)	-128,077,681
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,492.5037

Statistically significant evidence
of a decreasing trend at the
specified level of significance.

WMW5.58S Groundwater Elevation September 2018 - August 2019



Mann-Kendall Trend Analysis

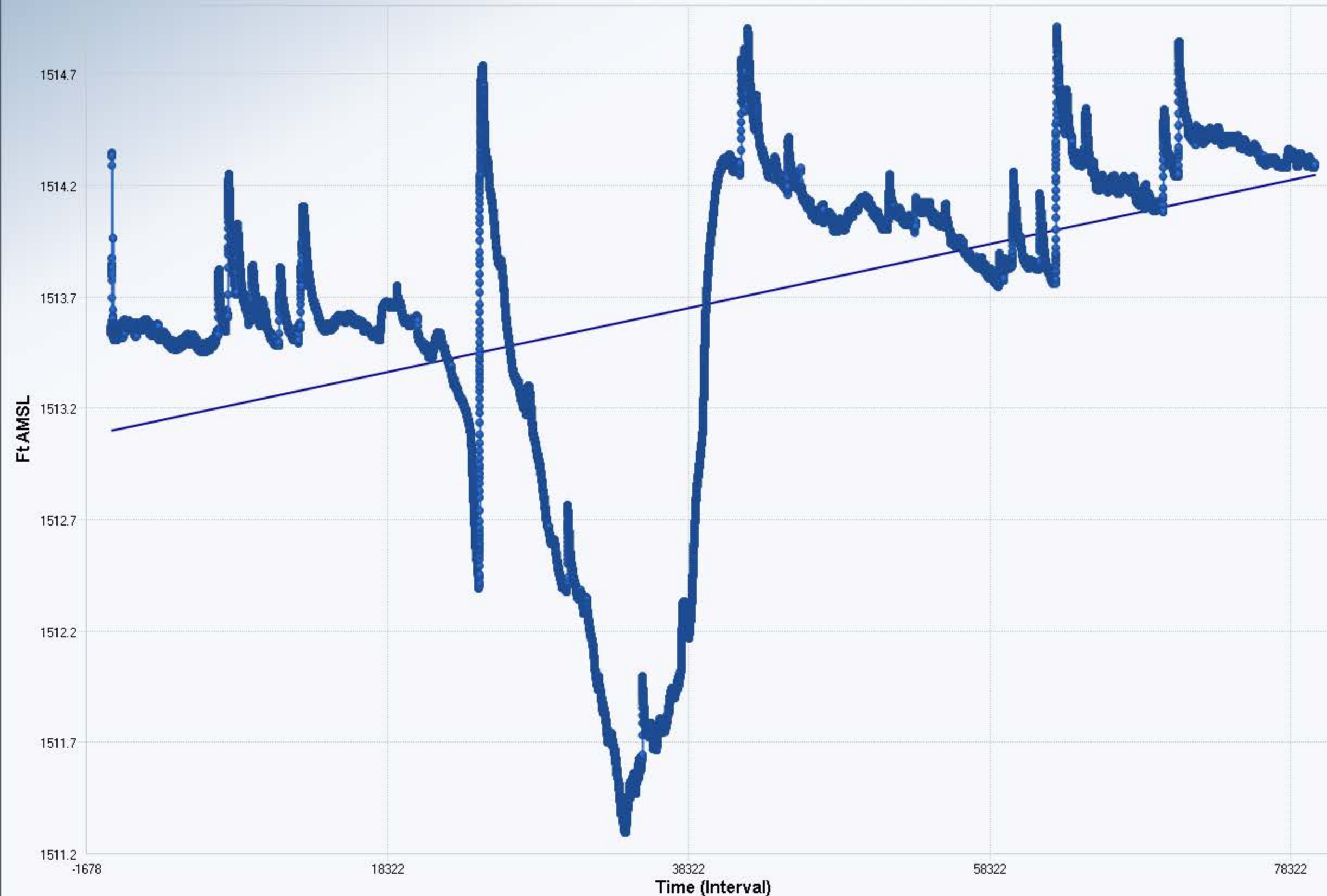
n	32,683
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1,969,570.6554
Standardized Value of S	91.1570
M-K Test Value (S)	179,540,172
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,520.2606

Statistically significant evidence of an increasing trend at the specified level of significance.

WMW5.5S Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

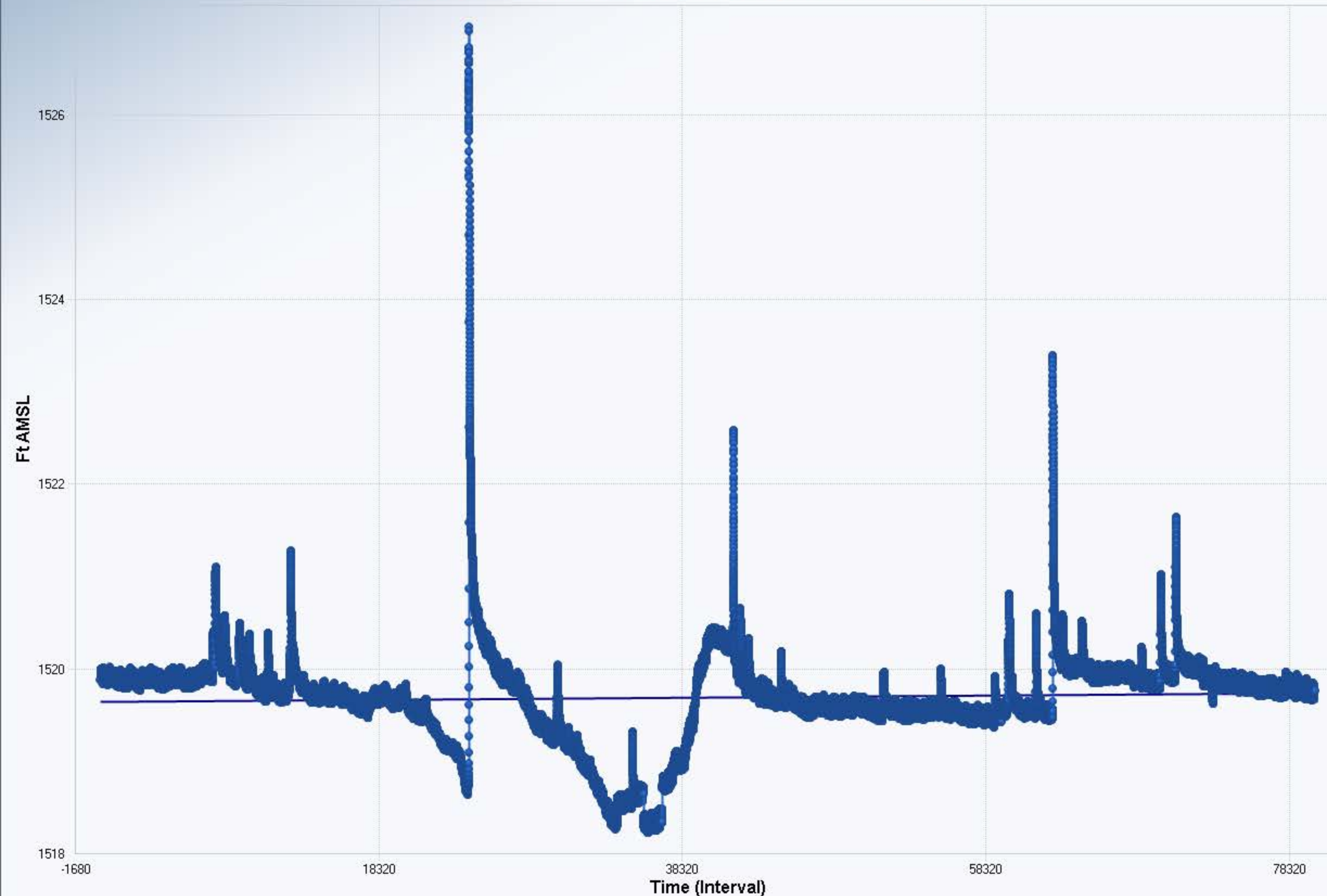
n	79,950
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,535,473.0341
Standardized Value of S	169.3916
M-K Test Value (S)	1,276,445.975
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,513.0651

