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SISKIYOU COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT

Shasta Valley Groundwater Sustainability Plan – WY 2025 Annual Report

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Submitted by

Siskiyou County Flood Control & Water Conservation District

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Abbreviation	Explanation
AF	Acre-feet
AFY	Acre-feet per year
amsl	above mean sea level
AT	Action Trigger
bgs	Below ground surface
CASGEM	California Statewide Groundwater Elevation Monitoring Program
CCR	California Code of Regulations
CDEC	California Data Exchange Center
DTW	Depth to Water
DWR	California Department of Water Resources
ET	Evapotranspiration
ft	Foot/feet
GAMA	Groundwater Ambient Monitoring and Assessment Program
gpm	Gallons per minute
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HCM	Hydrogeologic conceptual model
in	Inch/inches
IND	Industrial Service Supply (acronym used to describe beneficial use)
InSAR	Interferometric Synthetic Aperture Radar
km	Kilometer/kilometers
LLNL	Lawrence Livermore National Laboratory
m	Meter/meters
MCL	Maximum contaminant level
mg/L	Milligrams per liter
mi	Mile/miles
mm	Millimeter
MO	Measurable Objective
MT	Minimum Threshold
MW	Monitoring well
NOAA	United States National Oceanic and Atmospheric Administration
OSWCR	Online Systems for Well Completion Reports
PMA	Projects and Management Actions
ppb	Parts per billion

(continued)

Abbreviation	Explanation
ppm	Parts per million
RMP	Representative Monitoring Point
SGMA	Sustainable Groundwater Management Act
SI	Sustainability Indicator
sq	Square
SSWD	Scott Valley and Shasta Valley Watermaster District
SWGM	Shasta Watershed Groundwater Model
SWRCB	California State Water Resources Control Board
TAF	Thousand acre-feet
TMDL	Total Maximum Daily Load
U.S.	United States
UCD	University of California, Davis
ug/L	Micrograms per liter
UL	Upper level
umhos/cm	Micromhos per centimeter
USGS	United States Geological Survey
WQO	Water quality objective

Executive Summary

California Water Code (CWC) §356.2 requires the submission of an annual report to DWR by April 1 of each year following the adoption of the Groundwater Sustainability Plan (GSP). This report is the fifth annual report submitted to DWR and it provides an update on Basin conditions and plan implementation progress within the Shasta Valley Basin for Water Year 2025 (October 1, 2024 – September 30, 2025). This report is prepared on behalf of the Groundwater Sustainability Agency (GSA)—Siskiyou County Flood Control & Water Conservation District.

The Shasta Valley GSP provides a path towards sustainable, long-term groundwater management that achieves the Basin's Sustainability Goal:

The Sustainability Goal of the Basin is to maintain groundwater resources in ways that best support the continued and long-term health of the people, the environment, and the economy in Shasta Valley for generations to come.

To evaluate progress towards the goal, groundwater conditions are assessed for each applicable sustainability indicator (SI) in Water Year 2025. Table 1 lists the SIs and defines the Measurable Objective (MO) and the Minimum/Maximum Threshold (MT), which are Sustainable Management Criteria (SMCs) included in Chapter 3 of the GSP; Table 1 also defines the occurrence of undesirable results and provides an evaluation of compliance with the criteria for Water Year 2025.

Importantly, measured data in Water Year 2025 do not indicate the occurrence of undesirable results.

The remainder of the Executive Summary presents key metrics for Water Year 2025, including groundwater level data, groundwater quality data, land subsidence data, estimated water use, estimated groundwater use, estimated groundwater storage change, and progress on Plan Implementation regarding projects and management actions. In the sections and appendices that follow the Executive Summary, each key metric is discussed in detail.

It is noted that Water Year 2025 experienced more precipitation compared to Water Year 2024. Preliminary water year type calculations define Water Years 2020-2022 as the "Critical" water year type, Water Years 2023-2024 as the "Below Normal" water year type, and Water Year 2025 as the "Wet" water year type. These results indicate persisting, though improving, drought conditions.

In May 2021, Governor Gavin Newsom declared a drought emergency for 41 counties in California, including Siskiyou County. A proclamation in September 2024 by Governor Gavin Newsom terminated the states of emergency in 19 counties in California, but the state of emergency remained in effect for Siskiyou County. In August 2021, the State Water Resources Control Board (SWRCB) adopted drought Emergency Regulations, regarding the Scott and Shasta Rivers which were re adopted, with amendments, in July 2022, and again in February 2024. These Emergency Regulations authorized curtailments of surface water diversions when flows did not meet SWRCB approved drought emergency minimum monthly flow targets.

At the October 16, 2024 meeting, the State Water Board adopted resolution 2024-0036, directing Division of Water Rights staff to move forward with an emergency regulation and identify the scientific work needed to pursue long-term flows in the Scott River and Shasta River watersheds, and update the Board on that work.

In September 2025, California State Legislation enacted AB263, which ensures that the State Water Resource Control Board's drought-related emergency flow regulation for the Scott and Shasta Rivers remain in effect until permanent long term instream flow requirements are adopted, or until January 1, 2031, whichever comes first[1].

Table 1: Summary of Sustainable Management Criteria.

Sustainability Indicator	Minimum/Maximum Threshold (MT)	Measurable Objective (MO)	Occurrence of Undesirable Results	WY 2025 Annual Report Status
Groundwater Levels	Set to the historic low minus a buffer, which is either 10% of the historic maximum depth to water measured, or 10 feet, whichever is less.	75th percentile of the fall measurement range (i.e., water levels > 25% of historic record).	The fall low water level observation in any of the representative monitoring sites in the Basin falls below the respective minimum threshold for 2 consecutive years.	No occurrence of undesirable results.
Groundwater Storage	Groundwater levels used as a proxy for this sustainability indicator.		Groundwater levels used as a proxy for this sustainability indicator.	No occurrence of undesirable results.
Seawater Intrusion	This sustainability indicator is not applicable in the Subbasin.	-	-	-

[1] https://www.waterboards.ca.gov/drought/scott_shasta_rivers/

Table 1: Summary of Sustainable Management Criteria. *(continued)*

Sustainability Indicator	Minimum/Maximum Threshold (MT)	Measurable Objective (MO)	Occurrence of Undesirable Results	WY 2025 Annual Report Status
Degraded Water Quality	Nitrate = 10 mg/L, Specific Conductivity = 900 umhos/cm	More than 90% of wells monitored for water quality maintain their range of water quality measurements measured during 1990 to 2020.	More than 25% of groundwater quality wells exceed the maximum threshold for concentration and/or concentrations in over 25% of groundwater quality wells increase by more than 15% per year, on average over ten years.	No occurrence of undesirable results.
Land Subsidence	<0.1 ft of subsidence in any one year.	Maintain current ground surface elevations.	Groundwater pumping induced subsidence is greater than the minimum threshold of 0.1 ft (0.03 m) in any single year.	No occurrence of undesirable results.
Depletions of Intercon-nected Surface Waters	Baseflow = 100 cfs to maintain recent conditions	Baseflow = 145 cfs	Greater than the depletion under which a minimum threshold of 100 CFS +/- 20% average monthly groundwater contributions occurs, for two consecutive years.	Not completed for 2025, awaiting model update

Groundwater Levels

Measured groundwater levels in Water Year 2025 do not indicate the occurrence of undesirable results. Fall 2025 groundwater levels were compared to the MO, MT, Action Trigger (AT), and the Interim Milestones (IM). The minimum groundwater level measurement taken in September

– October 2025 was used for each well ("fall low"). None of the representative monitoring point (RMP) wells fell below the MT during the fall 2025 period. The occurrence of undesirable results is defined to occur when the fall low water level observation in any of the RMPs is below the respective minimum threshold for 2 consecutive years.

Contour maps of groundwater elevation are shown in **Section 2.1** and hydrographs are included in **Appendix A.**

Groundwater Storage

The groundwater storage SI uses groundwater levels measured at RMPs as a proxy to assess compliance with the SMCs. Since no RMP wells recorded a fall low measurement below the MT for two consecutive years, no undesirable results have occurred for the Groundwater Storage SI.

Water Use and Groundwater Budget

To assess change in storage and the groundwater budget, the Shasta Watershed Groundwater Model (SWGM) was used to develop a water budget for the basin during Water Year 2025. The total change in storage in Water Year 2025 was estimated to increase by 16,000 AF. Section 2.5 includes a spatial map of change in storage between the current and previous WY and a time series plot of change in groundwater storage by water year.

Total groundwater extractions estimated by the SWGM for Water Year 2025 are estimated to be 33,300 AF (Section 2.2), while surface water diversions are estimated to be 66,200 AF (Section 2.3). Total water use is estimated to be 99,500 AF (Section 2.4).

Groundwater Quality

Groundwater quality SMCs are defined for nitrate and specific conductivity. Measured groundwater concentrations during Water Year 2025 are presented in Section 4.5 and do not indicate the occurrence of undesirable results. One RMP exceeded the MT for nitrate. Specific conductivity was measured for one RMP in Water Year 2025, and the results were below the MO.

Land Subsidence

Land subsidence was measured by satellite data (i.e., InSAR). Estimated land subsidence was less than 0.1 ft of subsidence, which avoids the occurrence of undesirable results. A map of land subsidence in Water Year 2025 can be found in Section 4.6.

Plan Implementation Progress

In Water Year 2025, the GSA continued activities to implement the GSP, including efforts to close data gaps, conduct a well inventory of wells in the Basin, and update the Shasta Watershed Groundwater Model. The GSA has also made progress addressing the recommended corrective actions included in the GSP approval letter from DWR, which was received in April 2023. Progress on these actions includes work to fill data gaps related to the SWGM and groundwater conditions, as well as expansion of the water quality network and physical monitoring. Additionally, an irrigation efficiency evaluation was initiated in summer 2025 to better understand agricultural water consumption and the efficiency of irrigation systems.

State Water Resources Control Board Temporary Permit 21469 was received by the Shasta Westside Recharge Project, which allows Shasta River water to be diverted during high flows for recharge via flood irrigation of pasturelands within Grenada Irrigation District. The goal of the project is to augment groundwater levels to prevent or minimize drought impact to domestic wells in the Grenada area. The GSA continued to implement public outreach during Water Year 2025, conducting quarterly Advisory Committee meetings open to the public. Additional summary of progress on the implementation of the GSP in water year 2025, including implementation of projects and management actions, and an overview of plan implementation activities anticipated for the coming year can be found in Chapter 5 of this report.

Recent years have seen the introduction of additional regulations that were not considered in the approved Groundwater Sustainability Plan (GSP), submitted in 2022. These regulations influence the assumptions made within the GSP regarding water usage and the implementation of the GSP itself. Notably, the State Water Resource Control Board's (SWRCB) Scott and Shasta River Watersheds Emergency Regulations authorize water use curtailments when measured flows fall below the established emergency minimum flows, as outlined in the regulation. This functions as a management action, not implemented by the GSA, that influences the Basin's path to sustainability, as measured with the defined sustainable management criteria.

Additionally, the SWRCB is working to establish permanent instream flow requirements for the Scott and Shasta Rivers. The GSA will continue to track and engage with these regulations and evaluate the consequences for the GSP implementation. The GSA is already implementing projects to achieve the interim milestones and measurable objective set for the interconnected surface water sustainability indicator.

Chapter 1

Introduction

1.1 Purpose

California Water Code (CWC) §356.2 requires the submission of an annual report to DWR by April 1 of each year following the adoption of the GSP. This report is the fifth annual report submitted to DWR and provides an update on basin conditions and initial plan implementation progress within the Shasta Valley Basin for Water Year 2025. The purpose of annual reports is to provide periodic updates on the progress towards Basin sustainability, groundwater elevation data (contour maps and hydrographs), groundwater extraction, surface water supply, changes in groundwater storage, and a description of progress towards implementation of the GSP.

The production schedule for the annual report is as follows:

- October 1: day after end of water year for preceding reporting period.
- November 1: all data for preceding water year is input into the DMS.
- November to January (3 months): produce draft report.
- February 1: produce annual report draft.
- February to March (2 months): review report and gain GSA approval.
- April 1: submit finalized report to DWR.

1.2 Shasta Valley GSA

The Siskiyou County Flood Control and Water Conservation District is the sole GSA for the Shasta Valley Basin (Basin). The Siskiyou County Flood Control and Water Conservation District Act (Cal Uncod. Water Deer, Act 1240 §§ 1-38) was adopted by the State Legislature in 1959. This Act established a special district of the same name, and of limited powers that could provide flood protection, water conservation, recreation and aesthetic enhancement within its boundaries. At the time of its creation, the jurisdictional boundaries of the Flood District were smaller than those of the County. In 1983, following the County of Siskiyou Local Agency Formation Commission (LAFCO) action, the balance of the County was annexed into the District, making its jurisdictional boundaries coincide with the County. The District is governed by a Board of Directors that is composed of the Board of Supervisors; however, the District is a separate legal entity from the County, with independent rights and limited powers set forth in its originating act. The District's purpose is the conservation and control of storm, flood, and other waters and ensuring beneficial use thereof.

The Siskiyou County Flood Control and Water Conservation District approved the GSP for the Shasta Valley Groundwater Basin in December 2021 and submitted the GSP to the DWR in January 2022.

1.3 Basin Description

The Shasta Valley Watershed (watershed) is located in central Siskiyou County in north-central California and is bounded by Mount Shasta to the south, the Klamath Mountains to the west, and the Cascade Range to the east. The Basin covers approximately 800 square miles (sq mi; about 2,000 square kilometers [sq km]) and consists of a north dipping and topographically rough valley floor surrounded by mountain terrain (Figure 1). The topography of the Basin ranges in elevation from just over 2,000 feet (ft; ~610 meters [m]) above mean sea level (amsl) near the confluence of the Shasta River with the Klamath River (the hydrologic terminus for the Watershed) to over 14,100 ft (~4,300 m) amsl near the volcanic peak of Mount Shasta. The valley floor transitions sharply to the mountains bordering the valley, all of which are either part of the Klamath or Cascade Mountain Ranges.

The Basin contains one principal aquifer with various water-bearing geologic formations consisting of a mixture of alluvial and volcanic formations. The volcanic formations consist of water-laden lava tubes to water-sediment-filled pockets found within the cracks and crevices in the volcanic deposits. The connection of structurally different water-bearing formations results in numerous springs or diffuse wetlands where groundwater more easily discharges to the surface than into less-conductive water-bearing units. This discharge also occurs in areas where groundwater levels are close to or above the ground surface. The discharge levels of the springs can vary over many orders of magnitude from one spring to the next and can also significantly vary seasonally as well as year-to-year.

Vegetation on the mountains to the east, south, and west of the Basin mainly consists of evergreen tree species, with lower flank elevations containing shrub and scrub vegetation (MRLC 2019). The remaining lower-lying areas in the Basin core are vegetated by shrub and scrub, grasslands, wetland, pasture, small forested pockets, and cultivated crops (mainly alfalfa).

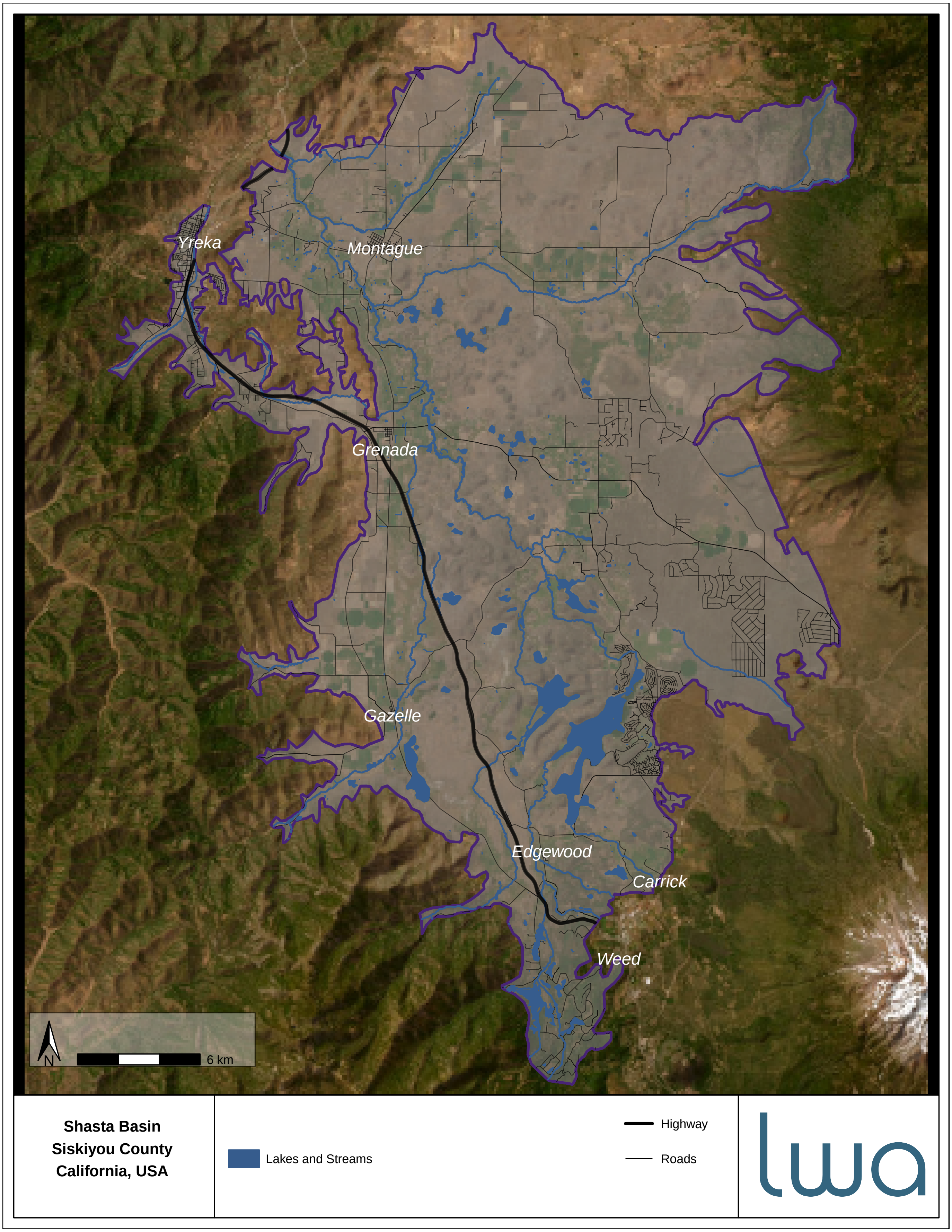


Figure 1: Topography of the Basin and surrounding Watershed.

1.3.1 Climate

Annual precipitation for the City of Yreka is presented in Figure 2, where annual precipitation values range from 9 to 31 inches (23–79 cm) during water years 1983 to 2025. Water Year 2025 had more total rainfall compared to Water Year 2024. The rainy season, which generally begins in October and lasts through April, accounts for approximately 80 percent of total annual rainfall on average, though this can vary from year to year.

To illustrate the variation in precipitation throughout the basin, annual precipitation is shown for four stations in Figure 3. YRK and SBG are CDEC stations located near the City of Yreka and Grenada, respectively; USW00024259 and US1CASK0003 are NOAA stations located in the northern part of the basin near Montague Siskiyou County Airport and in the southern part of the basin near the City of Weed, respectively. The mean annual precipitation over the total period of available data shown in Figure 3 is 18.2 (YRK), 15.4 (US1CASK0003), 10.9 (USW00024259), and 9.3 (SBG) inches.

All stations except USW00024259 measured increased precipitation in WY 2025 compared to WY 2024. Annual precipitation at USW00024259 decreased by 3.4 inches.

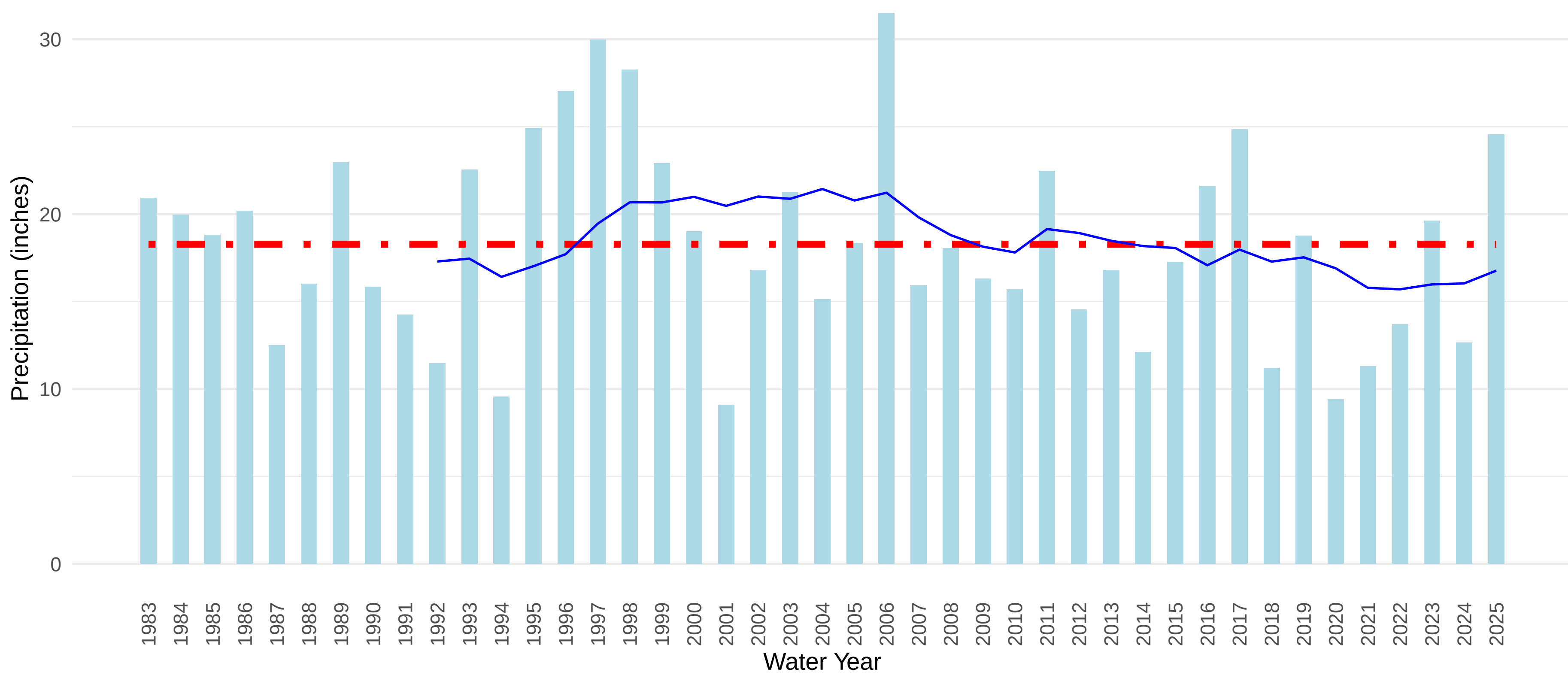


Figure 2: Yreka annual precipitation from 1983 to 2025, measured by CDEC. The long-term mean (18 in) is shown as the red dashed line, and the ten-year rolling mean is shown as the blue trendline.