Statistically significant evidence of an increasing trend at the specified level of significance.

WMW5.7N Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

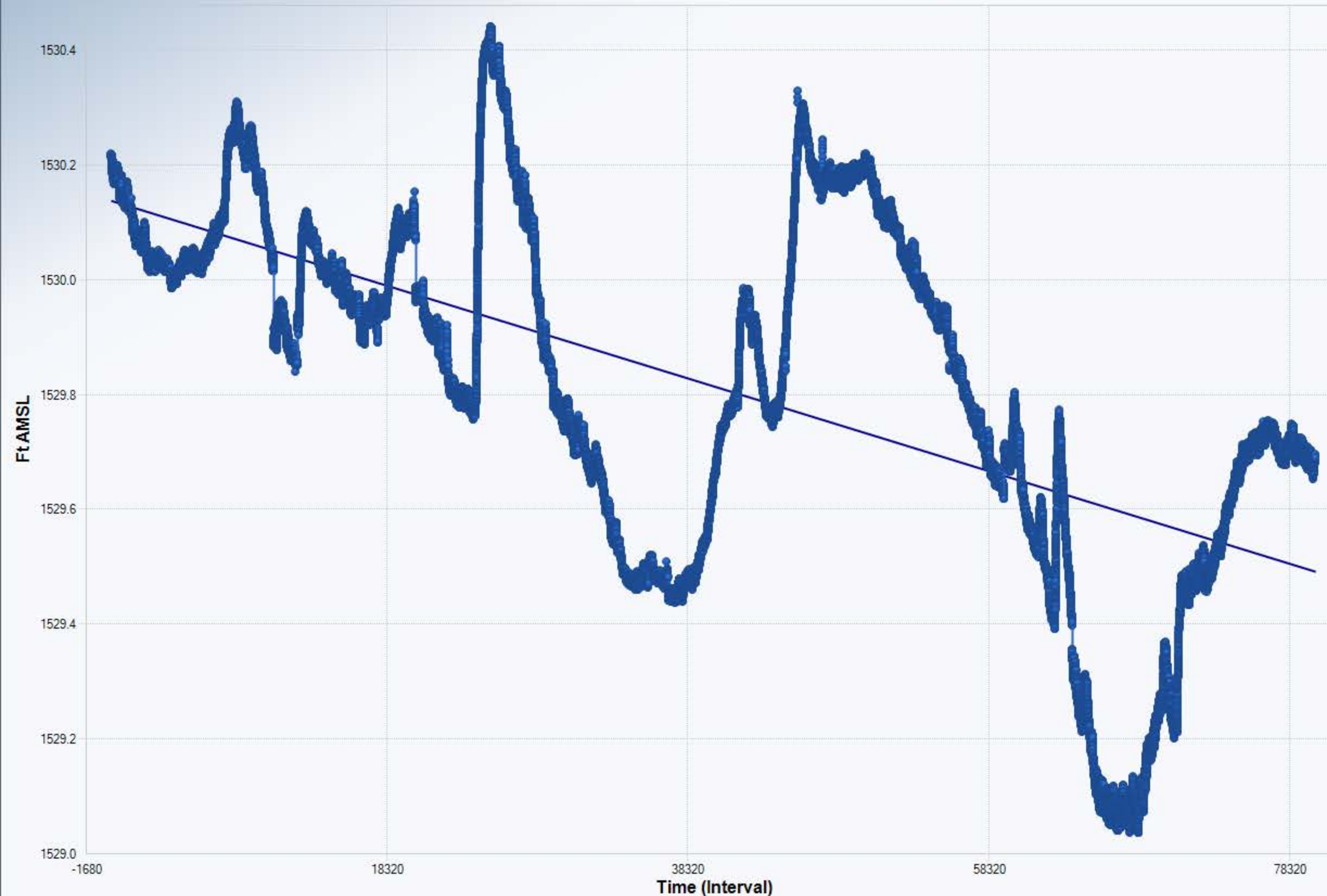
n	80,027
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,546,361.7324
Standardized Value of S	-1.2118
M-K Test Value (S)	-9,144,750
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.1128

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,519.9819

Insufficient statistical evidence of a significant trend at the specified level of significance.

WMW6.15N Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

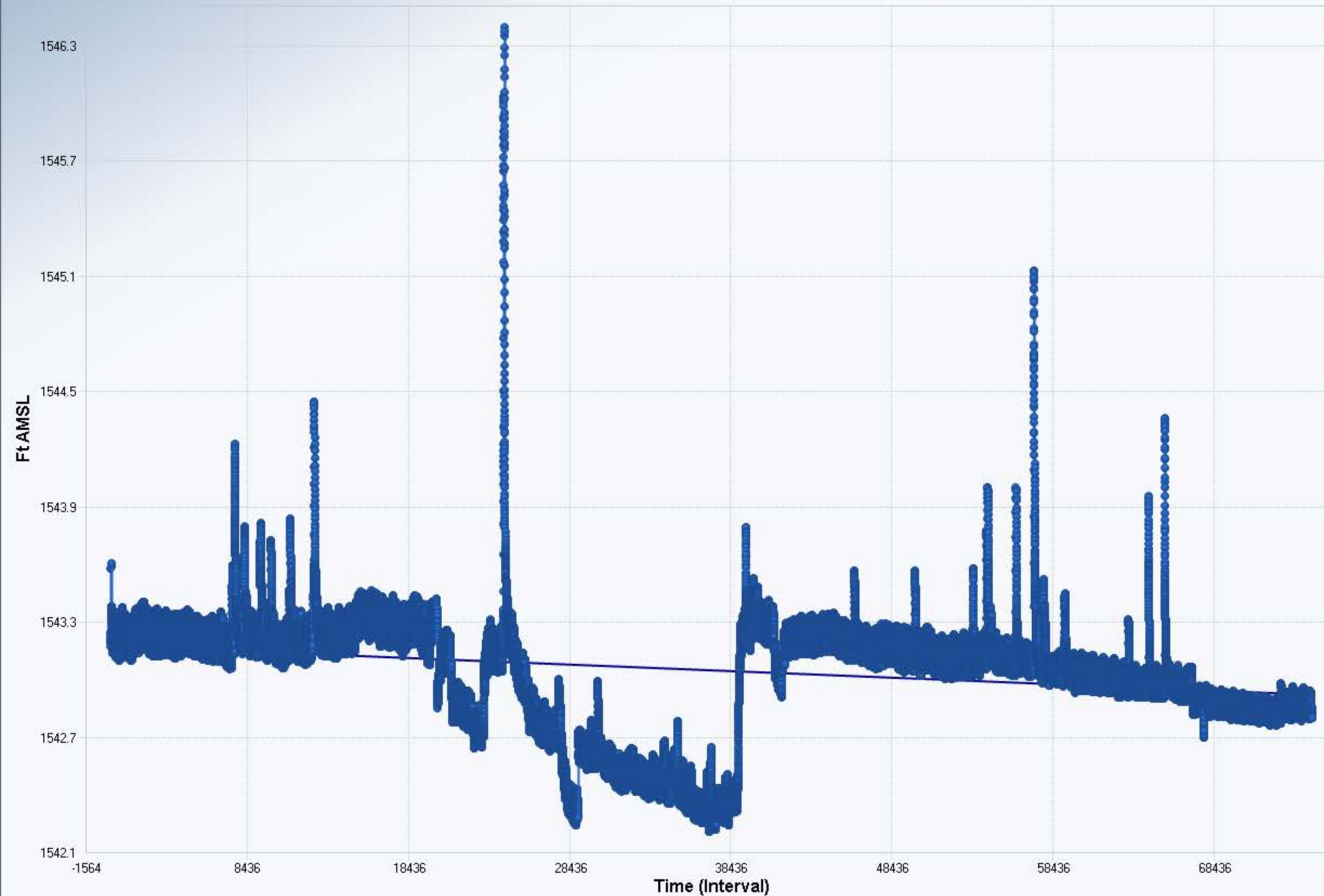
n	80,031
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,546,927.5001
Standardized Value of S	-180.0657
M-K Test Value (S)	-1,358,942.983
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,530.1190

Statistically significant evidence of a decreasing trend at the specified level of significance.

WMW6.55S Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

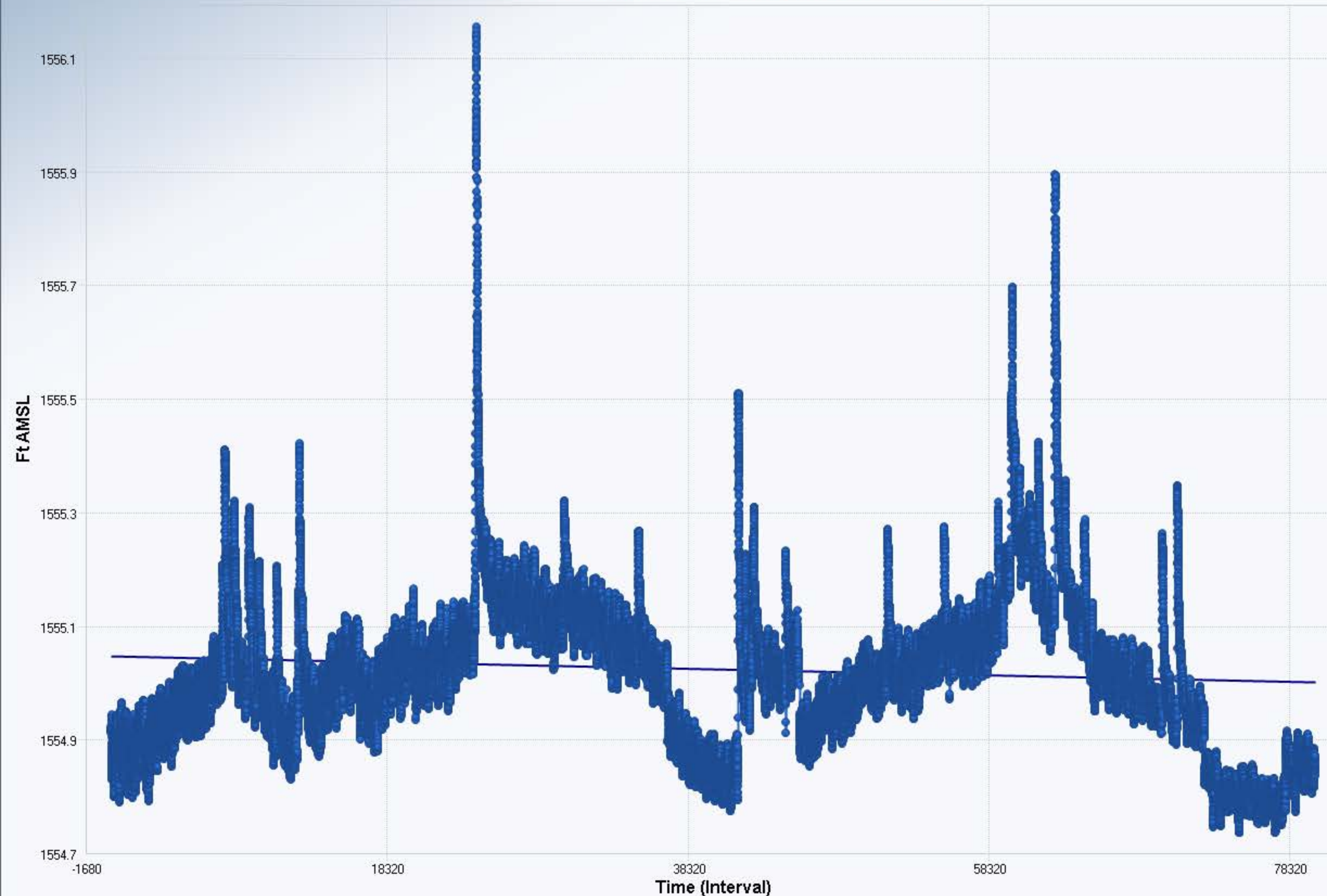
n	74,540
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6,783,708.7743
Standardized Value of S	-129.4792
M-K Test Value (S)	-878,348.848
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,543.1802

Statistically significant evidence of a decreasing trend at the specified level of significance.