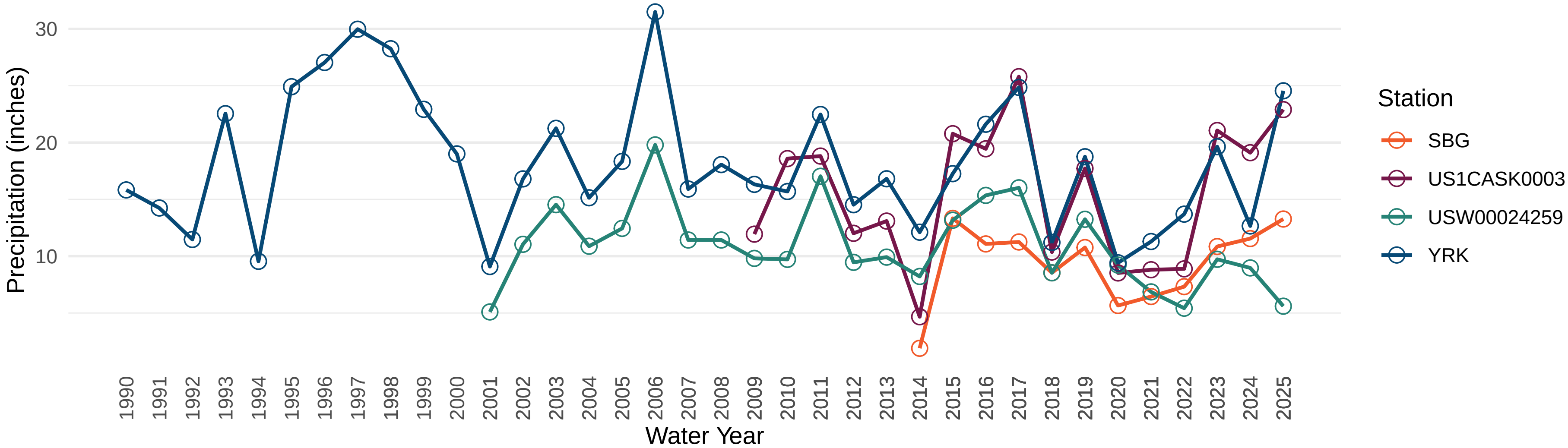


Figure 3: Annual precipitation time series from WY 1990 to WY 2025 from CDEC (YRK and SBG) and NOAA (US1CASK0003 and USW00024259) stations.

Chapter 2

Groundwater Basin Conditions

2.1 Groundwater Elevations

This section evaluates the groundwater elevations in Water Year 2025 as measured by the representative monitoring points (RMPs) as well as the broader GSP monitoring network. The groundwater level *RMP network* consists of the wells that were used to define the SMC criteria, and are thus used to determine the basin status, compare to SMCs, and determine the occurrence of undesirable results. The broader *GSP monitoring network* includes additional wells to help provide further insight into the basin conditions. The RMP network is a subset of the GSP monitoring network. The groundwater level monitoring network is discussed in Chapter 3, including any changes to the network and additions or removal of monitoring wells.

Groundwater elevation contours for the seasonal high and low groundwater conditions (i.e., spring and fall) are shown in Figure 4 and 5. Notably for WY 2025, the contour map interpolation approach was updated. The previous interpolation method used Thin Plate Spline (TPS) interpolation, which fits a smooth surface through measured water levels based solely on the X-Y coordinates of well locations. Now, groundwater elevations are generated using regression kriging, a geostatistical method that combines a deterministic trend model with spatial interpolation of residuals. This approach accounts for regional hydrogeologic gradients while capturing local variations in groundwater levels.

Importantly, the temporal selection of measurements for the contour maps was also updated in WY 2025. Rather than using all measurements within a seasonal window, the new approach identifies the optimal 2-week period within each season that maximizes the number of wells with concurrent measurements. This approach:

1. Minimizes temporal spread in the data used for each interpolation, reducing artifacts from seasonal water level trends.

2. Maximizes spatial coverage by selecting the period when the greatest number of wells were measured.

3. Produces surfaces representative of a snapshot of conditions rather than a time-averaged condition.

For each well with multiple measurements in the optimal window, the median value is used. The following date ranges represent the seasonal windows:

- Spring: March 1–May 31
- Fall: September 15–October 31

Both Figure 4 and 5 show characteristically lower groundwater elevations in the center portion of the basin that increase towards the north and northeastern portion of the Basin, as well as near the southern edge near the City of Edgewood.

Appendix A provides hydrographs of groundwater elevations for both the RMP network (Appendix A.1) and the larger GSP monitoring network (Appendix A.2). These hydrographs include the water year type to the extent available, including from January 1, 2015 to the current reporting year. Water year types from WY 2019-2025 are preliminary results calculated based on the SGMA Water Year Type Dataset Development Report [1]. Results will be finalized once DWR updates the water year type dataset for these years.

Figure 6 shows groundwater elevation time series for select wells to illustrate the historical record and long-term trends throughout Shasta Valley.

[1] https://data.cnra.ca.gov/dataset/sgma-water-year-type-dataset/resource/79c7b9c1-1203-4203-b956-844554fcec79

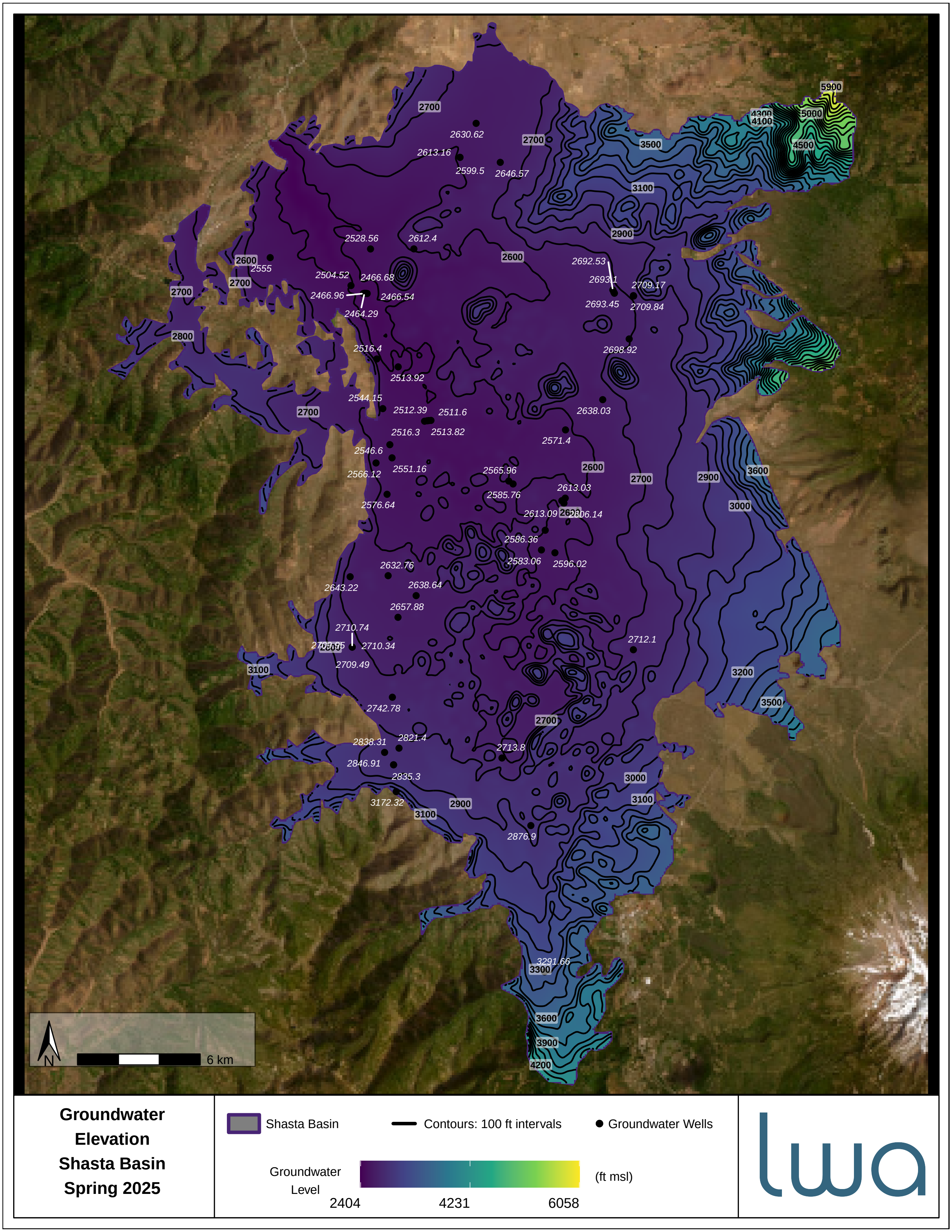


Figure 4: Interpolated representation of Spring 2025 Shasta Valley Groundwater Elevations. Measurement dates range from April 11-21, 2025

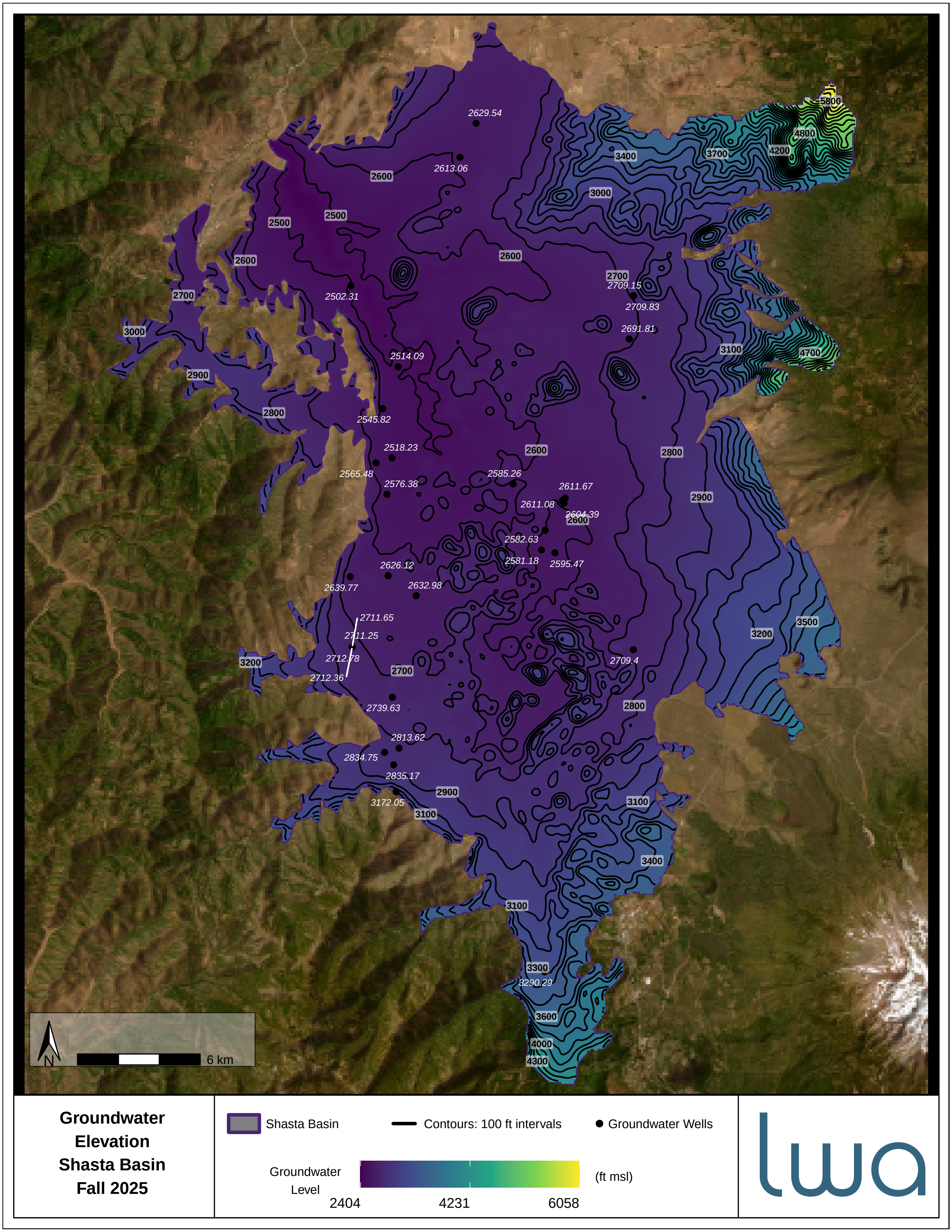


Figure 5: Interpolated representation of Fall 2025 Shasta Valley Groundwater Elevations. Measurement dates range from October 15-19, 2025.

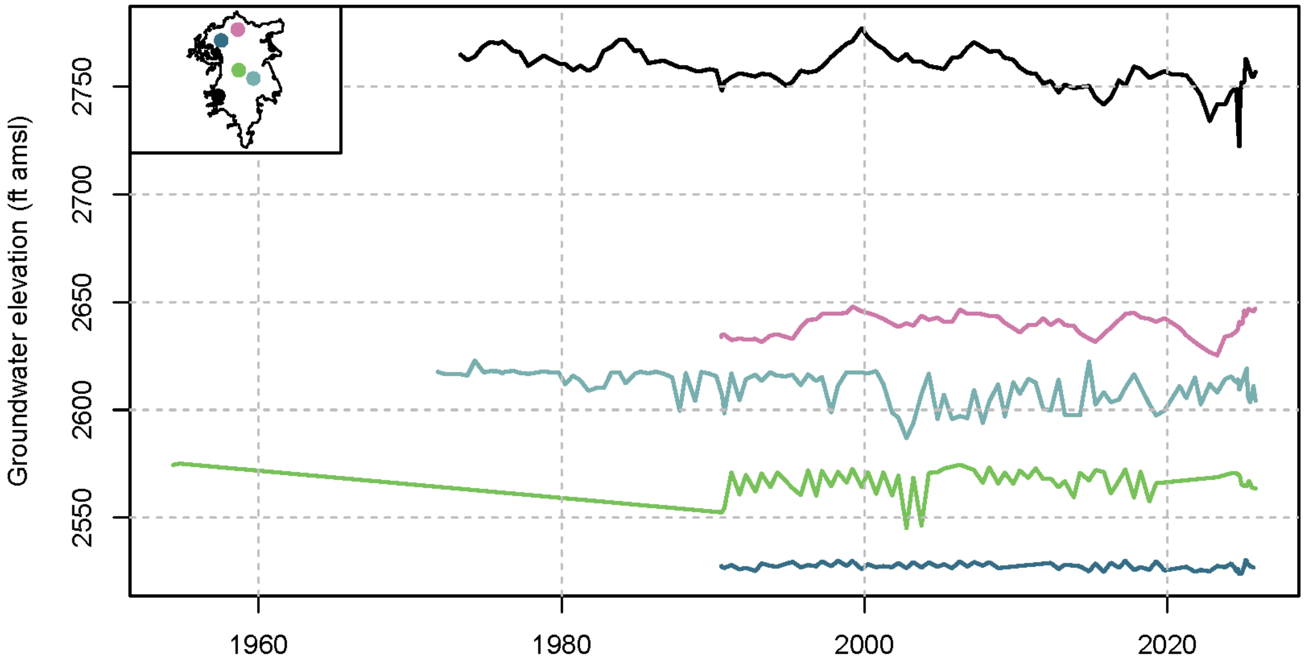


Figure 6: Groundwater level measurements over time in five wells located throughout Shasta Valley, representing long-term groundwater level trends.

2.2 Groundwater Extractions

This section summarizes groundwater extractions for WY 2025 from the data available and defines the method of measurement by water use sector (Table 2). The best method available to estimate groundwater extraction in Shasta Valley is land-use, which is applied in the SWGM. The previous SWGM spanned WY1990-WY2018 and has been extended with ongoing updates. The model has been extended to WY 2025 and is used to estimate the WY 2025 groundwater extraction in this report. Figure 7 shows the spatial distribution of estimated total pumping in WY 2025 in AF/year. Curtailment reductions are not reflected in the spatial pumping estimates in Figure 7.

The SWGM estimates 31.5 TAF of total agricultural groundwater extraction; accounting for an estimated 10% curtailment reduction yields 28.4 TAF. The amount of groundwater sold by Big Springs Irrigation District (BSID) was 1.478 TAF in WY 2022, a substantial drop compared to historical groundwater extraction due to curtailments. The same value is used to estimate the groundwater sold by BSID in WY 2025. Therefore, the total estimated amount of agricultural groundwater use is 29.8 TAF for WY 2025.

There is an additional 3.5 TAF of urban groundwater extraction based on population[2]. Hence, the total estimated groundwater use (agricultural and urban/domestic) is 33.3 TAF.

[2]Population data from (https://gis.water.ca.gov/app/bp-dashboard/final/), groundwater extraction assumes 1 AF per 3.5 persons/year.

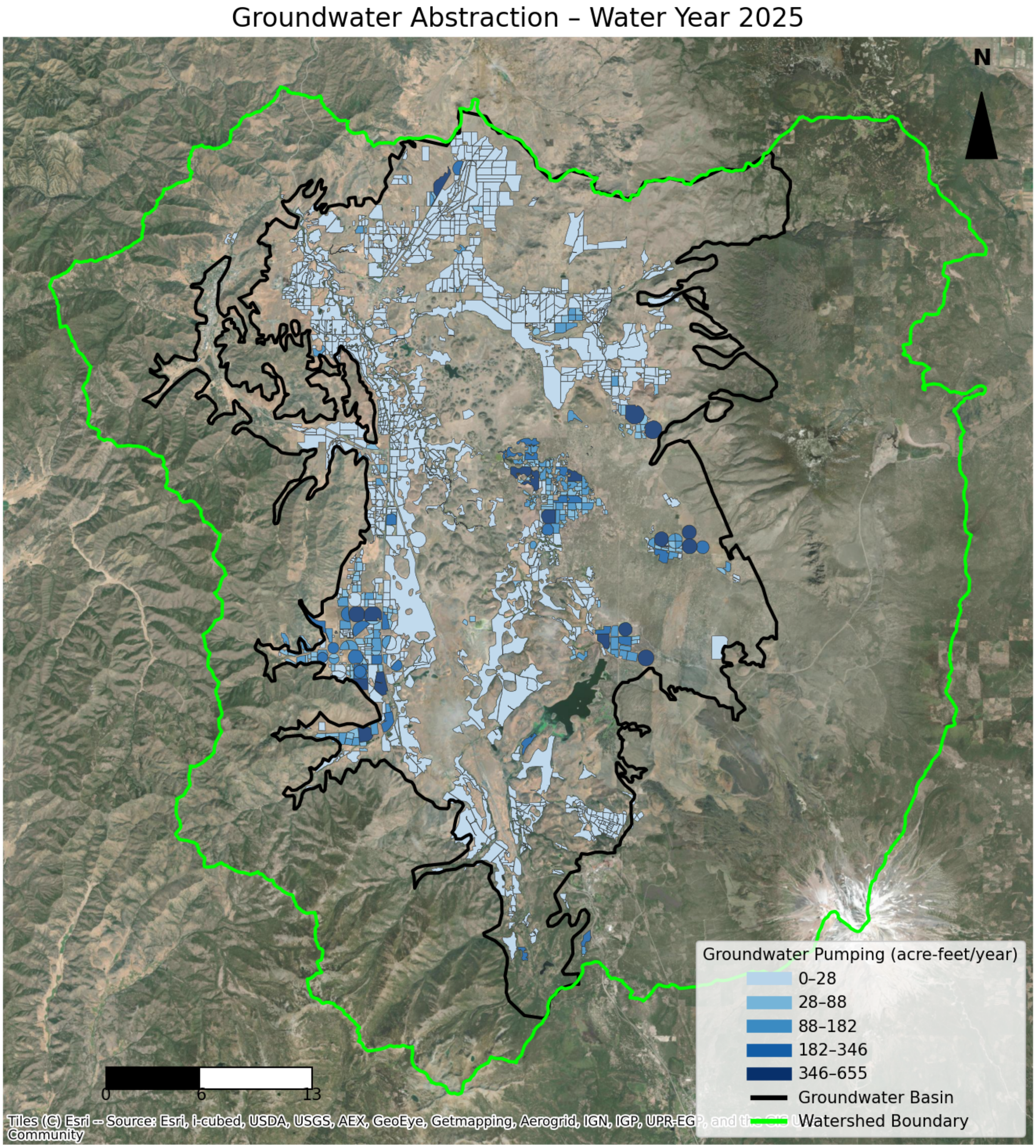


Figure 7: Estimated spatial distribution of total groundwater extraction for WY 2025 using the Shasta Watershed Groundwater Model (SWGM).