WMW6.9N Groundwater Elevation April 2017 - August 2019



Mann-Kendall Trend Analysis

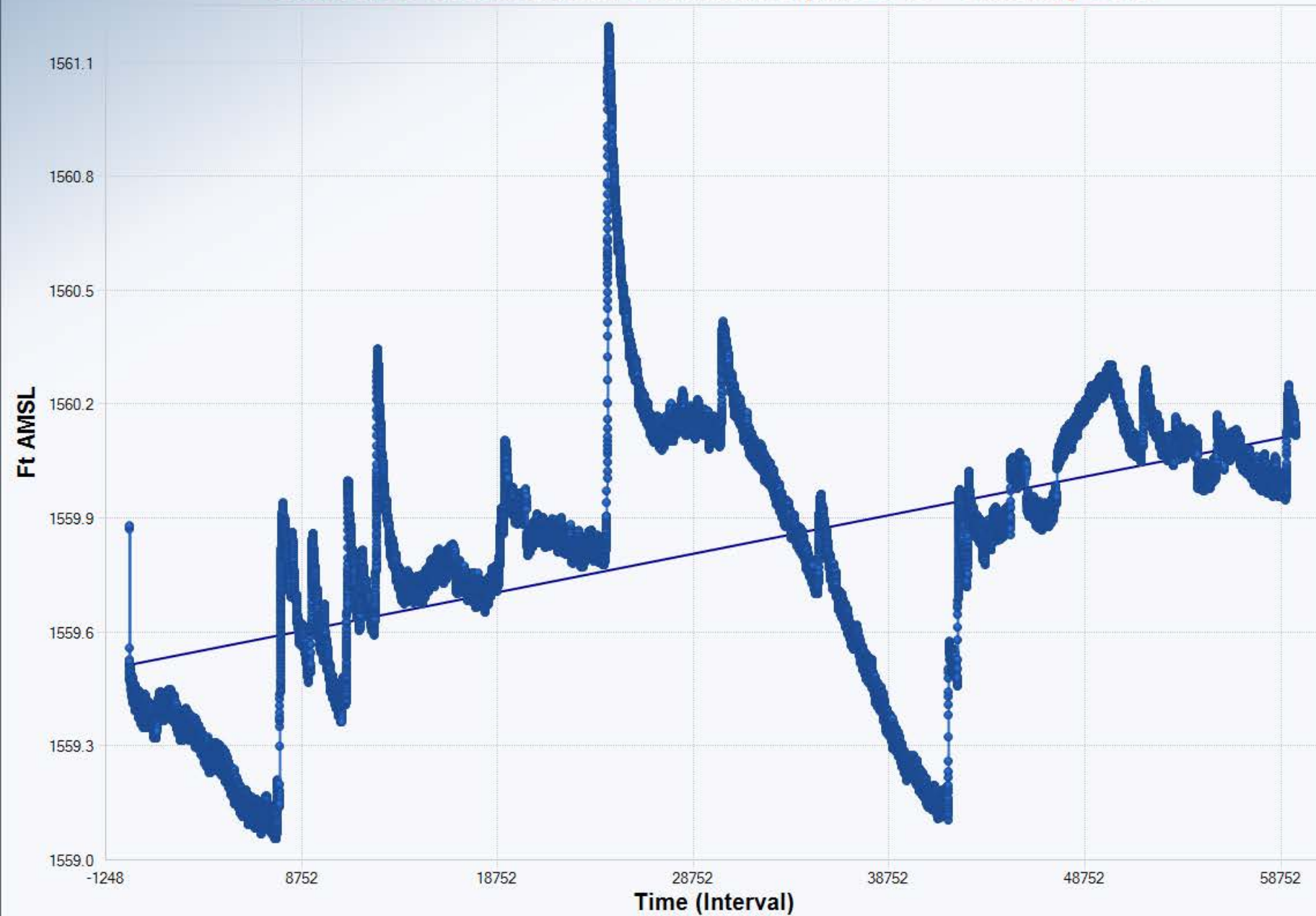
n	80,027
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7,546,361.6781
Standardized Value of S	-18.8592
M-K Test Value (S)	-142,318,618
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1,555.0751

Statistically significant evidence of a decreasing trend at the specified level of significance.

WMW6.9S Groundwater Elevation April 2017 - January 2019



Mann-Kendall Trend Analysis

n	59,516
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4,839,882.5036
Standardized Value of S	138.5672
M-K Test Value (S)	670,649.043
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