Table 2: Groundwater Extraction in WY 2025 by water use sector

Water Use Sector	Applied Groundwater (AF)	Method	Accuracy
Urban / Domestic	3,500	Estimate	70-80%
Industrial	0	Estimate	80-90%
Agricultural	29,800	Estimate	60-70%
Managed Wetlands	0	Estimate	90-100%
Managed Recharge	0	Estimate	80-90%
Native Vegetation	Data Gap		

2.3 Surface Water Supply Used for Groundwater Recharge or In-Lieu Use

SGMA requires that the annual report tabulate "Surface water supply used or available for use" (CCR §356.2 [b] [3]). For WY 2025 the surface water supply data was provided by the Scott Valley and Shasta Valley Watermaster District (SSWD) and is 66.202 TAF. This amount is comparable to the amount reported in WY 2024 (71.2 TAF).

2.4 Total Water Use

This section summarizes groundwater use and surface water available for use for the reporting period (Table 3). For WY 2025 the total water use combines the surface water supply data provided by the Scott Valley and Shasta Valley Watermaster District, and estimated groundwater extraction. This results in 99.5 TAF.

Table 3: Total Water Use in WY 2025 by water use sector

Category	Water Use Type/Sector	Applied Water (AF)	Method	Accuracy
WY 2025 Total	Total Water Use	99,500	Estimate	60-70%
Water Source Type	Groundwater	33,300	Estimate	60-70%
	Surface Water	66,200	Direct	90-100%
	Recycled Water	0	Estimate	90-100%
	Reused Water	0	Estimate	90-100%
	Other	0	Estimate	90-100%
Water Use Sector	Urban / Domestic	3,500	Estimate	80-90%
	Industrial	0	Estimate	90-100%
	Agricultural	96,000	Estimate	60-70%
	Managed Wetlands	0	Estimate	90-100%
	Managed Recharge	0	Estimate	90-100%
	Native Vegetation	Data Gap		
	Other	0	Estimate	60-70%

2.5 Change in Groundwater Storage

The change in groundwater storage for the Basin is calculated using the SWGM.

Notably, the SWGM has undergone updates and ongoing calibration as part of the WY 2025 update. The model couples the Soil Water Balance (SWB) model for irrigated agricultural lands with the Precipitation–Runoff Modeling System (PRMS) for non-agricultural areas, integrating both with MODFLOW to simulate basin-scale groundwater–surface water interactions. Performance across the valley floor is generally strong; however, notable mismatches persist in the mountainous regions, particularly upstream of the Little Shasta River and along the lower flanks of Mount Shasta. These areas are highly sensitive to boundary conditions, recharge representation, and hydraulic parameter zonation, and therefore require additional refinement. Improving the representation of small tributaries in the SFR network and accounting for greater parameter variability within geologic zones are also important considerations. **Section 5.2** describes upcoming steps to improve model performance.

Larger values of storage gain (positive values) are seen along the eastern and southern sides of the Basin. Storage-change patterns show both calibration performance and the spatial distribution of recharge. Because the model is constrained to retain more water in the mountainous headwaters to match observed flows at high-elevation gauges (e.g., the Little Shasta River even at YCK), the simulated system tends to accumulate storage over time. This is why the largest positive storage changes occur at higher elevations. Conversely, areas showing negative storage change often coincide with locations where the model underestimates groundwater levels, particularly within the alluvial geologic zone. The flooding cells also have significant contribution for the storage change increase throughout the simulation period.

Figure 8 depicts the water budget from the SWGM within the Bulletin 118 boundary. It includes the water year type, the annual change in groundwater storage, and the cumulative change in groundwater storage from WY 1991 to WY 2025. As estimated from the model, groundwater storage gained 16,000 AF in WY 2025. In comparison, a storage gain of 58,700 AF was reported in the previous Annual Report for WY 2024, prior to model updates and calibration.

Groundwater storage reflects the spatial distribution of groundwater recharge and the basin has overall gained the groundwater storage in WY 2025. The model will continue to undergo major improvements into WY 2026. Figure 9 shows the spatial change in storage in AF in WY 2025 as calculated by the SWGM. Change in storage values across the Basin range from approximately -25 to +25 AF over the model grid cells. Values outside this range are capped at the minimum or maximum limit for clarity.

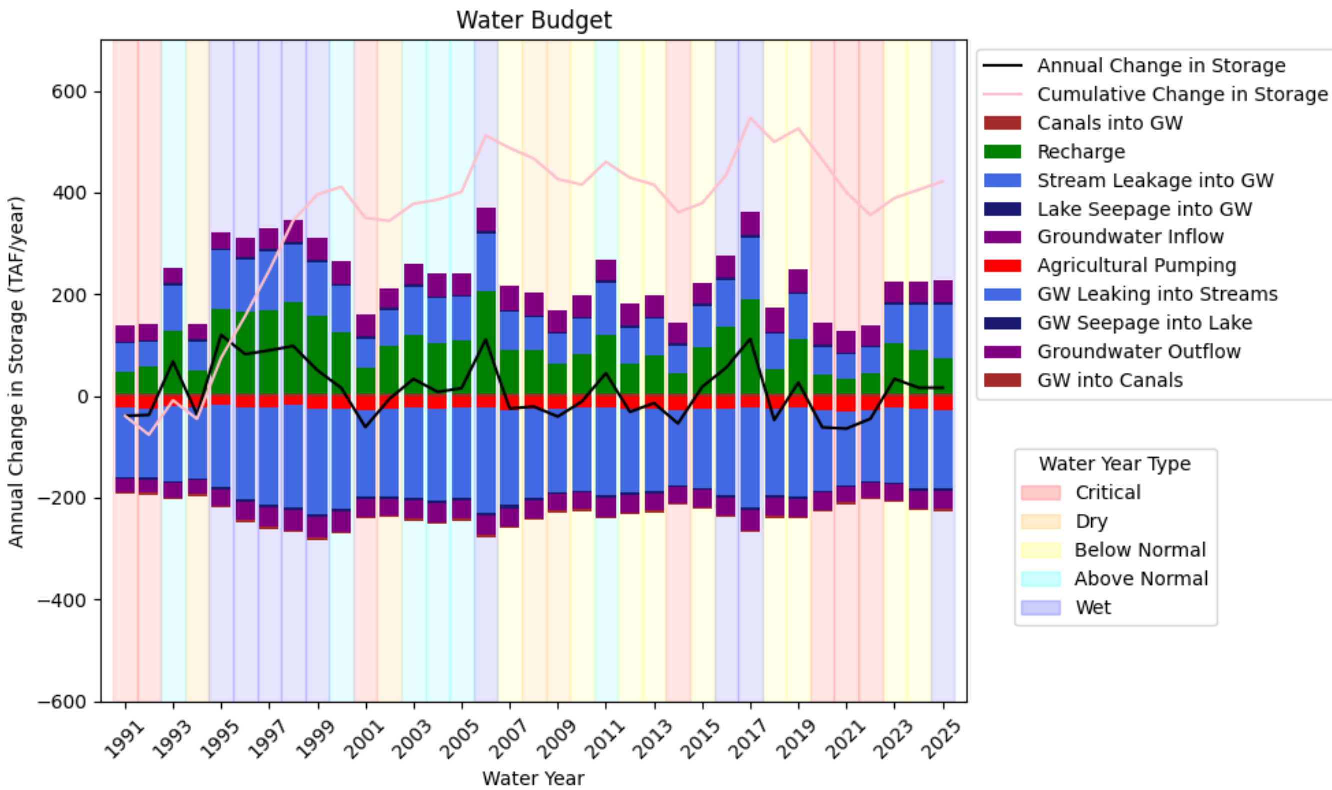


Figure 8: Timeseries showing change in storage and cumulative change in storage from the SWGM.

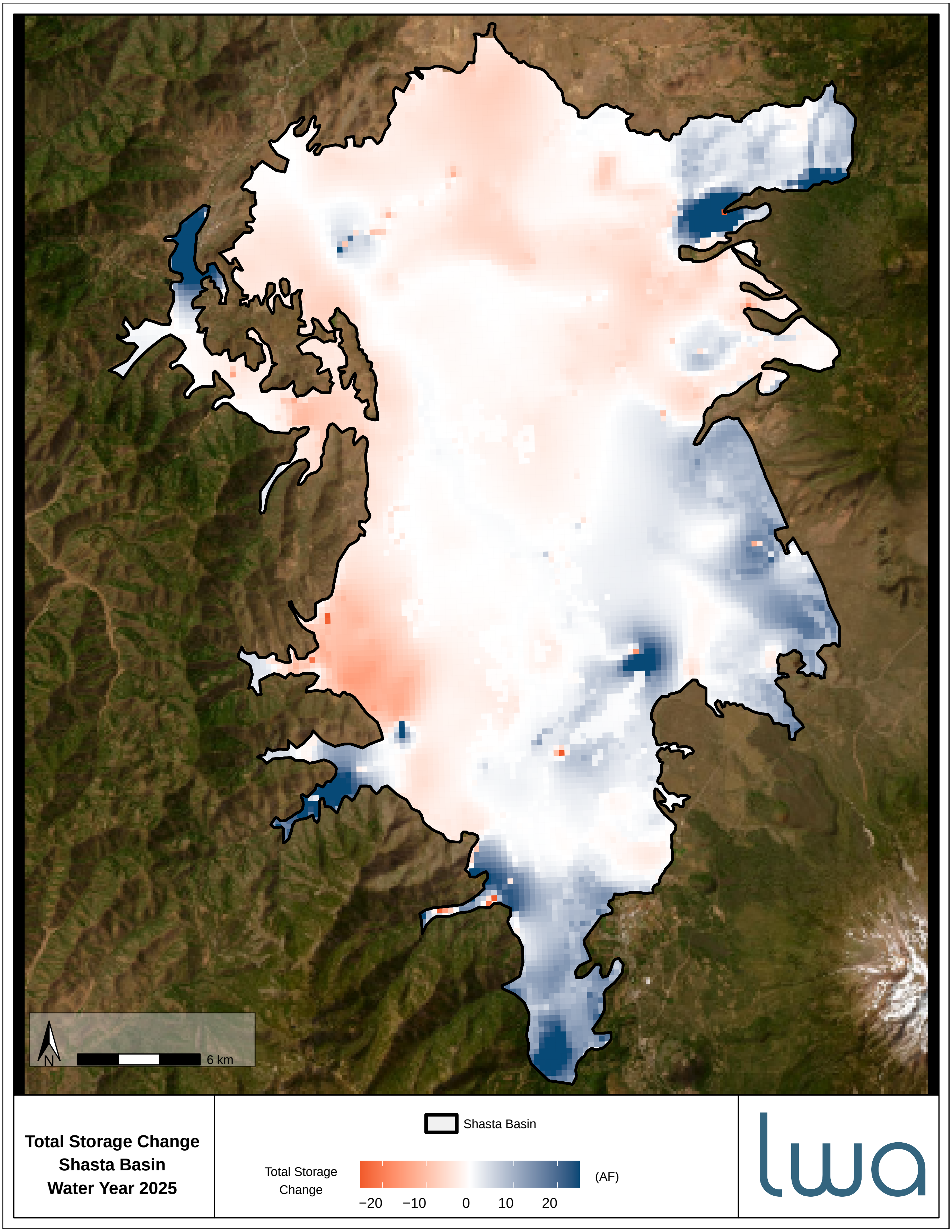


Figure 9: Estimated spatial distribution of change in storage (AF) in WY 2025 using the SWGM.

Chapter 3

Monitoring Network

As described in Chapter 2, the groundwater level RMP network is a subset of the GSP monitoring network. The groundwater level RMP network is used to evaluate SMCs for individual sustainability indices for the Basin and will continue be used to demonstrate the sustainability of the Basin through 2042. The full GSP monitoring network provides further insight into Basin conditions.

A subset of the monitoring wells are instrumented with continuous dataloggers (temperature and water level measured collected every 15 minutes) with telemetry, while for the rest of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program wells, bi-annual measurements are collected. Continuous monitoring offers the best data coverage while periodic monitoring is generally completed twice a year (spring and fall). During 2025, 31 continuous groundwater monitoring stations were active in the Shasta Valley basin. None of these wells have sufficient history for use as RMPs; however, they may be added to the RMP network during a future GSP update.

The water quality network used to evaluate SMCs consists of public water supply wells and monitoring wells. Stream flow and stream depletion due to groundwater pumping are measured using flow gages, and subsidence is measured with Interferometric Synthetic Aperture Radar (InSAR) satellite data provided by DWR.

3.1 Groundwater Level Monitoring Network

The groundwater level RMP network consists of thirteen CASGEM wells in the Basin. Three wells are located within the fractured basalt formation, seven in the alluvial formation, and three in various other geologic material. The distribution of monitoring wells is shown in Figure 10. The current network satisfies DWR requirements with respect to spatial distribution and may be expanded using wells recently equipped with monitoring instrumentation that will be evaluated over the first five years of implementation.

Water level monitoring network status update

RMP well *416595N1223971W001* had been temporarily inaccessible since October 2019, due to challenges during COVID-19, gate access, and well owner contact. Access to this site was regained in fall 2024. Spring and fall measurements for 2025 were taken. Similarly, RMP well *416237N1224524W001* is a CASGEM well that had not been consistently measured since 2019. This well was measured in spring and fall of 2024 and 2025. The GSA will continue to work to ensure consistent measurements are taken at these wells. The GSA is also considering installing a sensor for continuous measurements at these wells.

Note that CASGEM comments for *415601N1224718W001* and *416563N1225813W001* indicate that monitoring will not continue due to owner changes or permissions revoked. Fall and spring measurements for 2025 were not taken at these wells. Efforts are underway to evaluate the need for replacement RMP wells during completion of the 2027 Periodic Evaluation. During the 2027 Periodic Evaluation, groundwater wells with consistent QAQC issues such as oil or foreign substances in the well casing may be reviewed for replacement in the network, such as RMP well 416083N1223932W001.

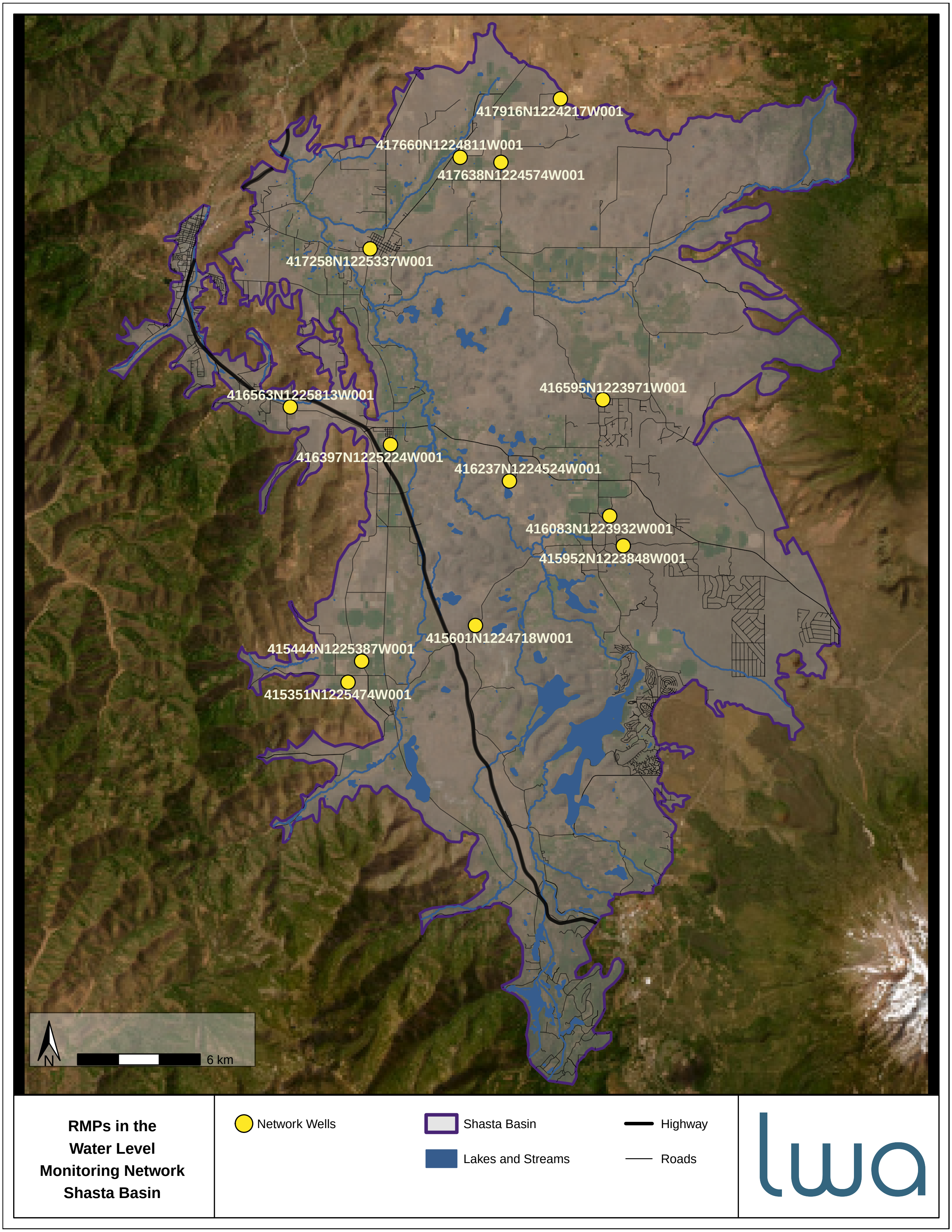


Figure 10: RMP Wells in the Water Level Monitoring Network.

3.2 Groundwater Quality Monitoring Network

Existing wells used to monitor groundwater quality in the Basin and evaluate water quality SMCs include public water supply wells and monitoring wells, which are shown in Figure 11. The groundwater quality monitoring network uses wells that are regularly sampled as part of existing monitoring programs for the constituents for which SMCs are set: nitrate and specific conductivity. Efforts are currently underway to identify additional wells for inclusion in the water quality network, as described in Section 5.

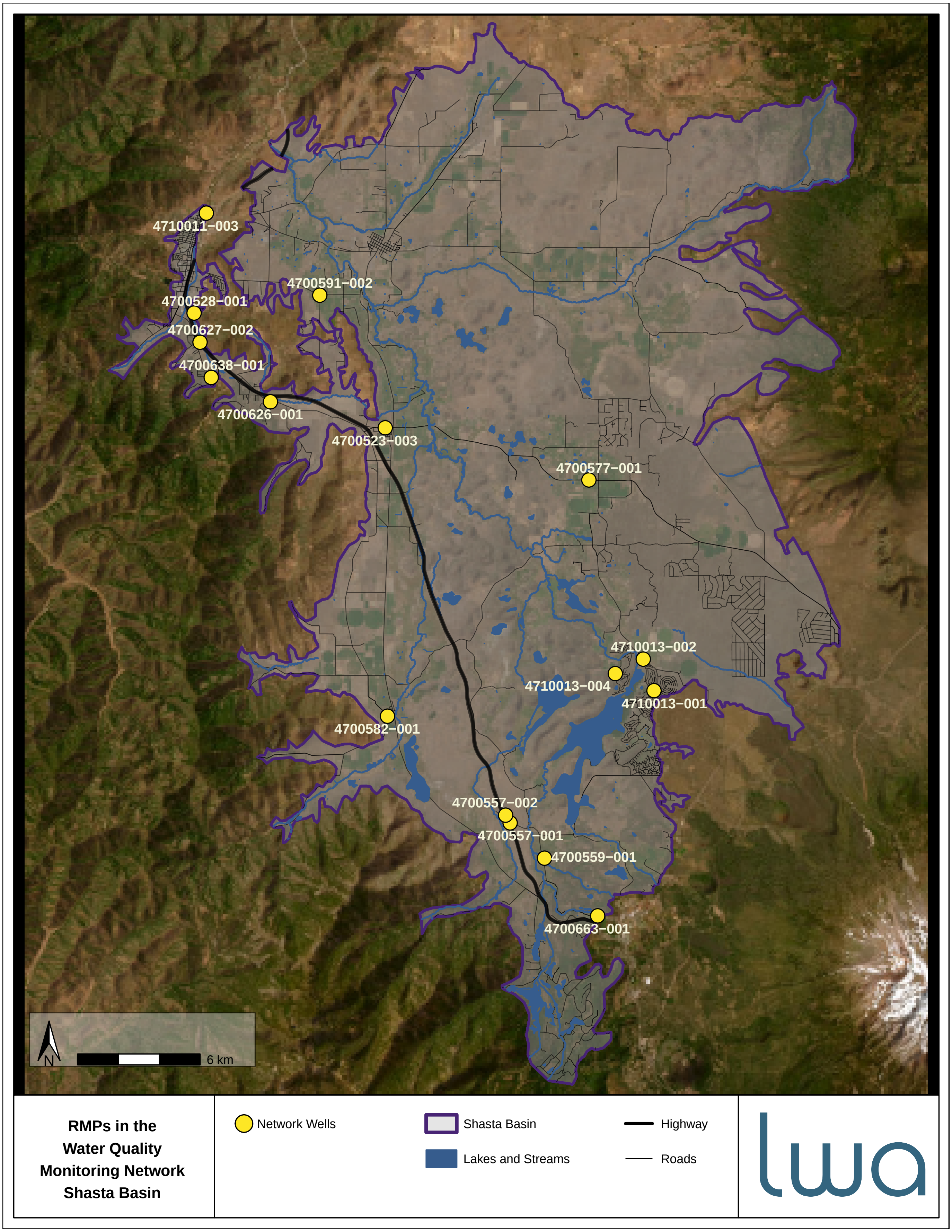


Figure 11: RMP wells in the Water Quality Monitoring Network.

Chapter 4

Sustainable Management Criteria

The GSP defines SMC with respect to quantifiable impacts to beneficial users of groundwater that if exceeded, would lead to the identification of undesirable results. This chapter evaluates the six sustainability indicators: groundwater levels, groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletions of interconnected surface water, by comparing measured data collected during Water Year 2025 to defined SMC. The SMCs include minimum and maximum thresholds, measurable objectives, and interim milestones.

4.1 Groundwater Elevations

Groundwater level Interim Milestones (IM) are identified in Chapter 3 of the GSP. These IM are anticipated to be achieved over the course of GSP implementation in increments of five years, pursuant to the CCR definition "Target values representing measurable groundwater conditions, in increments of five years, set by Agency as part of a Plan" [CCR Title 23, Division 2 §351(q)]. Currently, IM are set to the measurable objective (MO) of each RMP well. Progress toward stabilizing groundwater levels above minimum thresholds and towards the MO is also progress towards achieving IMs.

Table 4 compares the fall low water level measurement to the SMCs for Fall 2025. The values shown in Table 4 represent depth to groundwater. The fall low is the maximum depth to groundwater during the period of September 1 - October 31, 2023. The column "Status" notes whether the maximum depth to groundwater for this period exceeded the minimum threshold ("Below MT"), exceeded the measurable objective and not the minimum threshold ("Above MT"), did *not* exceed both the measurable objective and the minimum threshold ("Above MO"), or whether a measurement was not recorded. The IM is the same as the MO for each RMP well. Detailed hydrographs for each RMP with their SMCs can be found in Appendix A.1

The Fall 2025 status of the RMP wells in relation to their SMCs is also shown in Figure 12. Measurements are sorted into the following categories: Near or Above Measurable Objective, Within Central Operational Range, Near Minimum Threshold, or At or Below Minimum Threshold. These ranges are defined below and are based on the MO, MT, and a provisional metric NMT (near measurable objective). The NMT is defined as the Action Trigger (AT).

Near or Above Measurable Objective: measurement > MO

Within Central Operational Range: MO > measurement > NMT

Near Minimum Threshold: NMT > measurement > MT

At or Below Minimum Threshold: MT > measurement

In Fall 2025, one RMP exceeded the MT: **416083N1223932W001**; however, measurements at this well have had repeated issues with nearby pumping and the presence of oil or foreign substance in the casing. Additionally, data collected in the region does not show groundwater levels below the MT in this period. Due to measurement errors at this well, the GSA does not consider undesirable results to be occurring the Basin. If this well continues to have data quality issues, it may be replaced with a different well in the 2027 Periodic Evaluation The GSA will also consider installing continuous monitoring equipment to better monitor and understand the groundwater levels in the area.

The occurrence of undesirable results for groundwater levels is determined if the fall low water level in any RMP fall below the MT for two consecutive years. In Fall 2024, three RMP wells exceeded the MT: **415351N1225474W001**, **417258N1225337W001**, and **416083N1223932W001**. It is noted that measurements at well **416083N1223932W001** collected in Fall 2024 and Fall 2025 were flagged for oil or foreign substance in the casing, while the August 2024 and September 2025 measurements were not collected due to pumping. If the fall measurements for this RMP well continue to have questionable measurements, it will be reviewed for replacement in the 2027 Periodic Evaluation.

The fall low water levels for RMP wells **415351N1225474W001**, **417258N1225337W001** increased above the MT in Fall 2025, indicating an improvement in groundwater levels at those wells. Both wells show groundwater recovery during the spring months. Spring 2025 measurements are above the MT.

Access has been regained to RMP wells **416595N1223971W001** and **416237N1224524W001**, which did not have Fall 2023 measurements. Measurements were obtained for Fall 2024 and for this Fall 2025 period.

As described in Section 3.1, access has been lost to RMP wells **415601N1224718W001** and **416563N1225813W001**. Efforts are underway to identify replacement RMP wells during the 2027 Periodic Evaluation. The Fall 2025 measurement for RMP well 415444N1225387W001 was missed due to human error.

Section 5.1 and 5.2 discuss PMA activities conducted that may improve water levels and storage in the Basin.

Table 4: Comparison of Fall 2025 groundwater measurements to SMC values. Measurements represent depth to groundwater and the fall low is defined as the maximum depth to groundwater during the period September 1 - October 31, 2025. The fall period used for this assessment begins at September 1 to include the fall measurement for 417258N1225337W001, which fell outside of the September 15 - October 31 range.

Well Code	Well Name	Station ID	MT (ft bgs)	AT (ft bgs)	MO (ft bgs)	IM (ft bgs)	2025 Fall Low (ft bgs)	Status
415952N1223848W001	43N05W11A001M	22370	166.5	156.5	144.1	144.1	139.10	Above MO
415351N1225474W001	43N06W33C001M	22373	79.1	71.9	61.0	61.0	58.90	Above MO
416595N1223971W001	44N05W14M002M	22375	65.8	59.8	56.5	56.5	54.48	Above MO
417638N1224574W001	45N05W07H002M	24045	30.7	27.9	22.3	22.3	15.11	Above MO
417258N1225337W001	27D002M	24067	8.7	7.9	6.8	6.8	5.90	Above MO
416237N1224524W001	44N05W32C002M	36753	73.0	66.4	51.3	51.3	48.10	Above MO
417916N1224217W001	46N05W33J001M	36892	45.2	41.1	34.4	34.4	39.10	Above MT
416397N1225224W001	44N06W27B001M	36999	22.2	20.2	17.4	17.4	16.80	Above MO
417660N1224811W001	SV01	37001	53.4	48.5	24.2	24.2	14.20	Above MO
415444N1225387W001	SV03	49002	88.1	80.1	76.0	76.0	NA	No measurement
415601N1224718W001	43N05W19F002M	49294	13.3	12.1	10.0	10.0	NA	No measurement
416563N1225813W001	44N06W18Q001M	49295	33.3	30.3	27.1	27.1	NA	No measurement
416083N1223932W001	SV03A	50631	69.0	62.7	47.3	47.3	81.20	Below MT[1]

[1] Well measurements have had repeated issues with nearby pumping and the presence of oil or foreign substance in the casing. Additionally, data collected in the region does not show groundwater levels below the MT in this period. Due to measurement errors, the GSA does not consider undesirable results to be occurring the Basin. If this well continues to have data quality issues, it may be replaced with a different well in the 2027 Periodic Evaluation.

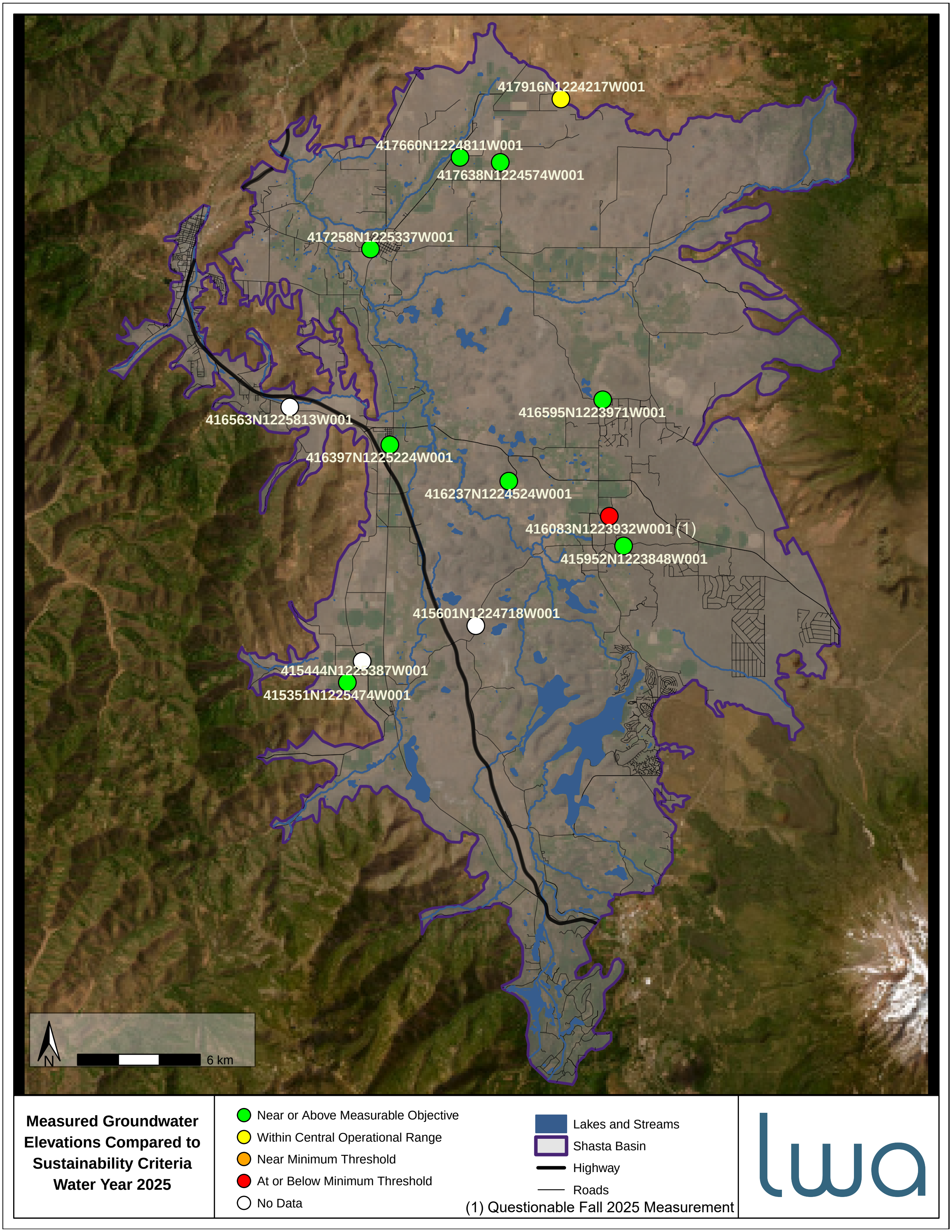


Figure 12: Status of the groundwater level RMP networks for Fall 2025.

4.2 Reduction of Groundwater Storage

Groundwater levels are the proxy for groundwater storage and the sustainability management criteria are identical. According to the United States Geologic Survey, estimates of groundwater storage rely on groundwater level data and sufficiently accurate knowledge of hydrogeologic properties of the aquifer. Direct measurements of groundwater levels can be used to estimate changes in groundwater storage. As groundwater levels fall or rise, the volume of groundwater storage changes accordingly. Unacceptable groundwater decline indicates unacceptable storage loss. The hydrogeologic model outlined in Chapter 2 of the GSP provides the needed hydrogeologic properties of the aquifer. As with the groundwater level sustainability indicator, there is no occurrence of undesirable results for the groundwater storage sustainability indicator in WY 2025.

4.3 Seawater Intrusion

This sustainability indicator is not applicable in this Basin.

4.4 Groundwater Quality

This section compares groundwater quality monitoring results to the GSP's sustainable management criteria and provides a summary of ongoing water quality coordination activities conducted by the GSAs. Groundwater quality data for the evaluation is obtained from the Groundwater Ambient Monitoring and Assessment (GAMA) Groundwater Information System and is also collected by the GSA. The maximum concentration of nitrate as N and specific conductivity sampled from the groundwater quality RMP network in WY 2025 is shown in Table 5. The results are compared to the MT and MO for each of the 16 groundwater quality RMPs in the network. The MT for nitrate as N is 10 mg/L (the Title 22 Primary Maximum Contaminant Level, or MCL), and the MT for specific conductivity is 900 micromhos/cm (Title 22 Recommended Secondary Maximum Contaminant Level, or SMCL). The MO is achieved when more than 90% of wells monitored for water quality maintain their range of water quality measurements measured during 1990 to 2020.

For nitrate, the following results were found:

- 9 RMPs had measurements below the MO
- 2 RMPs had a measured concentration greater than the MO
- 1 RMP had a measured concentration greater than the MT
- 4 RMPs were not monitored during WY 2025

Based on this evaluation, the MO for nitrate was not met as nine of the twelve wells with measurements were below the MO (i.e., 75% of RMPs measured maintained their historic concentration, while the MO is set to 90%). The occurrence of undesirable results occurs during the following:

More than 25% of groundwater quality wells exceed the maximum threshold for concentration and/or concentrations in over 25% of groundwater quality wells increase by more than 15% per year, on average over ten years.

Because only one well exceeded the MT during WY 2025, there is no occurrence of undesirable results in WY 2025.

For specific conductivity, one RMP was monitored during WY 2025. The maximum measurement for specific conductivity remained below the MT, so there is no occurrence of undesirable results in WY 2025. Note that the monitoring frequency for this constituent is not annual. The monitoring frequency ranges from 3 to 9 years, with most RMP wells having a monitoring frequency of 9 years, as specified in the GSP. Efforts are underway to evaluate potential approaches to increasing the sampling frequency of specific conductivity.

To ensure that current water quality data is available for future annual reports, efforts will be made to contact the monitoring entities of the wells with missing measurements to facilitate continued data collection. If this communication is not successful, a process to plan for the continued collection of representative water quality data will be developed. Options may include planning alternate monitoring entities for the wells or inclusion of different wells in the network.

As per the GSP, there are currently no SMCs defined for benzene, arsenic, manganese, and iron. Data for these constituents is presented in Table 6 and is provided to track potential mobilization, or exceedances of the primary MCLs or secondary MCLs. As presented, no measured concentrations during WY 2025 result in an exceedance of the MCL or SMCL.

Table 5: Water quality data from WY2025 in the RMP network (Nitrate MT is 10 mg/L; Specific Conductivity MT is 900 micromhos/cm).

Well ID	GSP ID	Nitrate MO (mg/L)	Nitrate WY 2025 Max Measurement (mg/L)	Nitrate Status	SC MO (micromhos/cm)	SC WY 2025 Max Measurement (micromhos/cm)	SC Status
CA4700523_003_003	4700523-003	6.80	6.92	Above MO	540	NA	No measurement
CA4700528_001_001	4700528-001	2.04	1.97	Below MO	513	NA	No measurement
CA4700557_001_001	4700557-001	2.42	NA	No measurement	NA	NA	No measurement
CA4700557_002_002	4700557-002	2.75	NA	No measurement	NA	NA	No measurement
CA4700559_001_001	4700559-001	9.57	5.65	Below MO	297	233.6	Below MO
CA4700577_001_001	4700577-001	6.79	15.3	Above MT	NA	NA	No measurement
CA4700582_001_001	4700582-001	9.77	9.9	Above MO	672	NA	No measurement
CA4700591_002_002	4700591-002	2.90	<0.4	Below MO	1.92	NA	No measurement
CA4700626_001_001	4700626-001	5.05	2.21	Below MO	453	NA	No measurement
CA4700627_002_002	4700627-002	3.39	3.11	Below MO	464	NA	No measurement
CA4700638_001_001	4700638-001	1.66	1.01	Below MO	533	NA	No measurement
CA4700663_001_001	4700663-001	0.68	NA	No measurement	NA	NA	No measurement
CA4710011_003_003	4710011-003	5.34	NA	No measurement	627	NA	No measurement
CA4710013_001_001	4710013-001	0.45	0.45	Below MO	360	NA	No measurement
CA4710013_002_002	4710013-002	0.40	0.24	Below MO	310	NA	No measurement
CA4710013_004_004	4710013-004	1.12	0.26	Below MO	310	NA	No measurement

Table 6: Water quality data from WY2025 for benzene, arsenic, manganese, and iron.

Well ID	Result	Analyte	Date	Units	MCL or SMCL	Source
CA4700559_001_001	<0.5	Benzene	2025-02-11	ug/L	1	Title 22 Table 64444-A
CA4710013_001_001	<0.5	Benzene	2024-12-12	ug/L	1	Title 22 Table 64444-A
CA4710013_002_002	<0.5	Benzene	2024-12-12	ug/L	1	Title 22 Table 64444-A
CA4710013_004_004	<0.5	Benzene	2024-12-12	ug/L	1	Title 22 Table 64444-A

4.5 Subsidence

To monitor subsidence, the Basin relies on data provided by DWR based on Interferometric Synthetic Aperture Radar (InSAR), a satellite-based remote sensing technique that measures vertical ground surface displacement changes at high degrees of measurement resolution and spatial detail. This data is made available through the DWR SGMA Data Viewer [1] and shows overall subsidence less than 0.1 feet for the entire Basin during the Water Year 2025 (Figure 13), which avoids the occurrence of undesirable results.

[1] https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#currentconditions

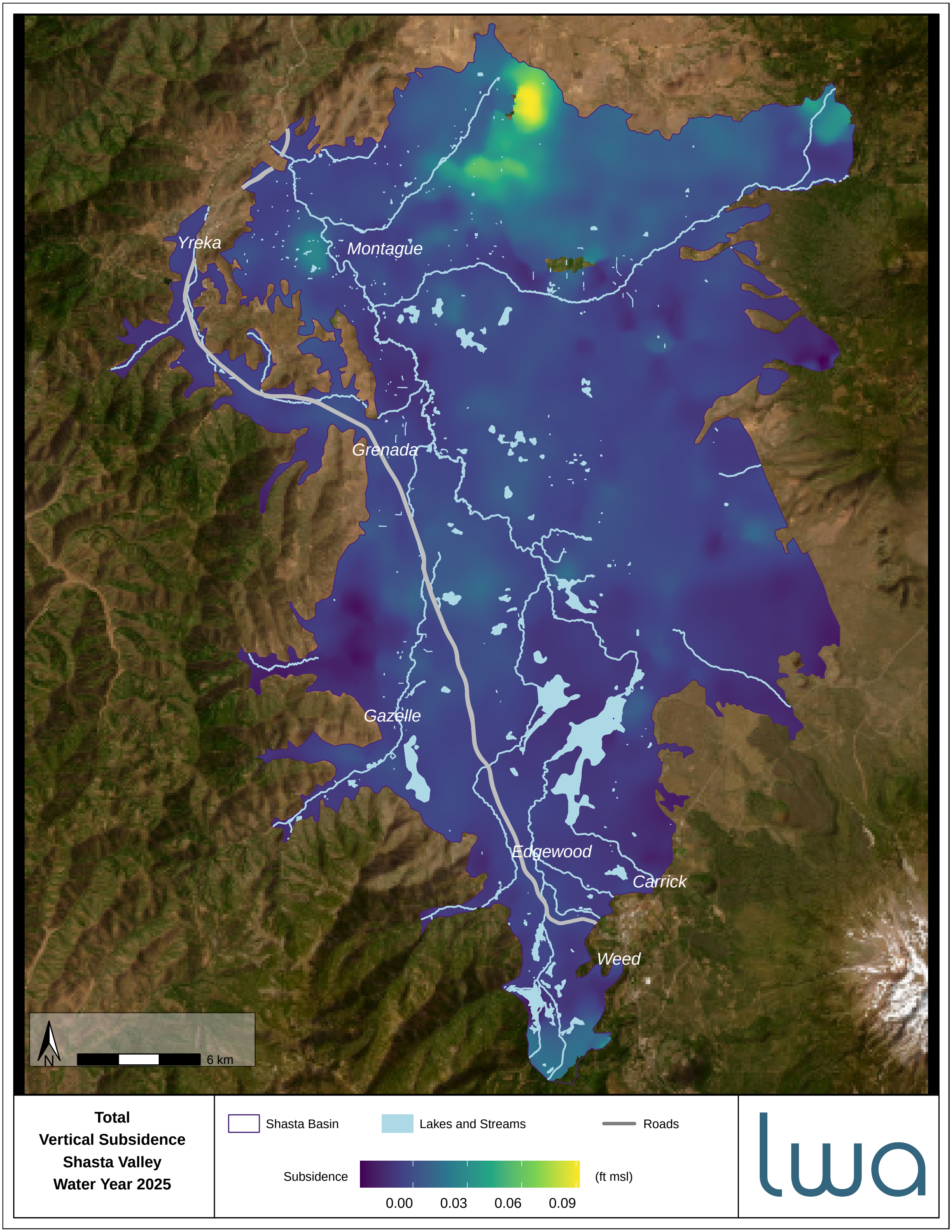


Figure 13: InSAR satellite measured total vertical subsidence (feet) in WY 2025. Note that the processed InSAR instrument and GIS conversion error is roughly +/-0.1 feet (https://gis.water.ca.gov/arcgisimg/rest/services/SAR).

4.6 Interconnected Surface Water

Interconnected surface waters in the Basin are not evaluated for WY 2025 because the updated method using the SWGM to assess SMCs will be ready following additional model calibration in 2026. However, note that an update on the interconnected surface water study is presented in Section 5.1.

A component of the grant proposal submitted to DWR’s SGM Implementation Grant Program for Shasta Valley is conducting a groundwater-surface water study to better characterize groundwater-surface water interaction in the Basin. From WY 2026 and on the annual report will use the SWGM to determine the location, timing and rate of interconnected surface waters in the Basin.

Chapter 5

Project Implementation and Management Actions

This section provides updates and progress towards implementing the GSP, including implementation of projects and management actions since adoption of the GSP and the most recent annual report. The project and management actions that are described in the GSP are summarized in Table 7, which provides the status of the project, the project's management category (i.e., demand management), and targeted sustainability indicator. Section 5.1 describes the progress on implementing projects and management actions focusing on water year 2025, Section 5.2 describes the activities planned for water year 2026, and Section 5.3 describes additional coordinated activities or management actions that the GSA is conducting with other agencies.

5.1 Implementation of Projects and Management Actions

5.1.1 Progress Made on Addressing Recommended Corrective Actions in the Department's GSP Determination

On April 27, 2023, DWR sent a letter to the GSA, approving the Shasta Valley GSP, with eight recommended corrective actions to be considered and addressed by the Plan's first Periodic Evaluation due in late January 2027. Below is the progress on implementing those actions:

RECOMMENDED CORRECTIVE ACTION 1 - *Coordinate with the Department through the appropriate channels to clearly show what portions of the Basin the GSA has jurisdiction over and intends to manage under the Plan. This should include updating the GSA information on the SGMA Portal and associated geospatial files.*

Corrective Action 1 Progress - Complete. The GSA information has been updated on the SGMA Portal.

RECOMMENDED CORRECTIVE ACTION 2 - *Investigate and work to fill data gaps related to the hydrogeologic conceptual model as follows:* a) The GSA should investigate and improve its understanding of the locations and extent of the bottom of the Basin. b) The GSA should investigate the three water-bearing formations and identify the appropriate principal aquifer(s) for the Basin.