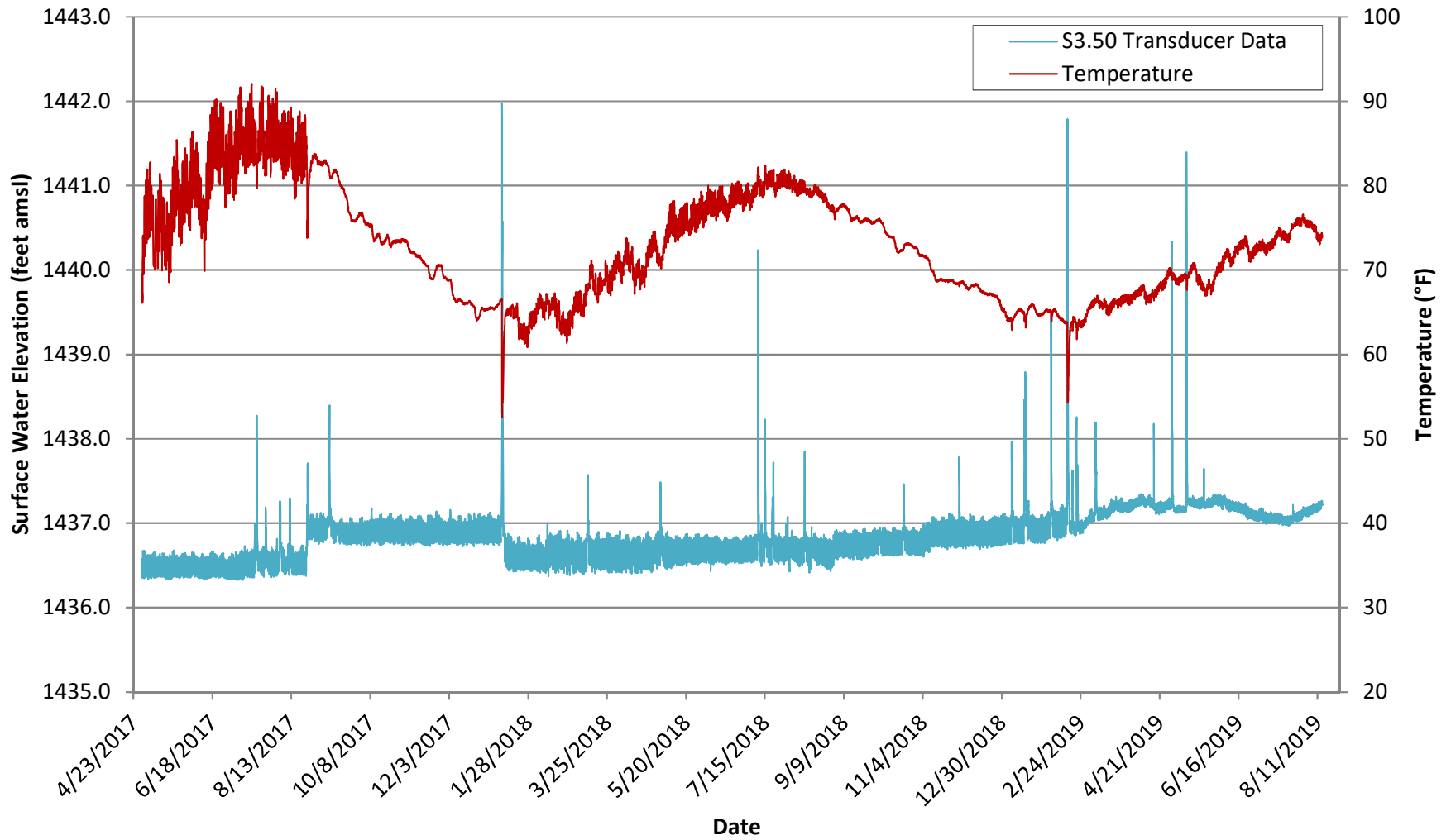
OLS Regression Slope	0.0000
OLS Regression Intercept	1,559.5476

Statistically significant evidence of an increasing trend at the specified level of significance.

Appendix G

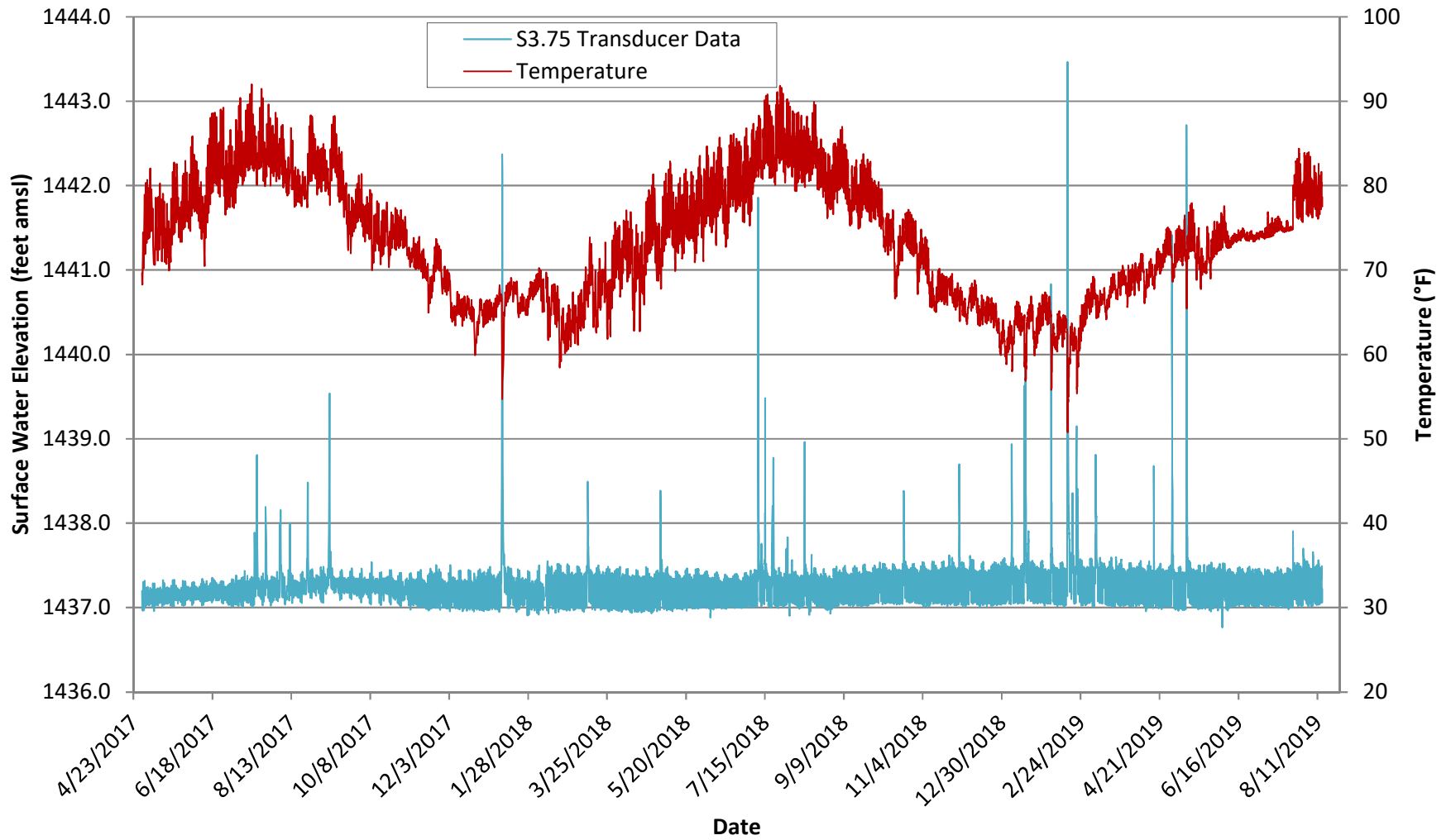
Surface Water Hydrographs and Temperature Graphs