Corrective Action 2 Progress - The GSA has initiated the necessary work to address this corrective action in the 2027 GSP Periodic Evaluation. Ongoing and planned efforts to fill data gaps within the groundwater basin include: expanding monitoring networks, completed well inventory and updated well risk assessment, expanded water quality data collection, and targeted studies regarding Lake Shastina. The geologic model and groundwater model have also been updated with the results of the AEM survey and the groundwater model is in the process of being recalibrated.

RECOMMENDED CORRECTIVE ACTION 3 – *Investigate and work to fill data gaps related to understanding groundwater conditions as follows:* a) Describe groundwater storage conditions in the Basin including a chart depicting estimates of the change in groundwater in storage, demonstrating the annual and cumulative change in the volume of groundwater in storage, including the annual groundwater use and water year type. b) Provide an estimate of the location, volume, and timing of depletions of surface water due to groundwater extraction.

Corrective Action 3 Progress - The groundwater storage conditions currently estimated by the groundwater model are shown in Figure 8, with all requested data. The groundwater model is currently undergoing a major update and recalibration. Once model updates are complete, the depletions of surface water will be determined by the groundwater model in the next annual report.

RECOMMENDED CORRECTIVE ACTION 4 – *Provide a current water budget as required by the GSP Regulations.*

Corrective Action 4 Progress - The current water budget estimated by the SWGM is provided in the current report in Figure 8.

RECOMMENDED CORRECTIVE ACTION 5 - *Provide a description of the relationship between established minimum thresholds for the chronic lowering of groundwater levels and how they avoid undesirable results for each of the other sustainability indicators.*

Corrective Action 5 Progress - The current minimum thresholds are based on the lowest historical groundwater level measurements, with a buffer that is either 10% of the historic maximum depth to water measurement, or 10 feet, whichever is smaller. This gives a buffer for operational flexibility under causes such as climate change while the GSA works toward groundwater sustainability. The GSA has initiated the necessary work to address this corrective action in the GSP Periodic Evaluation.

RECOMMENDED CORRECTIVE ACTION 6 – *Water Quality. Page 39 of the Department's April 27, 2023 letter include four recommended actions for water quality.*

Corrective Action 6 Progress - The GSA is working with local agencies to expand the water quality network, which currently relies on public supply wells. The GSA has initiated the necessary work to address this corrective action in the GSP Periodic Evaluation, and the requested changes to the definition of undesirable results and minimum thresholds for water quality will be considered during the five-year update.

RECOMMENDED CORRECTIVE ACTION 7 – *Stream Depletion. Page 39 and 40 of the Department's April 27, 2023 letter include four recommended actions for stream depletion.*

Corrective Action 7 Progress - SWGM is in the process of being updated so interconnected surface water and stream depletion can be determined for future water years. Section 5 of this Annual Report includes additional work by the GSA regarding interconnected surface water, the GSA has initiated additional work to address this corrective action in the GSP Periodic Evaluation.

RECOMMENDED CORRECTIVE ACTION 8 - *The GSA should provide identification of the physical monitoring that will be used to support the SWGM's estimates of depletions of surface water for the interconnected surface water monitoring network*

Corrective Action 8 Progress - Section 5 of this Annual Report lists PMAs that expand physical monitoring for depletions of surface water, including stream gages. The GSA has initiated the necessary work to address this corrective action in the GSP Periodic Evaluation.

5.1.2 Project Activities for WY 2025

During water year 2025 the GSA continued activities necessary to implement the GSP and manage the Basin on a path toward sustainable management. The progress of specific PMAs identified in Table 7 are described below:

Irrigation Efficiency Improvements – In spring and summer of 2025, seven soil moisture and evapotranspiration stations were installed, along with one Eddy Covariance station. The stations were installed to better understand agricultural water consumption and the efficiency of irrigation systems. The study will take place over three crop seasons and will (1) collect data on actual crop water use (ET), soil moisture, and irrigation practices to improve the accuracy of hydrologic models and provide better information on water consumption; and (2) advise farmers on how to improve irrigation efficiency, thereby reducing water and energy consumption. A preliminary report, and a stakeholder engagement meeting will be held in Spring 2026. The Farm Bureau, Shasta Valley Resource Conservation District, and the GAS are collaborating on this effort.

Well Inventory – The GSA conducted a well inventory which compiled and improved well location data from the state's OSWCR database by cross-referencing Well Completion Reports with parcel data, addresses, and aerial imagery to correct wells placed at inaccurate PLSS section centroids. To identify wells missing from public records, parcels with 911 addresses outside public water systems were reviewed via satellite imagery to assess the likelihood of domestic well presence. The effort produced an enhanced geospatial database with improved location accuracy and identified data gaps, establishing a foundation for better groundwater modeling and future assessments of well vulnerability.

Well Risk Assessment – During water year 2025, the GSA began developing an updated well outage analysis to assess wells within the basin that are at risk of outage due to declining groundwater levels and to provide a basis for evaluating the potential need for mitigation measures during the GSP implementation. This update refines the well risk assessment conducted in the GSP by using an improved dataset of well locations from the well inventory and enhanced assessment methods. This includes updated spatial interpolation and other methodological refinements to better characterize groundwater levels and the potential impact on wells across the basin for the years and basin conditions evaluated. This effort is expected to be completed during water year 2026.

Recharge Project - Siskiyou County Flood Control and Water Conservation District received State Water Resources Control Board Temporary Permit 21469 (TP21469) on January 31, 2025, enabling the Shasta Westside Recharge Project designed to augment groundwater supply to prevent or minimize drought impact to domestic wells in the Grenada area. TP21469 is based on the conditions sub-mitted in Application T033460 and reflects comments and requested conditions from the California Department of Fish and Wildlife consultation, and protests by the Friends of the Shasta River. The Shasta Westside Recharge Project diverts Shasta River during high flows for recharge via flood irrigation of pasturelands within the Grenada Irrigation District (GID). Diversion and conveyance of river water to the targeted fields is through the existing GID infrastructure. Prior to diversion, TP21469 requires updating the Lake and Streambed Alteration (LSA) Agreement for the GID diver-sion to include the December through March window and obtaining a North Coast Regional Board Low-Threat Conditional Waiver. Conditions for diversion include: limited to within December 1 to

March 31; daily flowrate at Yreka USGS gage must exceed the 90th percentile for that day (table of daily flows specified in the permit); four 90th percentile days must occur; diversion rate is the limited to the lesser of 40 cfs, difference between the actual flow and the 90th percentile flow at the GID diversion, and may never exceed 20 percent of total river flow. No water was diverted during the WY25 December through March window under TP21469.

Data Gaps and Data Collection – Two sampling efforts were undertaken in WY2025 to assess nitrate and specific conductivity levels in wells throughout Shasta Valley not currently included in the Water Quality Representative Monitoring Network (WQ RMP). These sampling efforts, which began in WY2024, focus on developing a baseline of nitrate and specific conductivity data in wells located in areas that are currently underrepresented by the WQ RMP network. Wells are assessed based on current nitrate and specific conductivity concentrations, as well as spatial and depth distribution, to determine their suitability for continued monitoring and potential inclusion in the WQ RMP network. Samples were analyzed for nitrate plus nitrite to accommodate logistical constraints, though results are considered representative of nitrate given that nitrate is the predominant form of nitrogen in groundwater under typical oxidizing conditions. Should sites be selected for inclusion in the WQ RMP network, sampling protocols will be adjusted to measure nitrate independently. Continued monitoring is recommended to establish the monitoring history required for network inclusion. Several sites have shown seasonal changes in concentrations, demonstrating their ability to respond to regional conditions and represent local groundwater quality. In one instance where a single sample exceeded the maximum threshold (MT), follow-up sampling was conducted for other nitrogen species to investigate point-source nitrogen contamination. This follow-up sampling yielded nitrate results below both the MT and the lower trigger value and non-quantifiable concentrations of other nitrogen species, ruling out point-source nitrogen contamination and likely confirming the site's representation of regional conditions. Specific conductivity (SC) was also measured during these monitoring events. Results fell within the expected range for Shasta Valley as defined in the GSP, further supporting these sites as viable candidates for inclusion in the WQ RMP network. One monitoring site was lost in WY2025 due to an ownership change; however, all other sites remain viable for continued water quality monitoring.

Shasta Watershed Groundwater Model (SWGM) Model Update – Sensitivity analysis and calibration of the current groundwater-surface water model were conducted. The streamflow and recharge components of the Shasta Valley Precipitation Runoff Modeling System (PRMS) model were updated. The PRMS model was updated with data from PRISM (precipitation, temperature, and snowpack) and was extended to water year 2025. A new soil water budget (SWB) component was incorporated to estimate groundwater pumping, surface water diversion, and deep percolation at irrigated fields. The groundwater-surface water model couples the Soil Water Balance (SWB) model for irrigated agricultural lands with the Precipitation–Runoff Modeling System (PRMS) for non-agricultural areas, integrating both with MODFLOW to simulate basin-scale groundwater–surface water interactions. Model calibration is ongoing. Performance across the valley floor is generally strong; however, notable mismatches persist in the mountainous regions, particularly upstream of the Little Shasta River and along the lower flanks of Mount Shasta. These areas are highly sensitive to boundary conditions, recharge representation, and hydraulic parameter zonation, and therefore require additional refinement. Improving the representation of small tributaries in the SFR network and accounting for greater parameter variability within geologic zones are also important considerations.

Groundwater Dependent Ecosystems (GDE) – The revised Groundwater Dependent Ecosystem (GDE) analysis builds on the foundational GDE identification efforts completed for the Shasta Groundwater Sustainability Plan, incorporating improved statewide datasets, refined groundwater depth representations, and additional analytical tools developed since adoption of the original GSPs. Potential vegetation and wetland GDEs were identified using the California Department of Water Resources' Natural Communities Commonly Associated with Groundwater Version 2 (NCCAG v2) dataset, which provides updated and regionally improved mapping of vegetation alliances and wetland types commonly associated with groundwater. Riparian GDEs were delineated separately using a screening-level buffer extending 100 feet from mapped blue-line stream centerlines, representing areas likely influenced by shallow groundwater, hyporheic exchange, or near-channel alluvial aquifers. Where NCCAG-mapped vegetation or wetlands overlapped the riparian buffer, those areas were classified as riparian GDEs consistent with a hierarchical framework that prioritizes hydrologically connected stream-adjacent systems. Representative root zone depths were assigned to each NCCAG v2 vegetation and wetland mapped potential GDE based on available literature and dataset attributes, recognizing inherent variability while providing a consistent basis for screening-level evaluation of groundwater connectivity.

Seasonal depth-to-groundwater surfaces were developed in a parallel modeling effort and integrated with the GDE spatial datasets using batched geoprocessing and zonal statistics. For each potential GDE polygon, depth to groundwater was compared to assumed root zone depth for multiple seasonal conditions. Where groundwater depth was shallower than the representative root zone, the feature was assumed to be hydraulically connected for that season. The frequency of seasonal connectivity was then summarized and used to classify potential GDEs into tiers of likelihood, ranging from "Very Likely GDE" (connected in ≥75% of evaluated seasons) to "Very Unlikely GDE" (connected in <25% of seasons). In addition, a multispectral Normalized Difference Vegetation Index (NDVI) analysis was conducted using Copernicus 10-meter imagery from late spring and late summer for water years 2020 through 2024 to identify areas exhibiting persistent greenness after seasonal soil moisture depletion. Urban and agricultural lands were removed prior to analysis, and areas already mapped as riparian or NCCAG v2 vegetation or wetland GDEs were excluded. The NDVI screening identified additional areas where vegetation greenness remained relatively stable between spring and late summer, suggesting potential access to groundwater. These areas are considered supplemental, unverified potential GDEs and are intended to inform future field investigations, vegetation characterization, and refinement of root zone assumptions rather than serve as definitive GDE designations.

Identification of Interconnected Surface Water (ISW) – To identify interconnected surface waters in the Shasta Valley, groundwater elevations from both seasonally measured and telemetered stations were compared to nearby streambed ground surface elevations extracted from 1m resolution LiDAR raster data. Due to uncertainties in LiDAR measurements and potential capillary effects below streambeds, groundwater elevation measurements were binned at a relatively wide 10-foot increment. This provided three categories, disconnected (greater than 10 feet below streambed), likely connected (between 10 feet below and 10 feet above streambed), and connected (10 feet above streambed). These classification systems revealed that the main stem of the Shasta River is connected or likely connected year-round aside from directly below Dwinell Dam, with tributaries being mostly disconnected.

To identify potential monitoring locations for interconnected surface water that not only indicated gaining gradients toward the nearest stream, but also responded to seasonal variations in stream stage, rank transformed groundwater and surface water data were systematically compared. Rank transformation is in essence a simple ordering and has wide use in mathematics as a rigorous way of comparing series of data. For example, a list of [1,2,100] will be transformed to [1,2,3]. By this method it is prioritized that two series move in the same direction at the same time, and not the same amount at the same time. The ability to detect the similar direction of signals is of importance in groundwater-surface water studies, where pressure signals can be reduced in magnitude as they move over distance through saturated media. Through rank correlation SHA_004 and SHA_787 were identified as potential monitoring candidates for ISW.

Identification of Interconnected Surface Water (Geochemistry) – To support the identification and characterization of interconnected surface waters in Shasta Valley, geochemical sampling was conducted to evaluate groundwater-surface water interactions. Two directed monitoring events occurred in Water Year 2025: one in February sampling 20 locations (12 groundwater, 8 surface water) and another in August sampling 22 locations (13 groundwater, 9 surface water). Analyses focused on oxygen and hydrogen isotopes and major ion chemistry to characterize groundwater signatures and identify where groundwater influences surface water. Groundwater sampling was distributed basin-wide with emphasis on the Big Springs region, while surface water sampling targeted the Shasta River from headwaters to the Klamath River confluence. Results confirmed that Big Springs groundwater has a distinct geochemical signature that influences the Shasta River. While the confluence with Big Springs Creek predictably affects Shasta River chemistry, geochemical evidence indicates Big Springs groundwater influence begins upstream of this confluence and strengthens downstream, demonstrating that direct groundwater discharge into the Shasta River—not just the surface water contribution from Big Springs Creek—plays a major role throughout the Big Springs region.

Upland Management – In WY 2025, scenarios were run and evaluated for various options for upland management projects and studies. These scenarios included the impact on water resources from historical wildfires, past upland management projects, juniper removal, and habitat restoration. Model scenarios were run using the Shasta Valley PRMS model, along with a desktop analysis of observed data. A report discussing the scenarios, analysis, and conclusions will be included in the 2027 Periodic Evaluation.

Voluntary Managed Land Repurposing - As part of a grant-funded project from the California Department of Fish and Wildlife, the Siskiyou County Farm Bureau worked with landowners to fallow fields in both Scott and Shasta Valleys. In Shasta Valley, a total of 501.7 acres were fallowed in 2024, and a total of 1,659.7 acres were fallowed in 2025

Public Outreach - The GSA has continued public outreach by visiting local well owners who report concerns about groundwater levels in their wells and also worked to develop opportunities to improve monitoring and data collection to aid the GSA in characterizing and improving groundwater reliability. Quarterly Advisory Committee meetings, open to the public, were also conducted.

5.2 Activities Anticipated for the Coming Year

Data Gaps and Data Collection - The GSA will continue to collect data from recently installed groundwater level and surface water monitoring sites to support the implementation of planned projects and management actions.

Irrigation Efficiency Improvements – The Shasta Valley Resource Conservation District, together with the Siskiyou Economic Development Council, obtained a Mobile Irrigation lab. The GSA will coordinate to conduct on-site evaluations of irrigation systems and to provide reports to producers on their irrigation system performance, including tips, suggestions, and recommendations based on data collected during the inspection. Additionally, in spring and summer of 2025, seven soil moisture and evapotranspiration stations were installed, along with one Eddy Covariance station. An initial round of the data will be analyzed and presented to stakeholders in February 2026.

Well Inventory – During the upcoming water year the GSA will complete the well inventory. Information from the Well Inventory will continue to be incorporated into the model and also be used to inform the Fee Study conducted to identify options to fund groundwater management in the Basin.

Recharge Project - Siskiyou County Flood Control and Water Conservation District received State Water Resources Control Board Temporary Permit 21484 (TP21484) on January 16, 2026, enabling the Shasta Westside Recharge Project designed to augment groundwater supply to prevent or minimize drought impact to domestic wells in the Grenada area. TP21484 is based on the conditions submitted in Application T033516 and reflects comments and requested conditions from the California Department of Fish and Wildlife consultation, and protests by the Friends of the Shasta River. The Shasta Westside Recharge Project diverts Shasta River during high flows for recharge via flood irrigation of pasturelands within the Grenada Irrigation District (GID). Diversion and conveyance of river water to the targeted fields is through the existing GID infrastructure. Prior to diversion, TP21484 requires updating the Lake and Streambed Alteration (LSA) Agreement for the GID diversion to include the December through March window and obtaining a North Coast Regional Board Low-Threat Conditional Waiver. Conditions for diversion include: limited to within January 1 to March 31; daily flowrate at Yreka USGS gage must exceed the 90th percentile for that day (table of daily flows specified in the permit); four 90th percentile days must occur; diversion rate is the limited to the lesser of 40 cfs, difference between the actual flow and the 90th percentile flow at the GID diversion, and 20 percent of the river flow; and diversion season is limited to a total of 3,426 ac-ft.

Shasta Watershed Groundwater Model (SWGM) Model Update – Observations of streamflow and groundwater elevations will be extended to include water year 2026, and new monitoring stations will be incorporated into the model. Additionally, the groundwater model will continue to be refined and calibrated.

To improve model performance near the mountain fronts and along model boundaries, the following steps are planned:

1. Reevaluate Boundary Conditions and Expand Observation Coverage Boundary inflows and outflows along the mountain fronts will be reassessed to ensure realistic hydraulic gradients. Observation wells near the model boundaries currently have short records; extending these records may improve calibration fidelity.

2. Enhance Streamflow Routing Near Headwaters Streambed conductance and geometry will be revisited on a reach-by-reach basis, instead of only by segment. Additionally, small tributaries will be incorporated where the model shows localized discharge (low-elevation pockets), improving representation of headwater hydrology.

3. Add Targeted Pilot Points Along Boundaries Introducing additional pilot points along key boundary sections will allow greater flexibility in calibration without compromising the parameter structure in interior regions.

4. Reevaluate Layer Type Assignments in Mountain Blocks The model currently treats Layers 1–2 as convertible and Layers 3–4 as confined. Because layer elevations follow surface topography, even the deepest layers intersect ground surface in steep mountain areas (e.g., Mount Shasta, upper Little Shasta basin, and model edges). Treating these cells as confined is likely unrealistic. Options include converting all layers to convertible in these areas or deactivating deep mountain cells where no saturated zone exists.

Groundwater Dependent Ecosystems (GDE) – No anticipated GDE work planned in 2026 unless third party funding for GDE community assessments can be secured.

Identification of Interconnected Surface Water (ISW) – Interconnected Surface Water - Future work will estimate the magnitude and timing of ISW depletions by groundwater pumping using analytical stream depletion functions. Analytical stream depletion functions, as detailed in Zipper et al. (2019) are a powerful tool to quickly quantify depletions by using simplifying assumptions of aquifer properties and stream geometries. Combining these equations with a suite of apportionment equations and influence radius estimates allows for the exploration of over 75 scenarios of ISW depletions in the Shasta Valley, with many combinations of equations flagged by Zipper et al. (2019)[1] as agreeing well with the numerical estimates of software such as MODFLOW elsewhere in California.

Identification of Interconnected Surface Water (Geochemistry) – Geochemical sampling will continue in Water Year 2026 with seasonal monitoring events targeting spring recharge and early irrigation periods as well as peak withdrawal periods. Future sampling will likely focus on sites in closer proximity to surface water bodies and streamline analyses to isotopes for programmatic efficiency. Plans include incorporating radon sampling to further characterize groundwater-surface water interactions, though specific zones and timing have not yet been determined. The primary goal of this ongoing geochemical work is to ground-truth conventional ISW identification methods (groundwater elevation analysis and rank-correlation techniques) by confirming distinctions between gaining and losing reaches and establishing clear geochemical signatures for each condition.

Upland Management – A report discussing the scenarios, analysis, and conclusions will be included in the 2027 Periodic Evaluation. Additional scenarios or data analysis may be completed where needed during report generation.

Public Outreach – The GSA will continue public outreach by working with the public to develop opportunities to improve monitoring and data collection. Quarterly Advisory Committee Meetings, open to the public, will also be conducted.

5.3 Coordination

State Water Resources Control Board – GSA staff meets biweekly with SWRCB staff to discuss updates and activities related to SWRCB's Emergency Regulation Curtailments. The two parties discuss updates to curtailment actions in place, including Local Cooperative Extensions (LCS) and activities that may have impacts on groundwater management.

The GSA will continue to track the SWRCB emergency regulations and permanent flow setting process and the resulting impacts to water use, ability to achieve interim milestones set for sustainable management criteria, and any changes to project and management actions. The GSA anticipates participating in the permanent flow setting process through public comments, coordination on relevant GSP implementation efforts, and sharing data collected through the GSA's monitoring networks.

Other regulations that the GSA will be tracking, and engaging with, in the coming water year include the Waste Discharge Requirements (WDR) for Agricultural Operations in the Scott and Shasta Watersheds, which is under development by the North Coast Regional Water Quality Control Board.

[1] Zipper, C. S. et al. (2019). Rapid and Accurate Estimates of Streamflow Depletion Caused by Groundwater Pumping Using Analytical Depletion Functions. Water Resources Research, 55 (7). https://doi.org/10.1029/2018WR024403.

Karuk Tribe – During water year 2023 the GSA worked to finalize the Memorandum of Understanding (MOU) with the Karuk Tribe regarding coordinating on aspects of the GSP implementation in the Scott and Shasta basins, and the Final MOU was signed on May 3, 2023. The Shasta groundwater committee has a Karuk staff member as a representative. GSA staff continually works with DWR provided facilitation support services staff to engage with the Karuk Tribe to discuss pertinent updates regarding GSP implementation and project development. In August of 2025, a meeting between the GSA and a Karuk Representative was conducted to ensure that pertinent updates are being conveyed.

Table 7: Project and Management Actions Summary.

Project Title	Status	Project Category - **Targeted Sustainability Indicator(s)/Benefits**	**Project Description**
Well Drilling Permits and County of Siskiyou Groundwater Use Restrictions	Existing/ Ongoing	Demand Management - Groundwater levels	Siskiyou County Well Drilling Permits (Standards for Wells, Title 5, Chapter 8 of Siskiyou County Code of Ordinances). The impact of potential new wells on groundwater and surface water is evaluated.
Shasta Watershed Groundwater Model (SWGM) Model Update and Isotope Results	Ongoing	GSP Implementation	Update the Shasta Watershed Groundwater Model and conduct a groundwater isotope study.
Montague- Grenada Weir Modification Project	Complete. Construction completed in 2021.	Habitat Improvement - Interconnected surface water	Improve fish passage on the Shasta River.
Piezometer Transect Study Project	Active	Demand Management – Groundwater levels	Conduct piezometer transects at key reaches of primary surface water bodies in the Basin. Utilize existing data, and instrument wells in the region of the CDFW property to evaluate ISW.
Upland Management	Conceptual	Supply Enhancement – (1) Improved groundwater recharge, (2) groundwater levels, (3) habitat (4) Interconnected surface water	Upland management includes removal of excess vegetation. This can occur on US Forest Service, Bureau of Land Management, or private land.
Data Gaps and Data Collection	Active	GSP Implementation	Prioritization and actions to address data gaps during GSP implementation.

Table 7: Project and Management Actions Summary. *(continued)*

Project Title	Status	Project Category - **Targeted Sustainability Indicator(s)/Benefits**	**Project Description**
Aquifer Characterization Analysis	Complete	Demand Management – (1) Groundwater levels, (2) Interconnected Surface Water	Conduct aquifer characterization studies with large capacity wells.
Avoiding Significant Increase of Total Net Groundwater Use from the Basin	Active	Demand Management – (1) Groundwater levels, (2) Interconnected Surface Water	Avoid significant future increase of total net groundwater use above the most recent 20 year period (2000-2020) within the Basin through planning and coordination with land use zoning and well permitting agencies.
Irrigation Efficiency Improvements	Active	Demand Management – (1) Groundwater levels, (2) Interconnected Surface Water	Increase irrigation efficiency (and in some cases, yields) through assessing infrastructure or equipment improvements. Consider funding incentives through the NRCS EQIP program. The GSA is currently evaluating soil moisture and ET.
Reporting of Pump Volumes	Conceptual Phase	Demand Management – Groundwater levels	Reporting of pump volumes for pumps above 500 gpm and commercial purposes.
Voluntary Managed Land Repurposing	Active	Demand Management – Groundwater levels	Reduce water use through voluntary managed land repurposing activities including term contracts, crop rotation, irrigated margin reduction, conservation easements, and other uses
Well Inventory Program	Active	GSP Implementation	Improve the GSA database of wells within the Basin

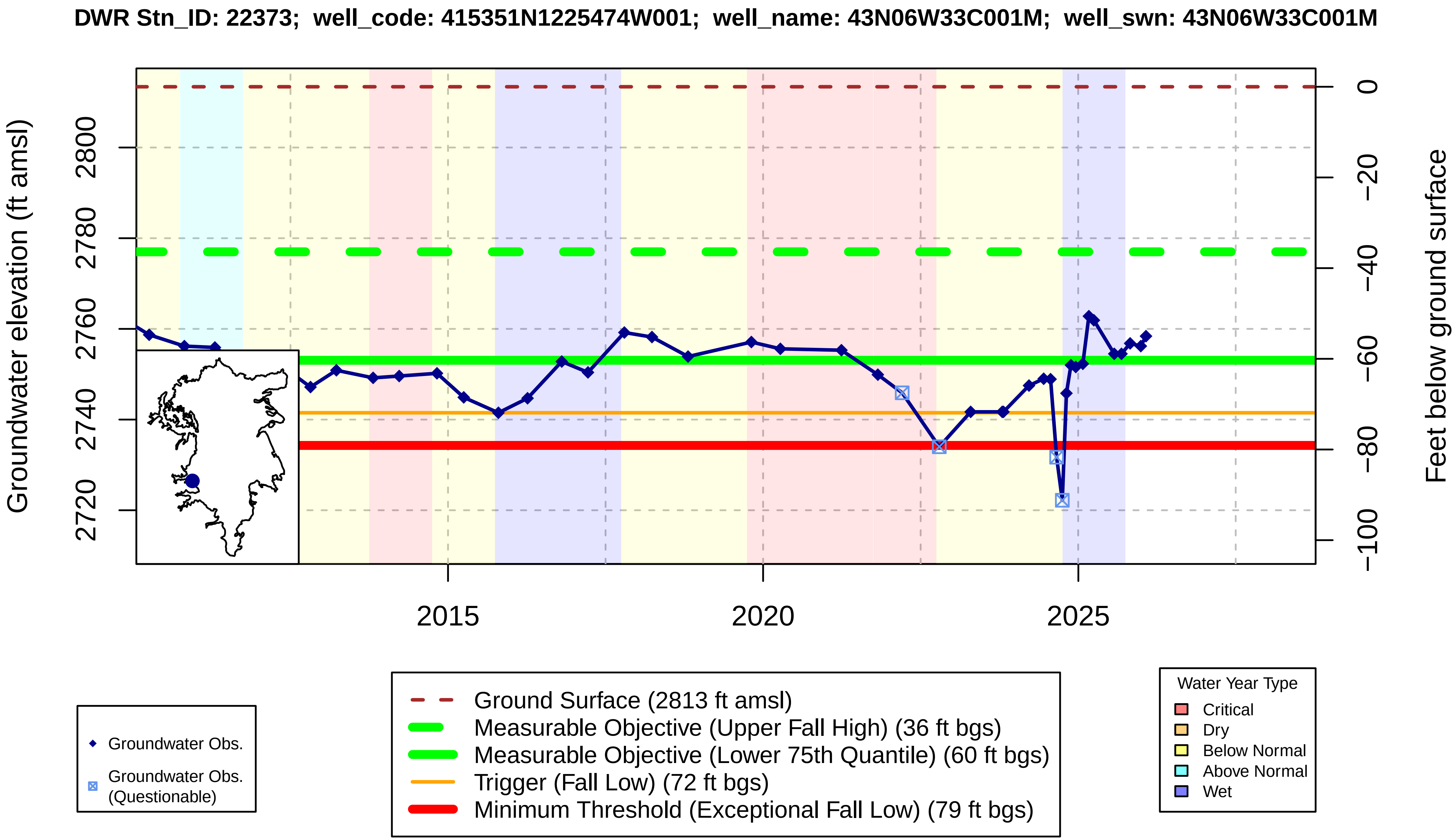
Table 7: Project and Management Actions Summary. *(continued)*

Project Title	Status	Project Category - **Targeted Sustainability Indicator(s)/Benefits**	**Project Description**
Shasta Recharge Pilot Project	Active	Recharge	This project is designed to augment groundwater supply by diverting Shasta River water during high flows for recharge via flood irrigation of pasturelands in Grenada Irrigation District. Increased groundwater is intended to prevent domestic wells in the Grenada area from going dry.
Strategic Groundwater Pumping Restriction	Conceptual Phase	Demand Management	Strategic timing of groundwater pumping curtailments. This management action would only be developed if Tier I and Tier II PMAs are insufficient. It would be an alternative PMA for the GSA in support of the groundwater level SMC groundwater pumping curtailments. This management action would only be developed if Tier I and Tier II PMAs are insufficient. It would be an alternative PMA for the GSA in support of the groundwater level SMC
Coordinated Shasta Valley Irrigation Management	Conceptual Phase	Demand Management	Rotate diversions and use of other tools to maintain instream flows.

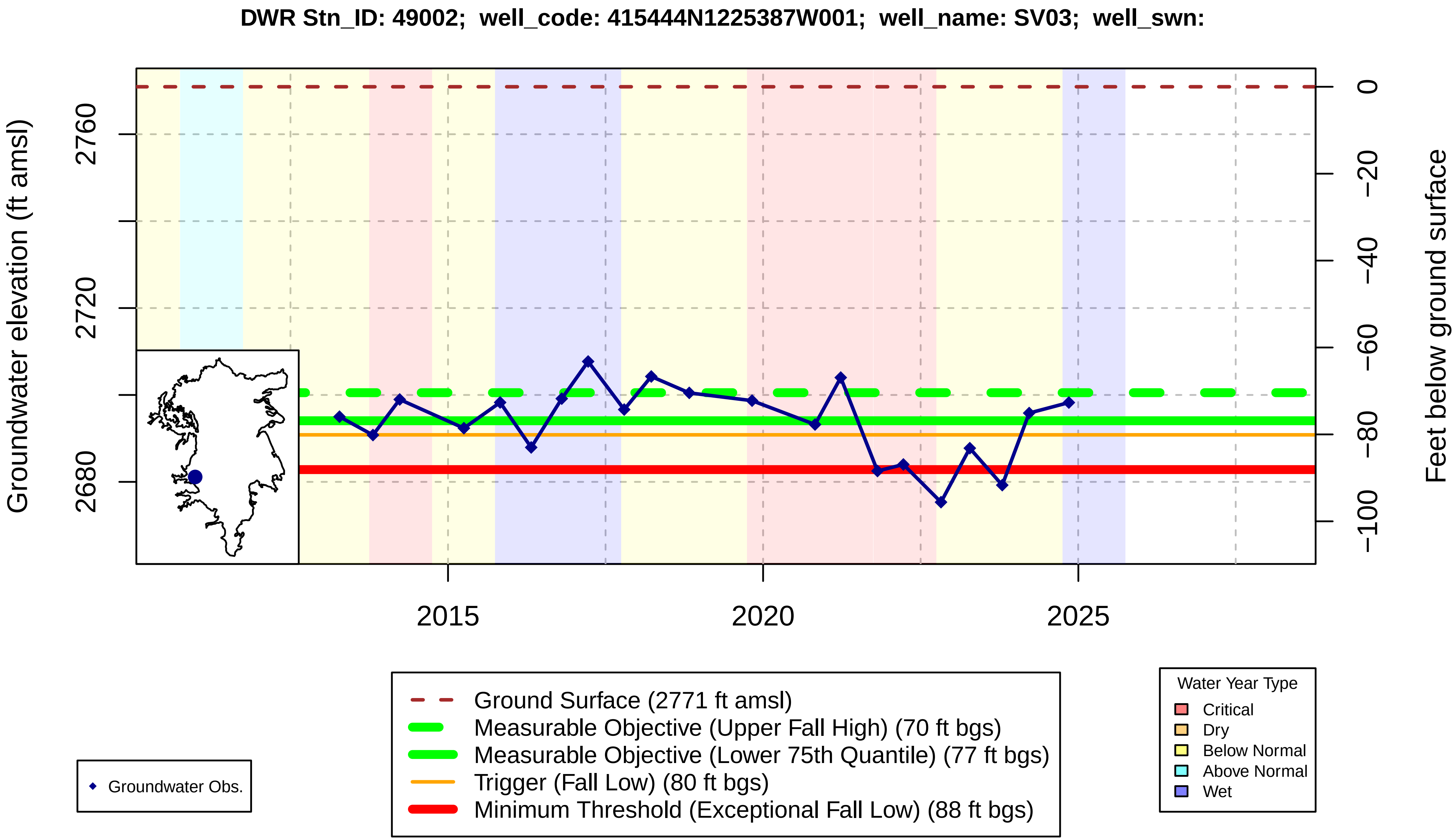
Appendix A - Water Level Hydrographs

This appendix contains groundwater level hydrographs to document the Groundwater Elevation and Storage Sustainability Management Criteria. Appendix A.1 shows hydrographs for each RMP. The historical hydrographs for these RMPs were used to set the minimum thresholds and measurable objectives in the GSP. The designated SMCs are shown on each hydrograph in Appendix A.1. Appendix A.2 shows general hydrographs for the larger GSP monitoring network, including wells for which SMCs were not defined.

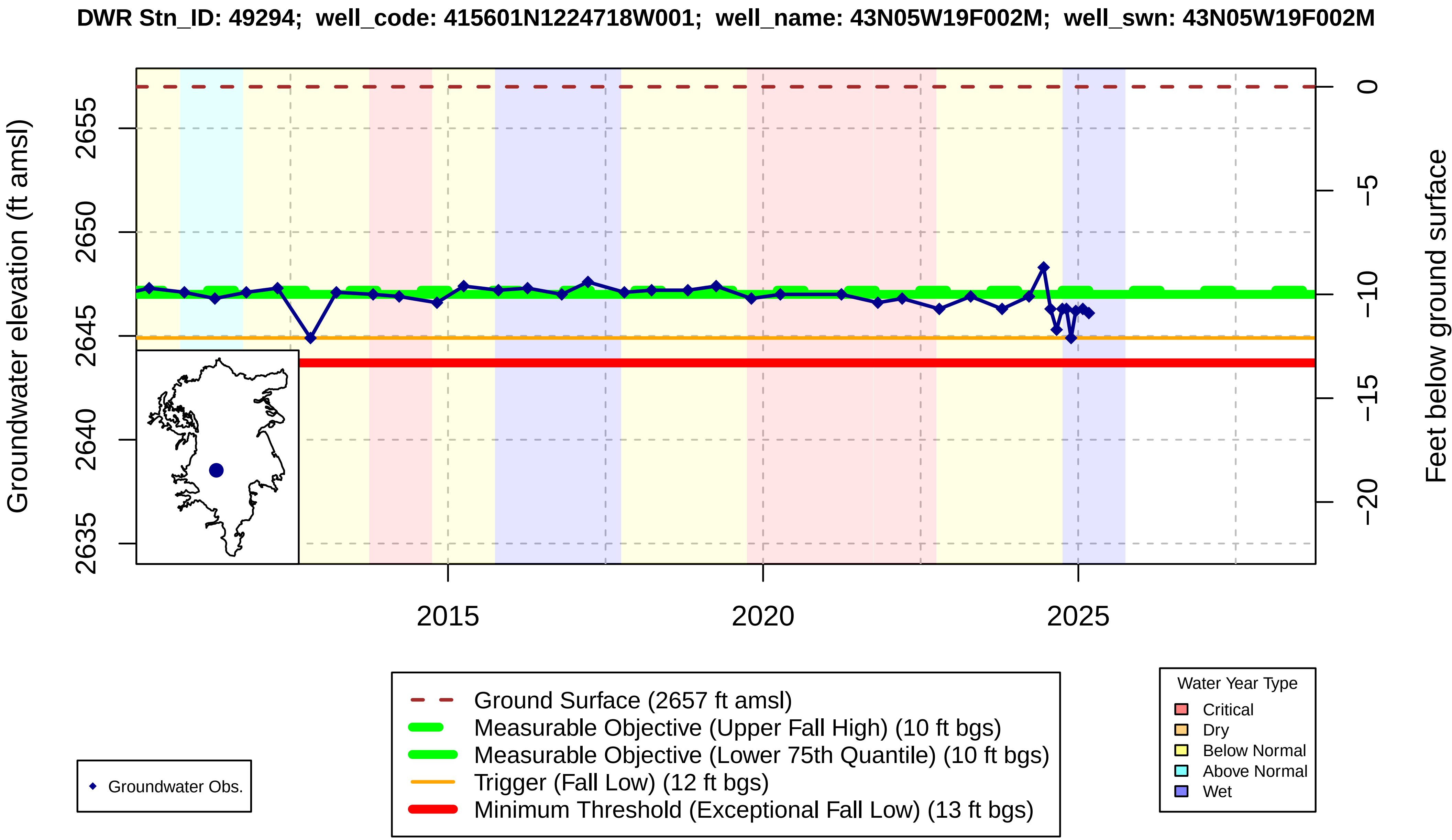
Appendix A.1 - Water Level Representative Monitoring Network (RMP) Hydrographs



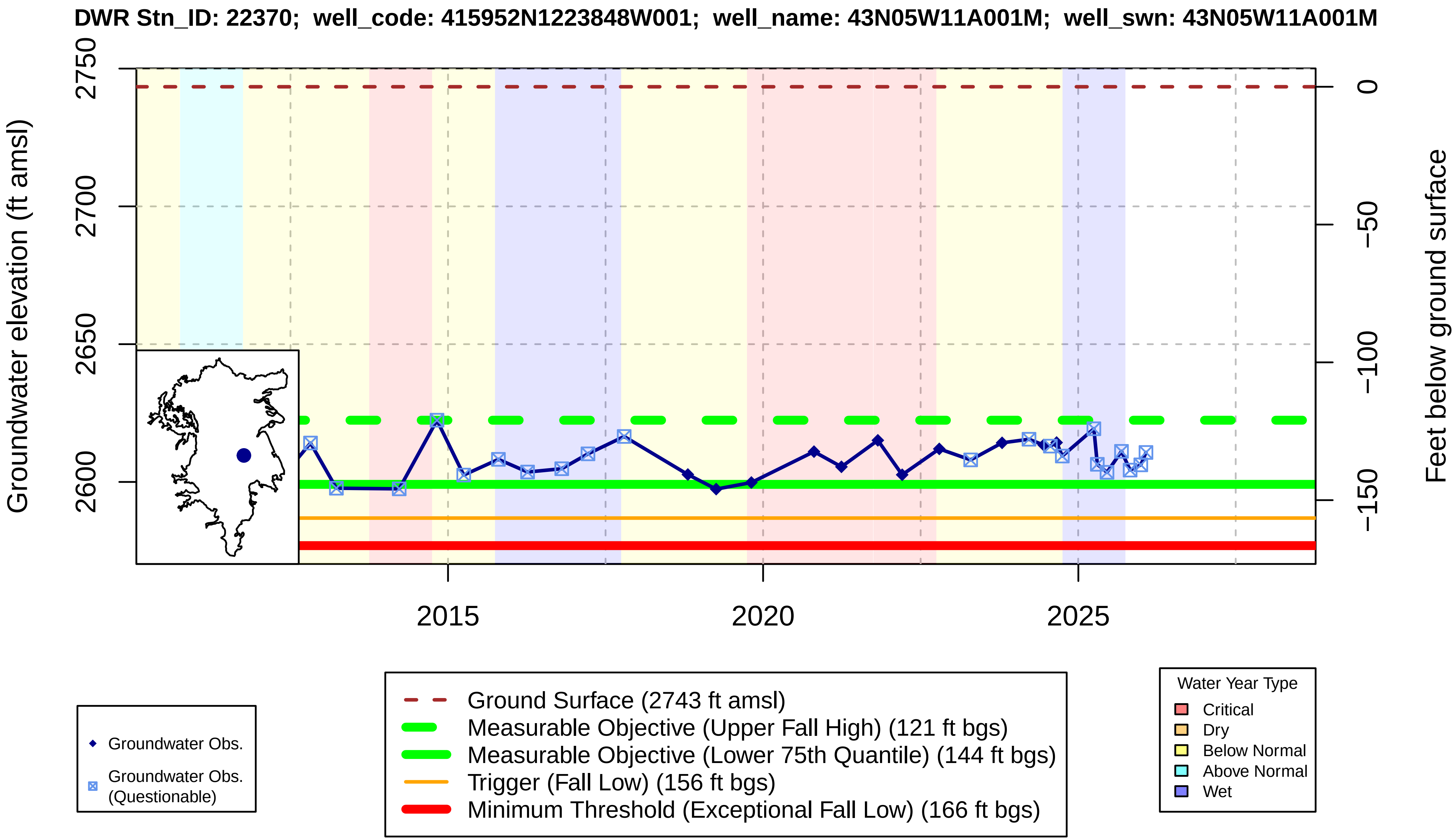
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.



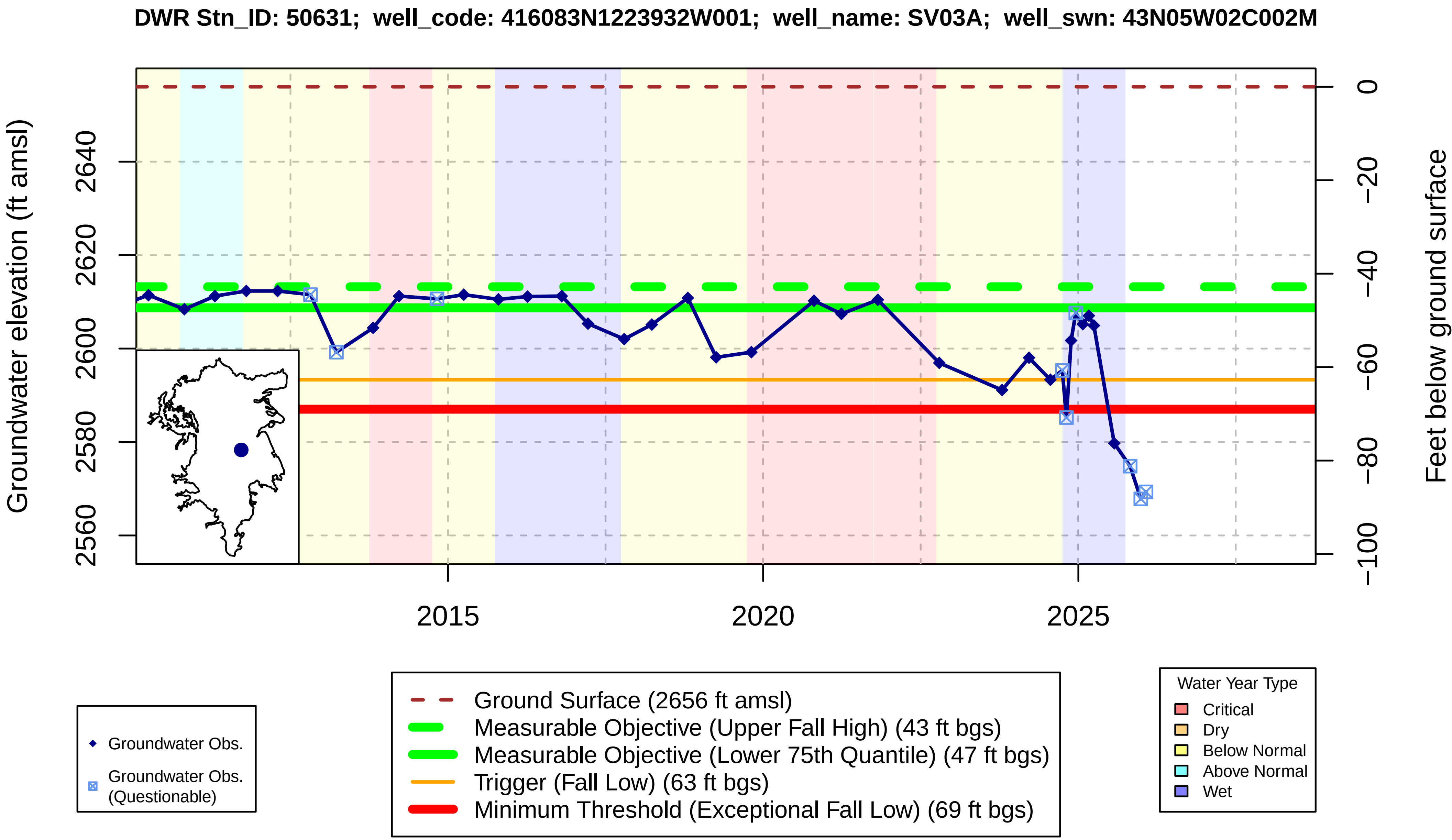
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.