S3.50 Surface Water Hydrograph



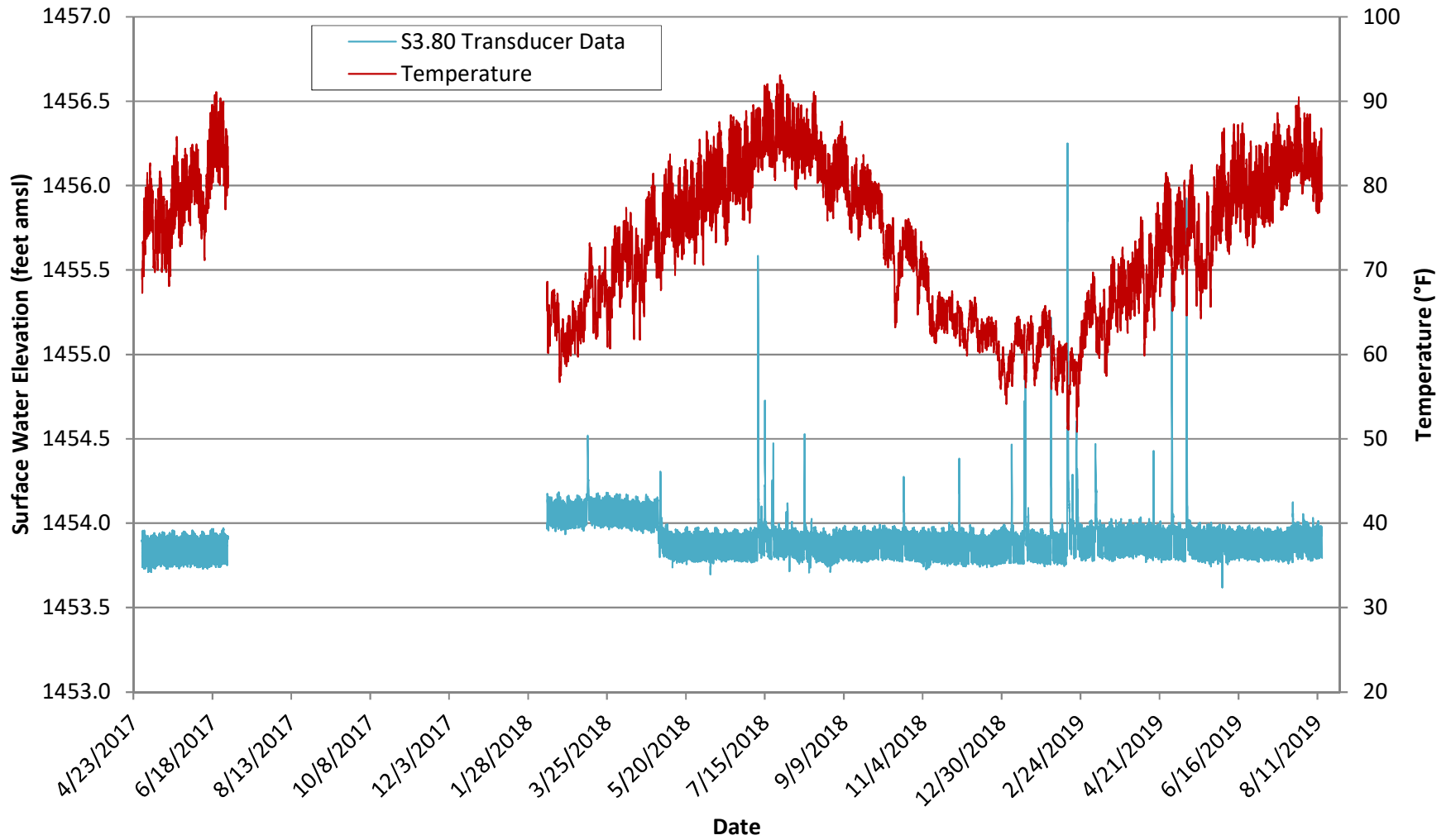
Notes: 1. Transducer data has been corrected for barometric pressure.

S3.75 Surface Water Hydrograph



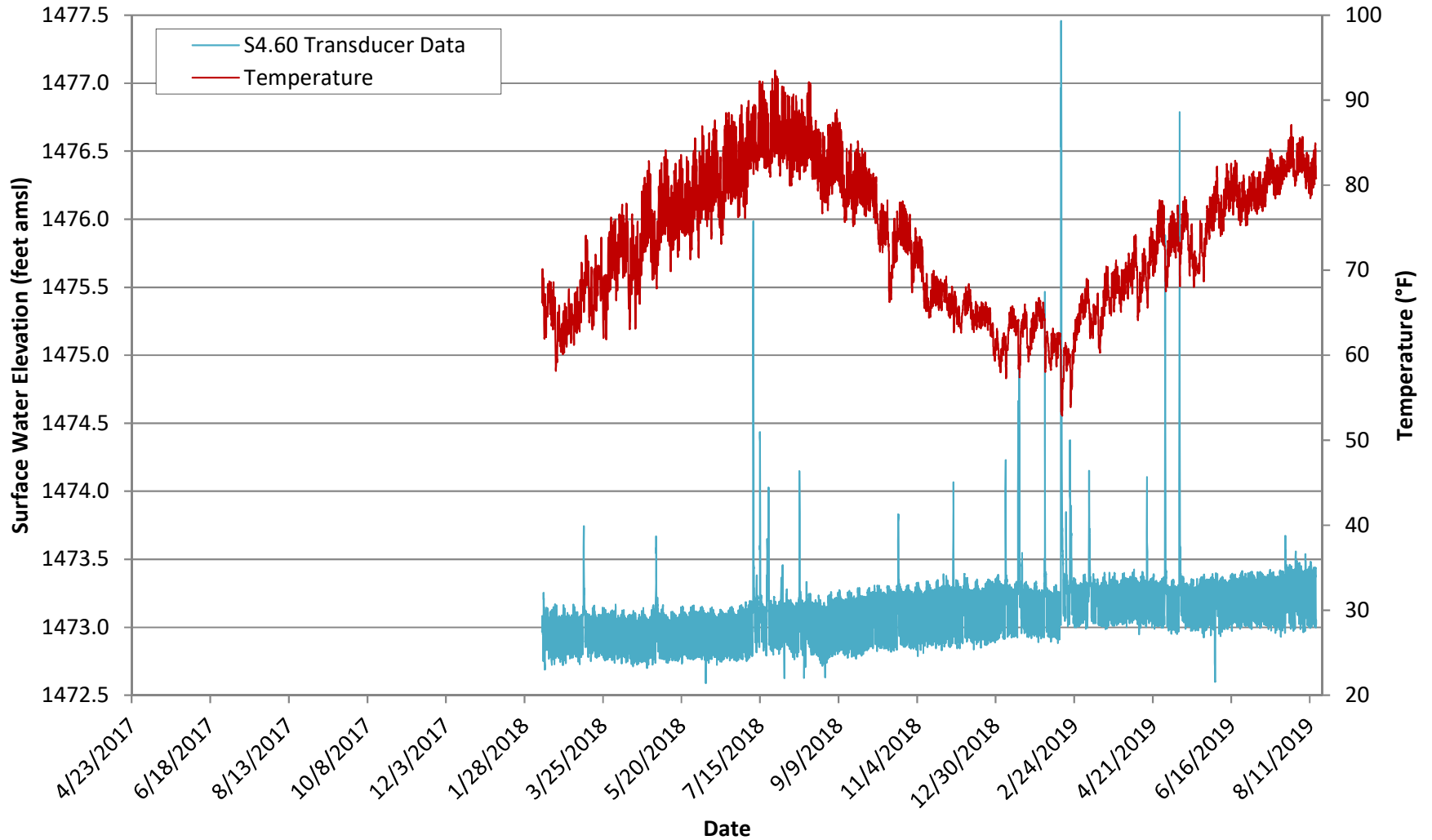
Notes: 1. Transducer data has been corrected for barometric pressure.