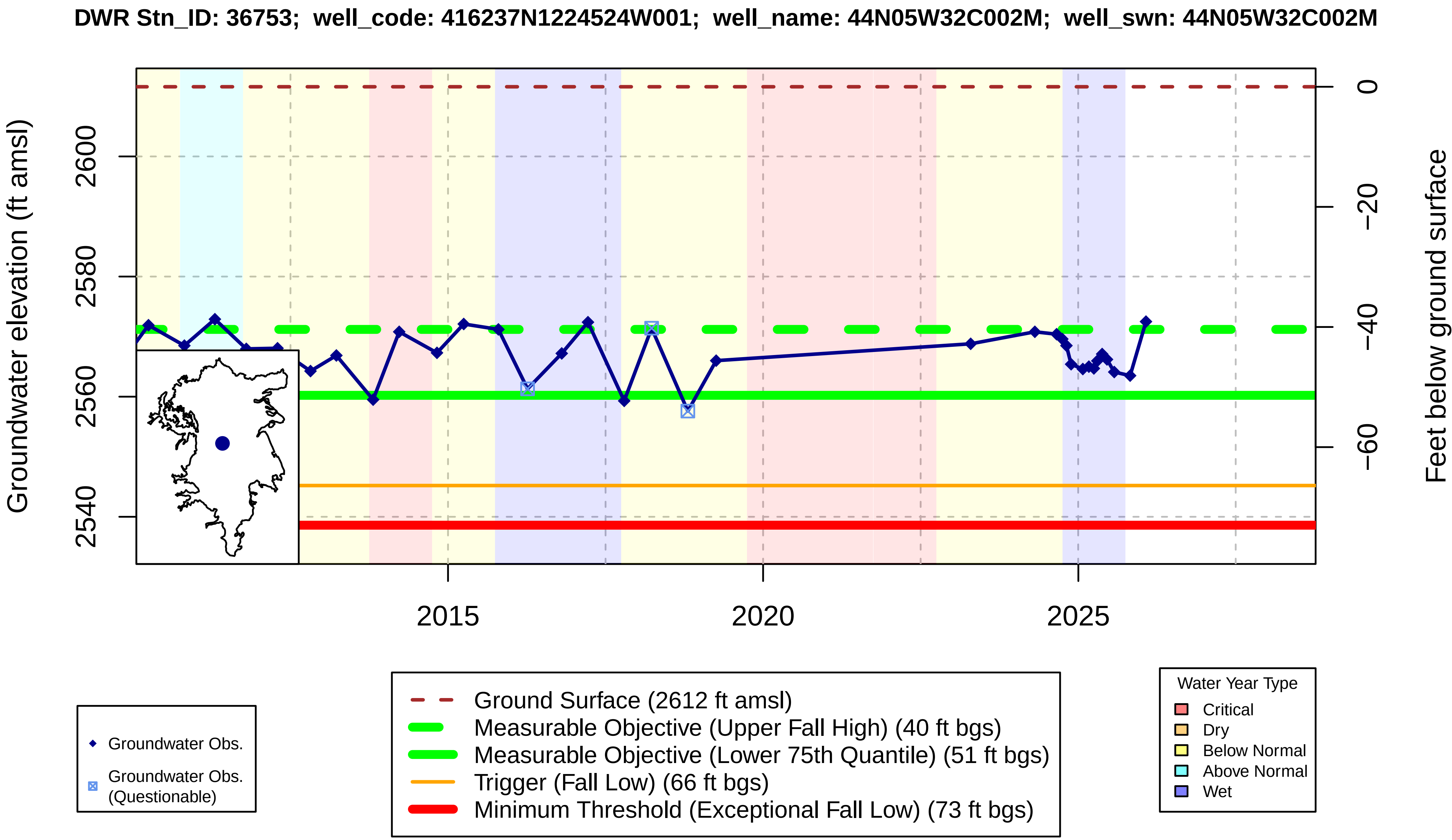
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.



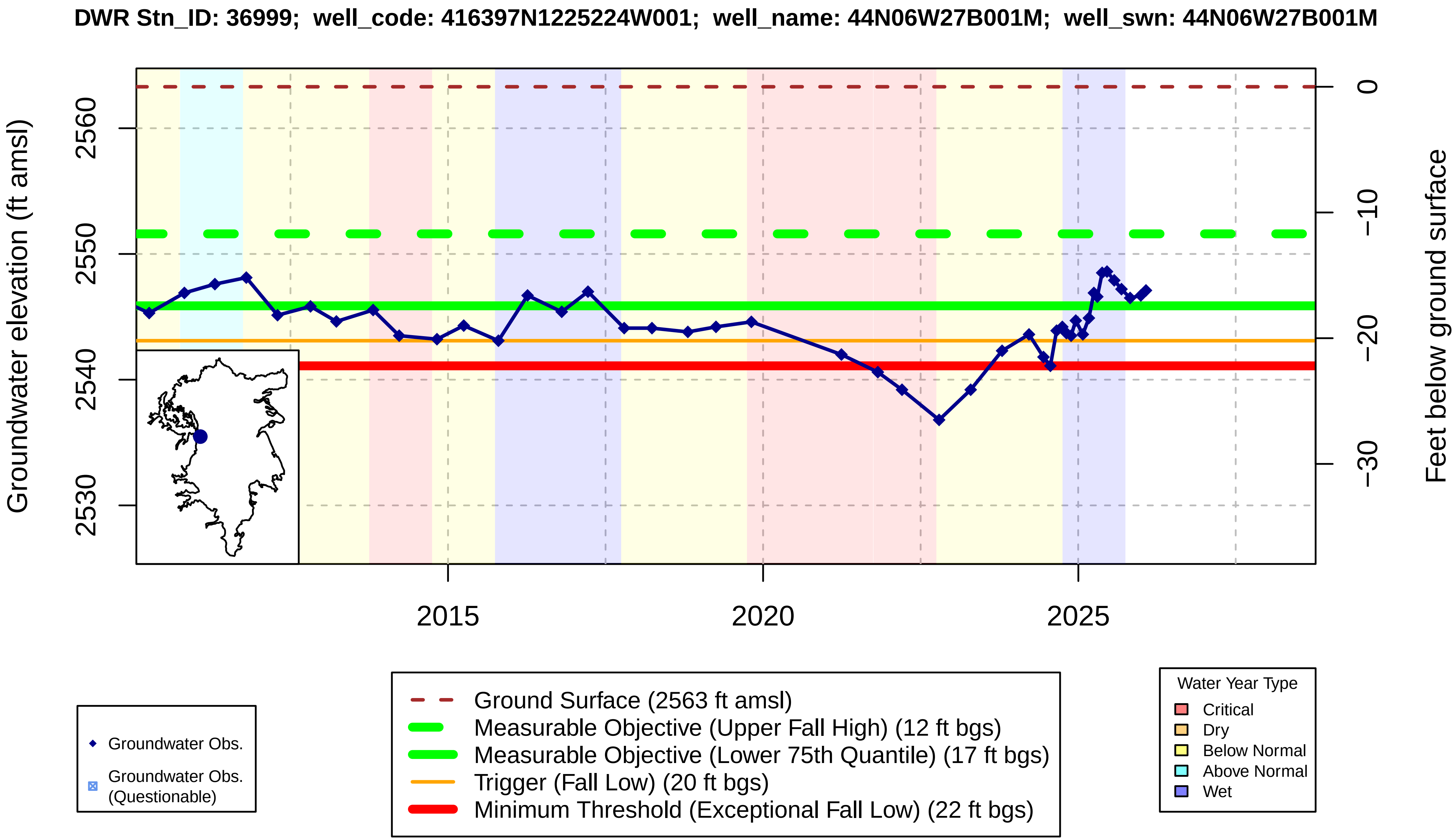
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.



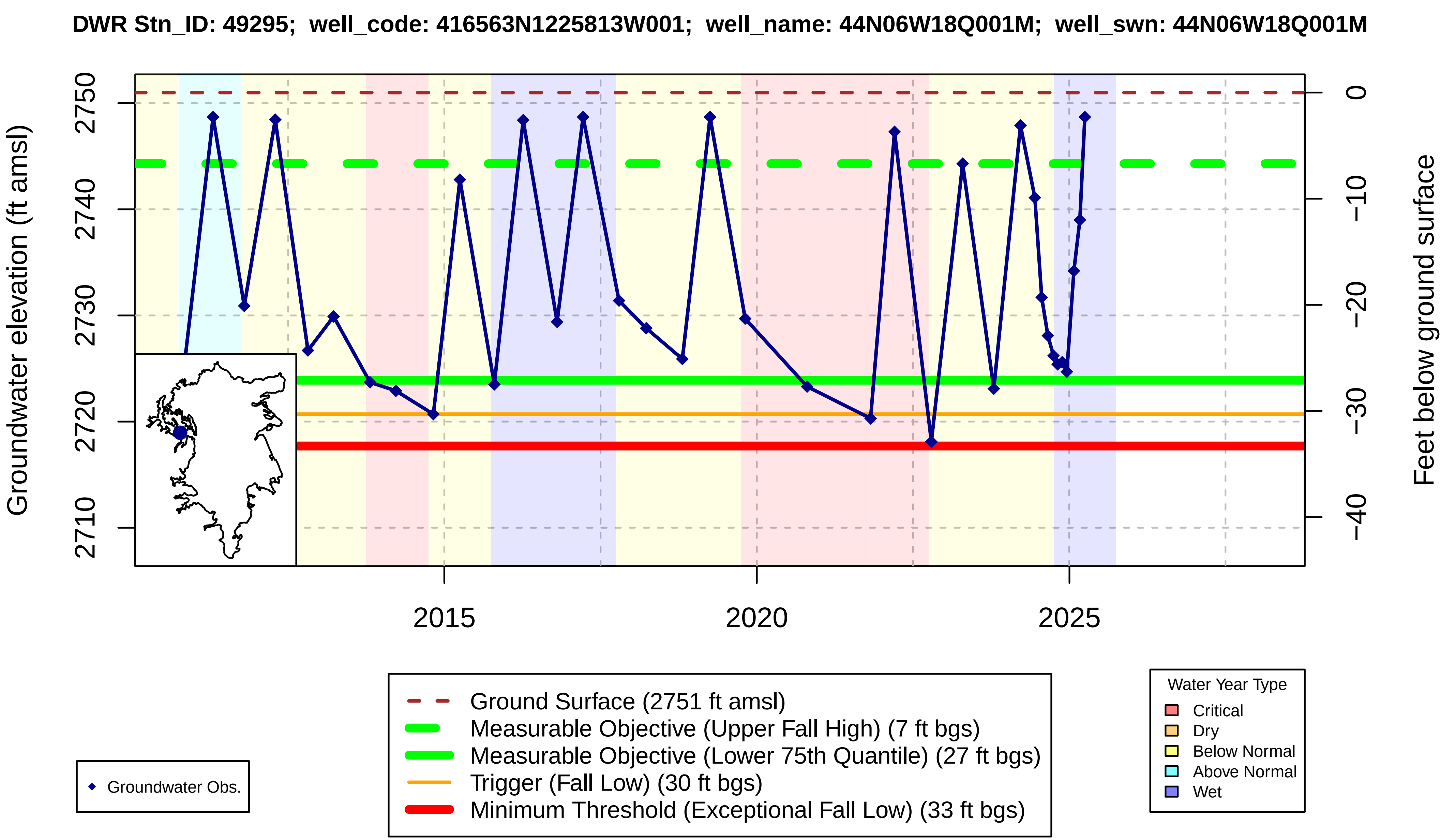
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.



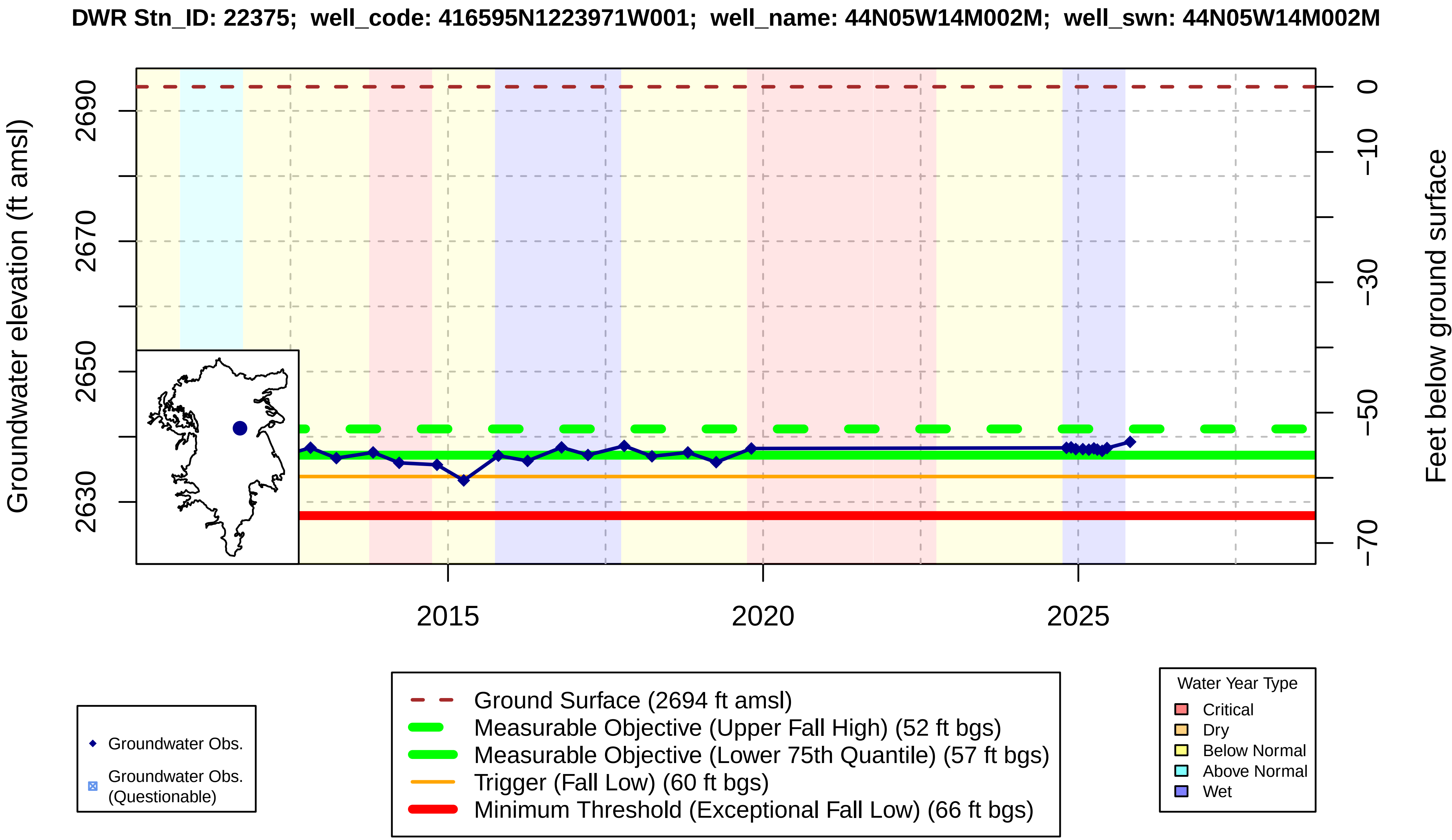
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.



Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.

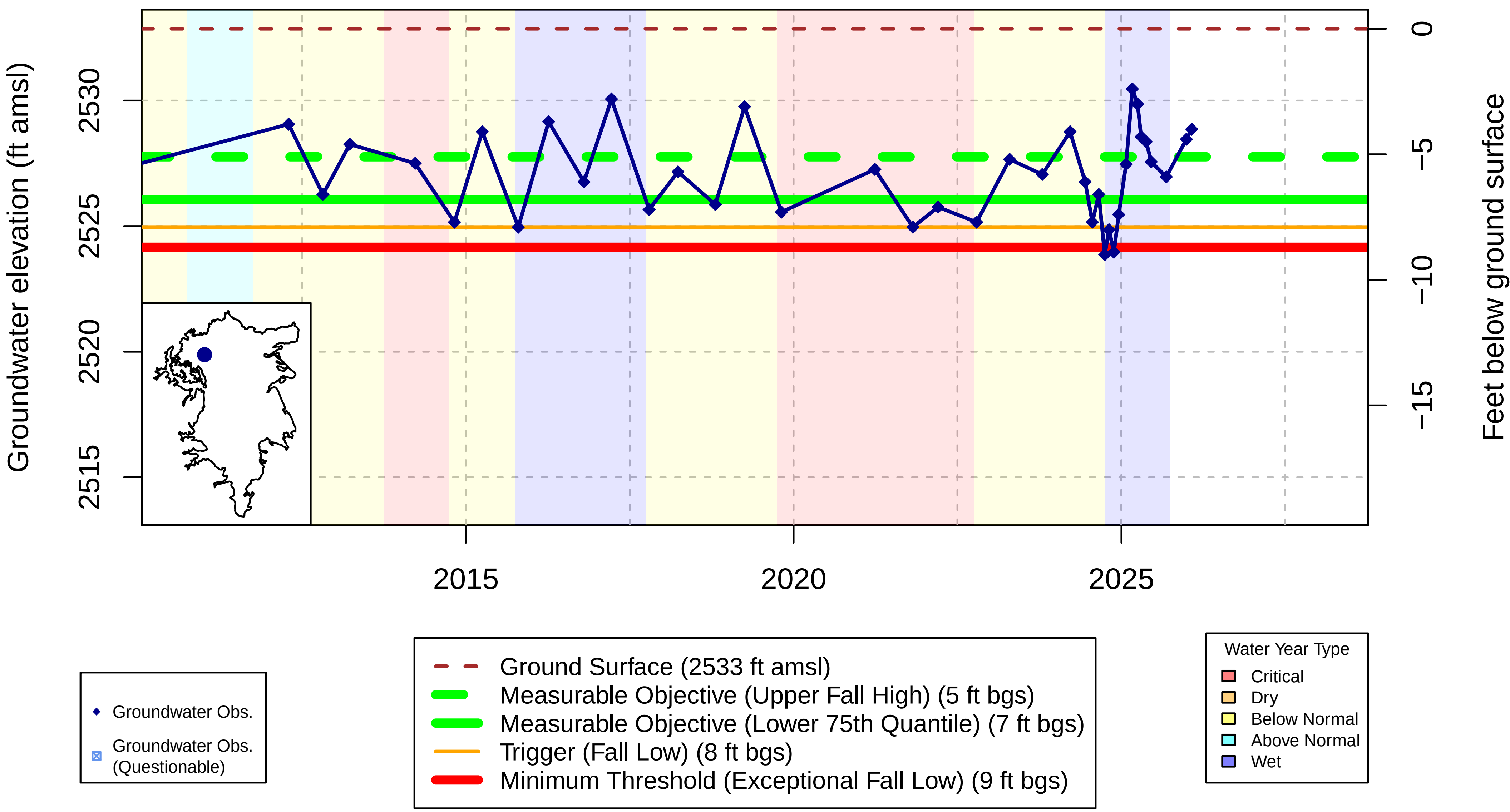


Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.