S3.80 Surface Water Hydrograph



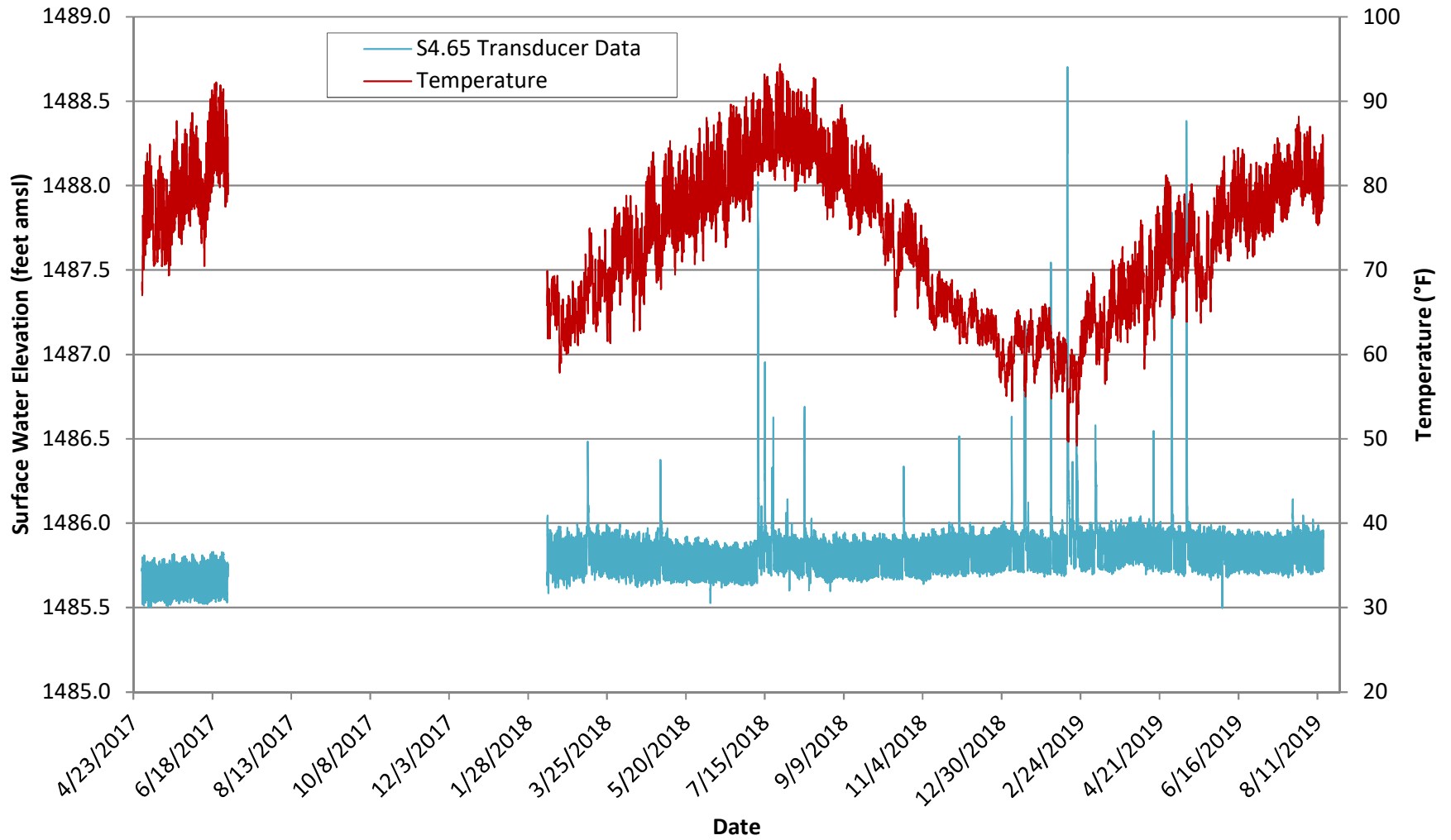
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Transducer did not record data between July 2017 and February 2018 because memory storage was full.

S4.60 Surface Water Hydrograph



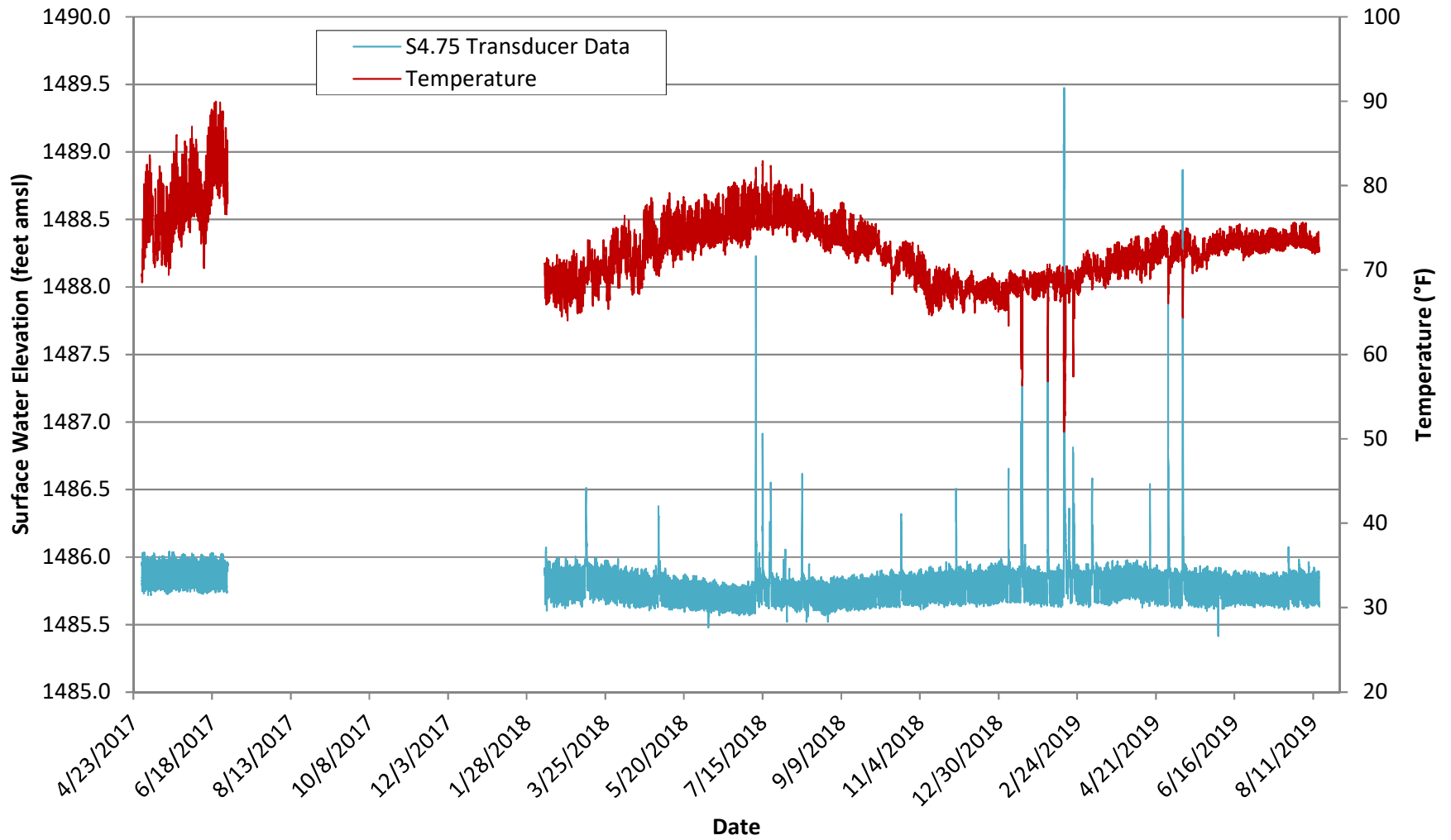
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Transducer did not record data between February 2017 and February 2018 because memory storage was full.

S4.65 Surface Water Hydrograph



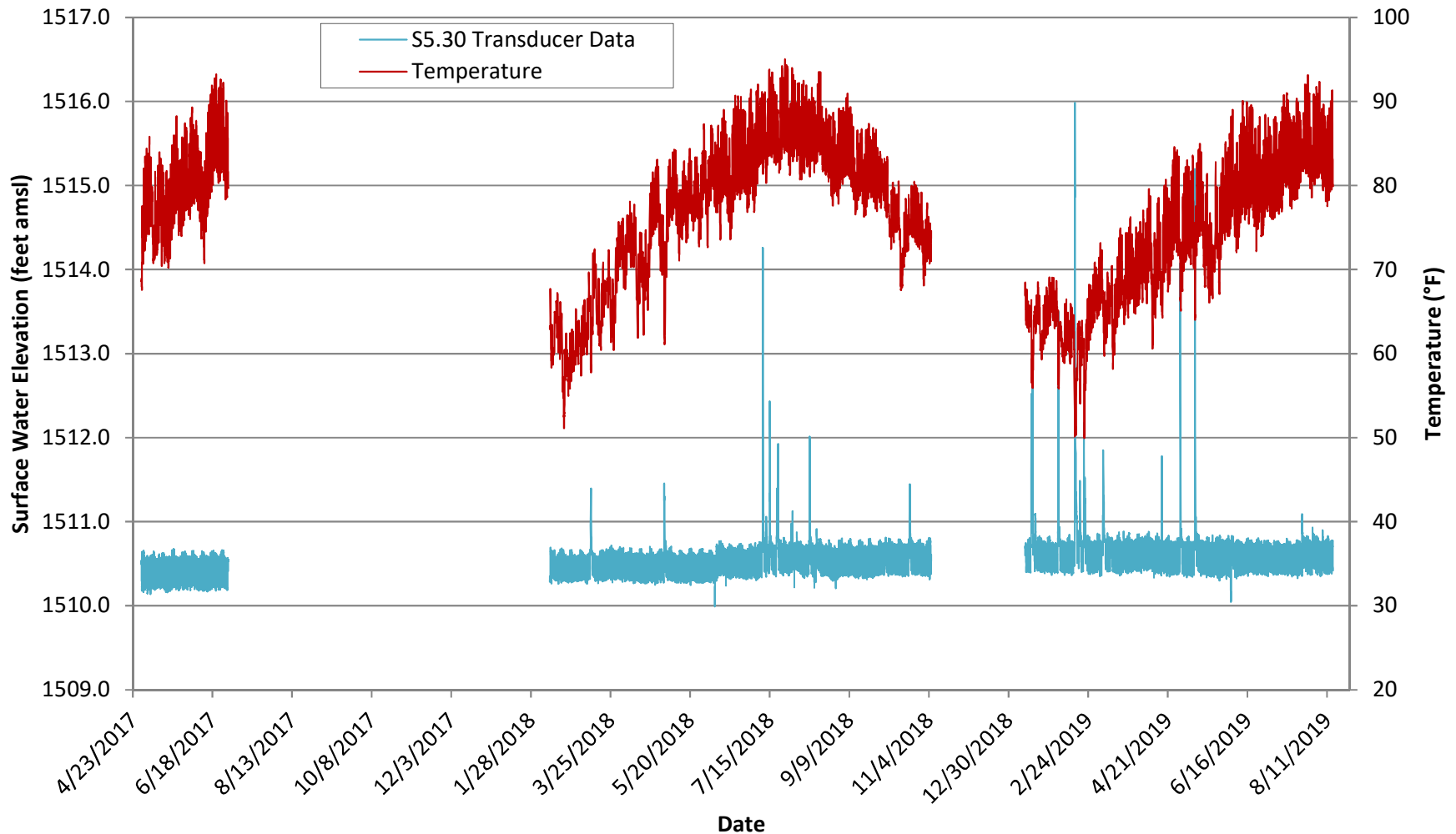
- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Transducer did not record data between June 2017 and February 2018 because the memory storage was full.

S4.75 Surface Water Hydrograph



- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Transducer did not record data between June 2017 and February 2018 because memory storage was full.

S5.30 Surface Water Hydrograph



- Notes:
1. Transducer data has been corrected for barometric pressure.
 2. Transducer did not record data between June 2017 and February 2018 and November 2018 and January 2019 because memory storage was full.