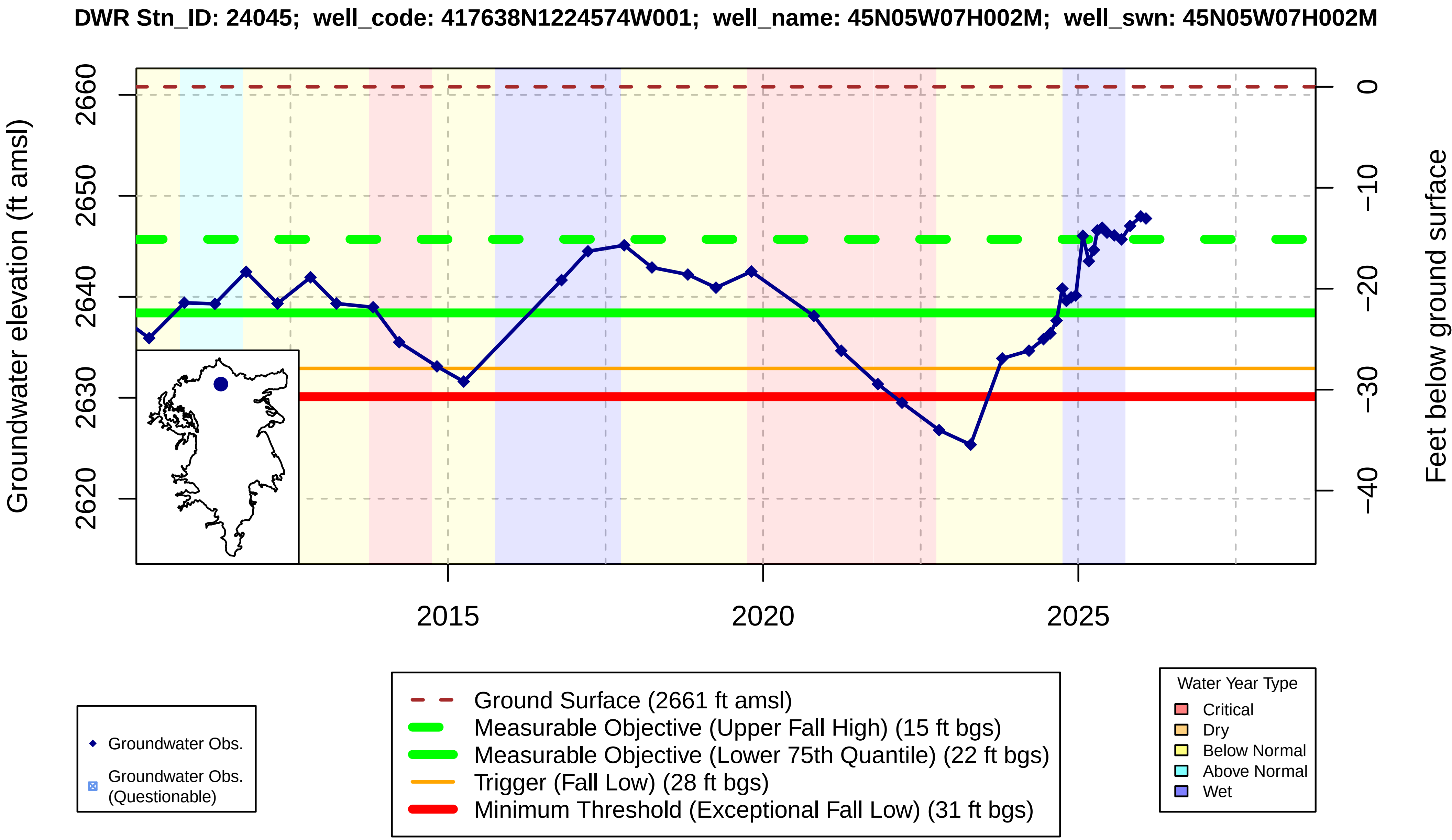


Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.

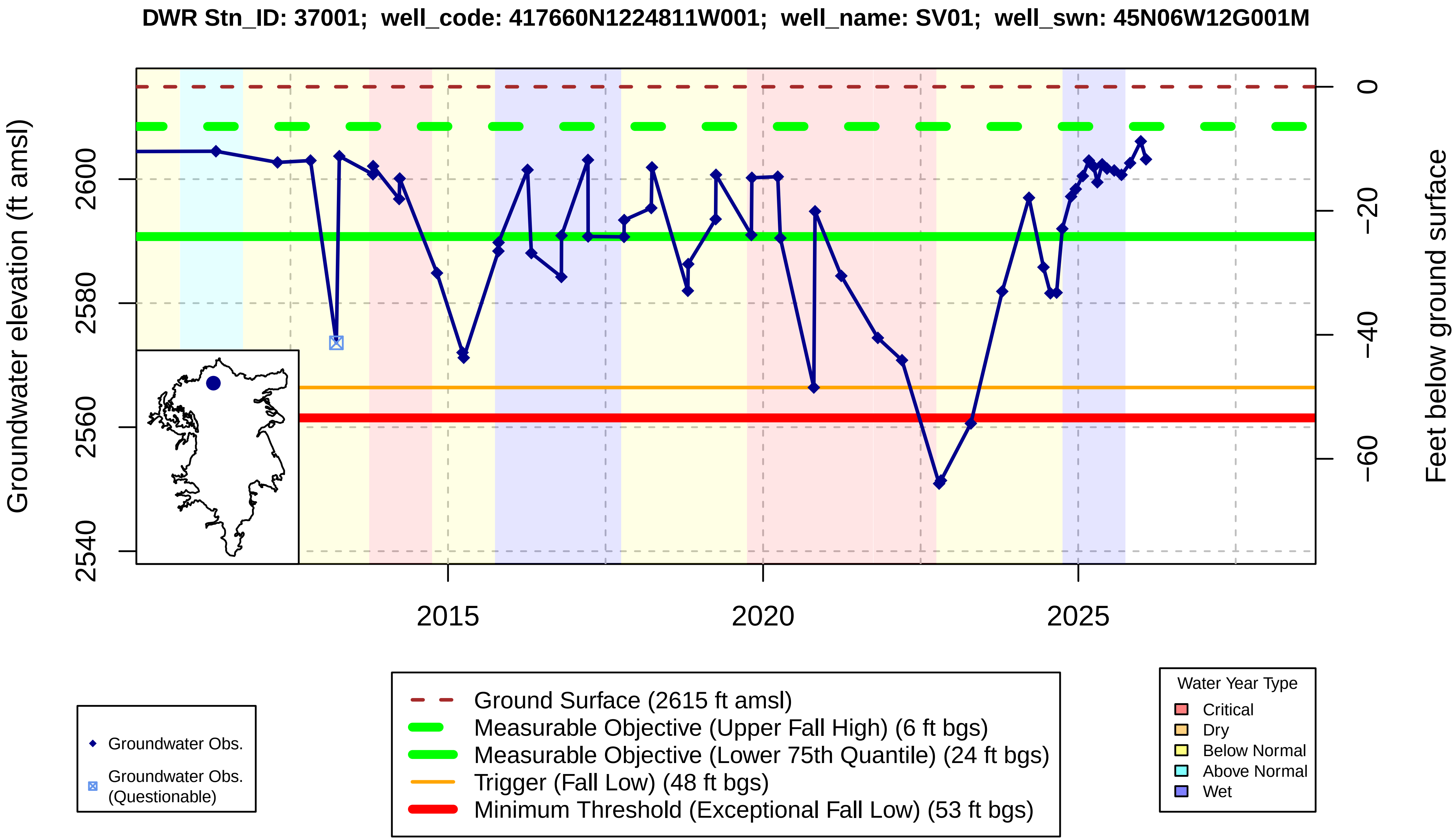
DWR Stn_ID: 24067; well_code: 417258N1225337W001; well_name: 27D002M; well_swn: 45N06W27D002M



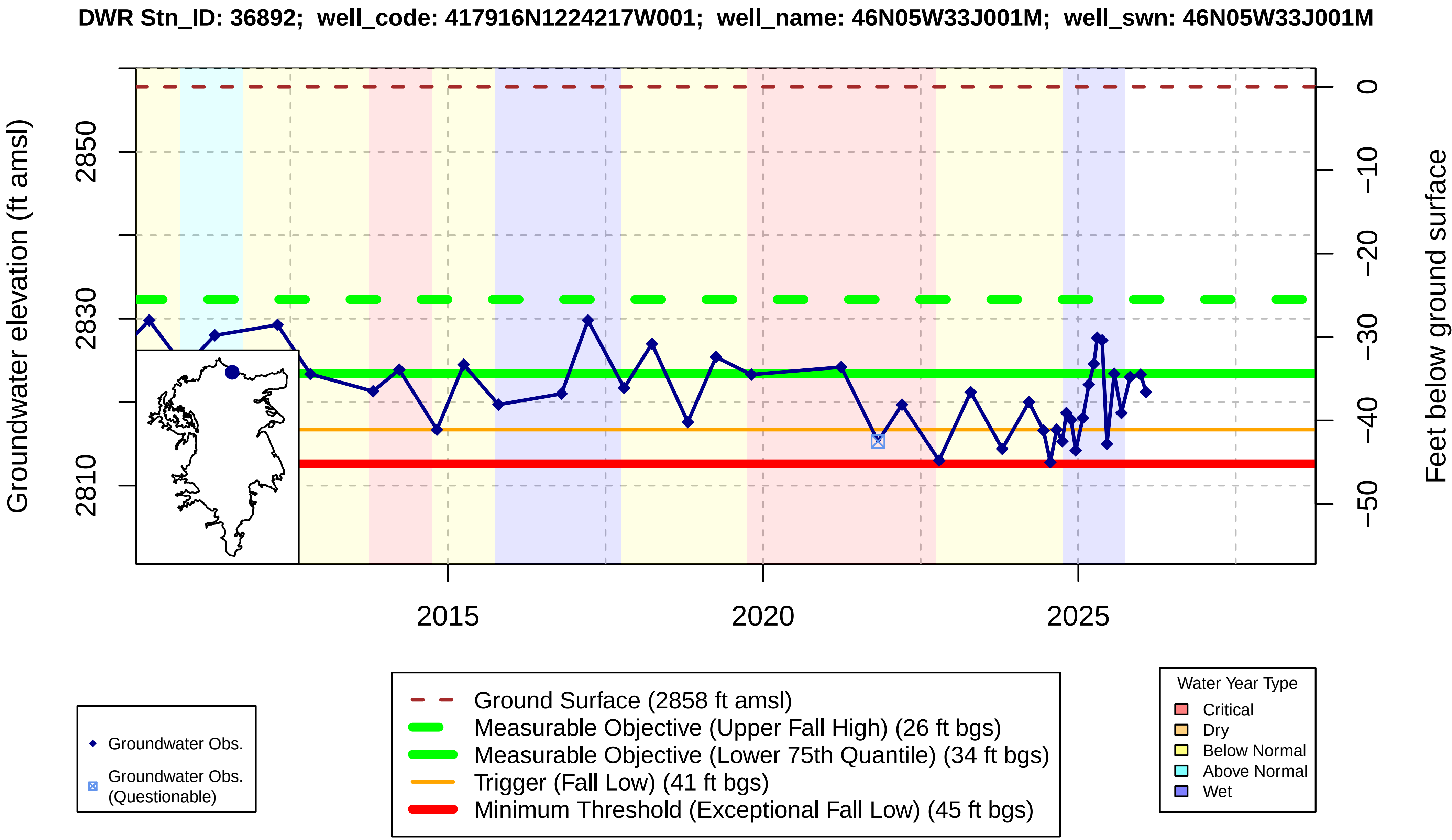
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.



Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

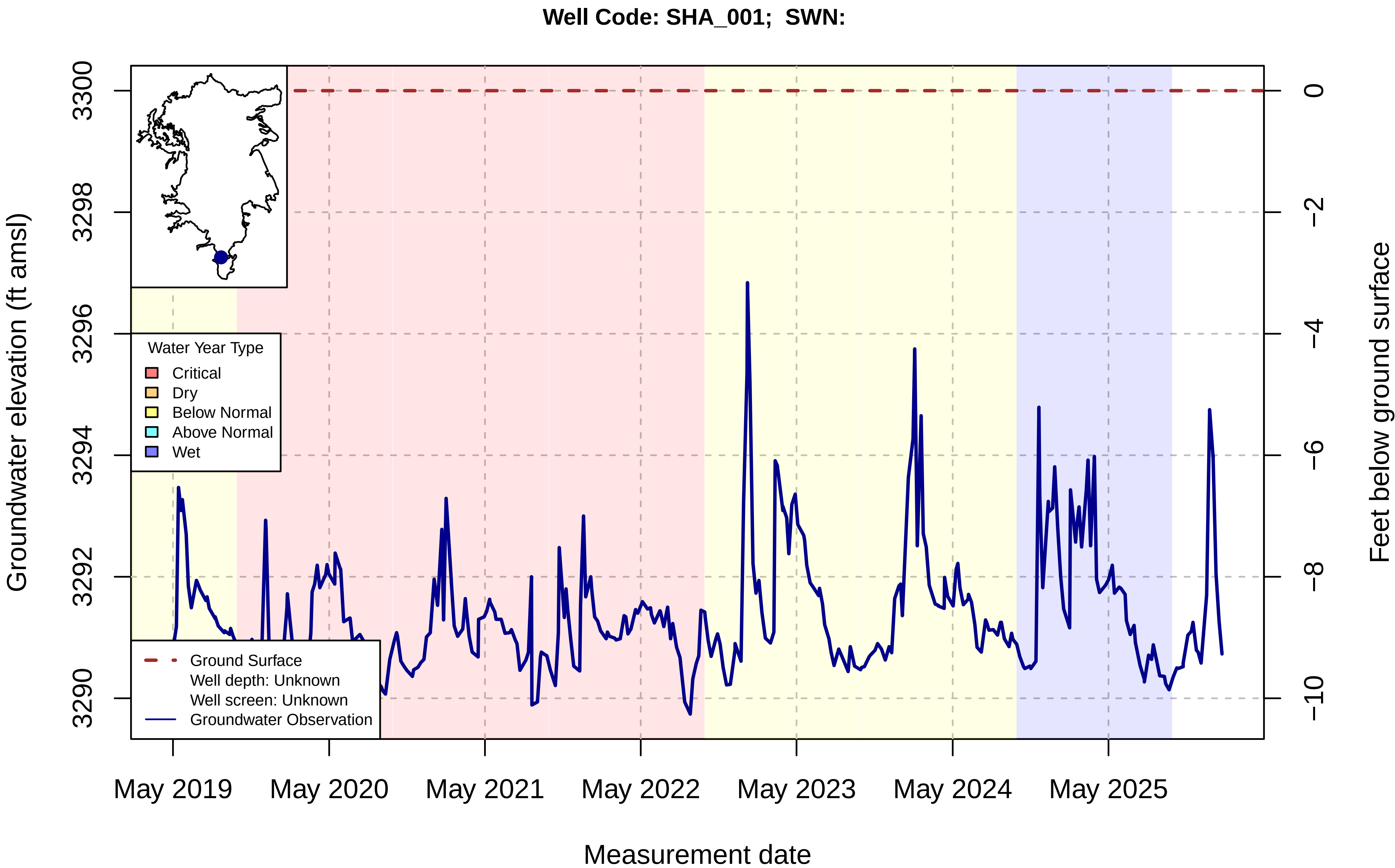


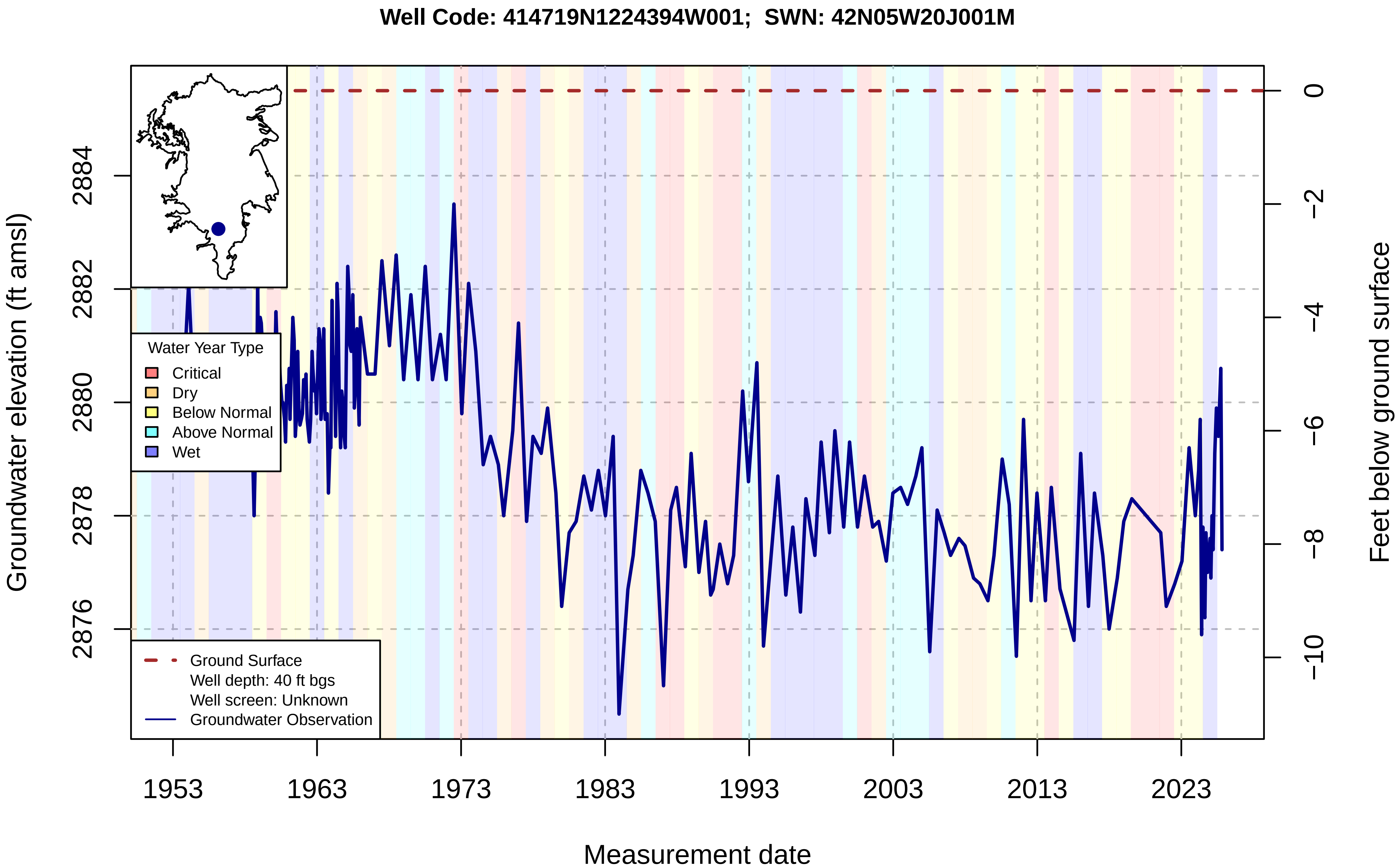
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.



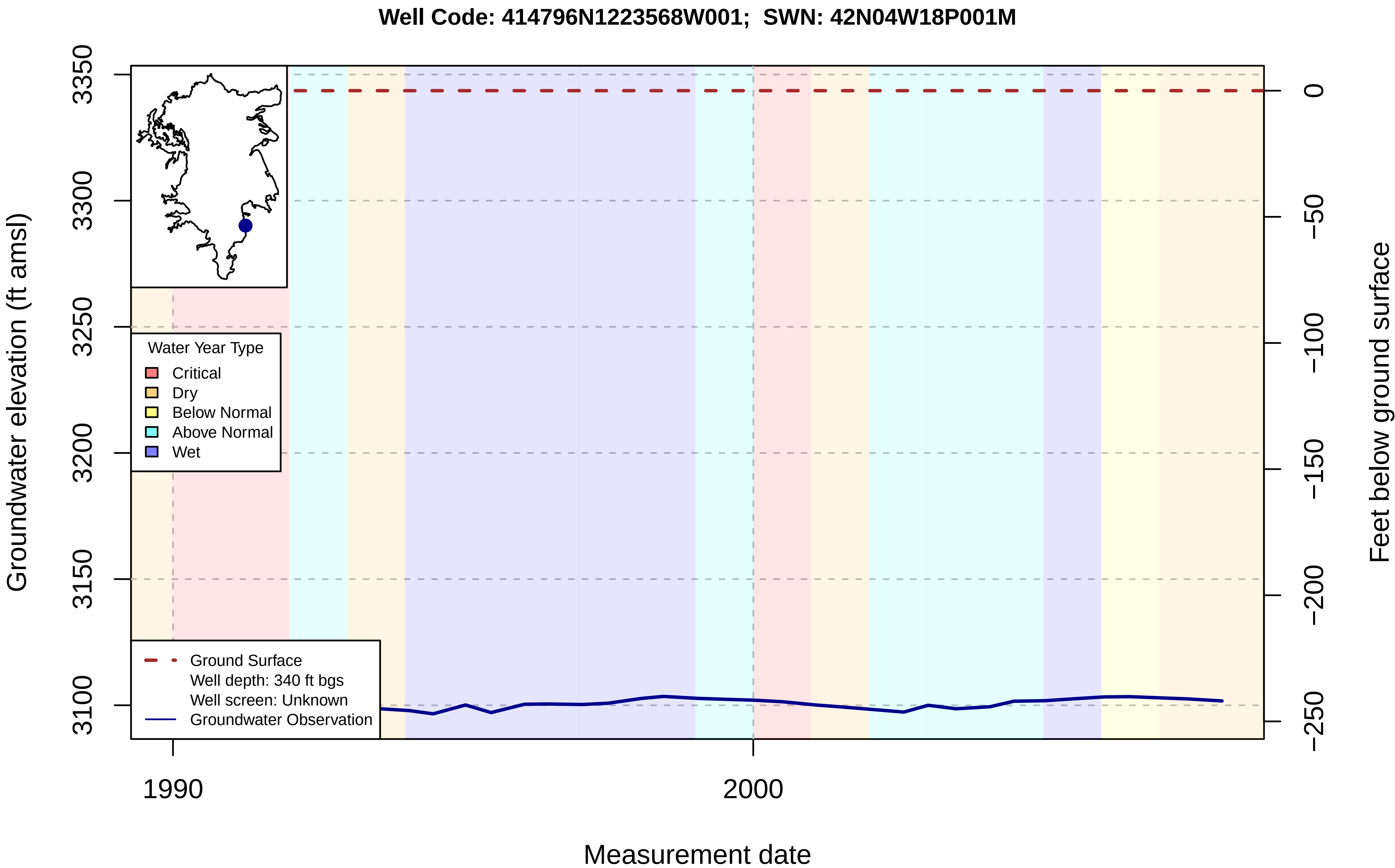
Water Year Types from WY 2019−2025 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report.
The results will be finalized once DWR updates the water year type dataset for these years.

Appendix A.2 - Water Level GSP Monitoring Network Hydrographs

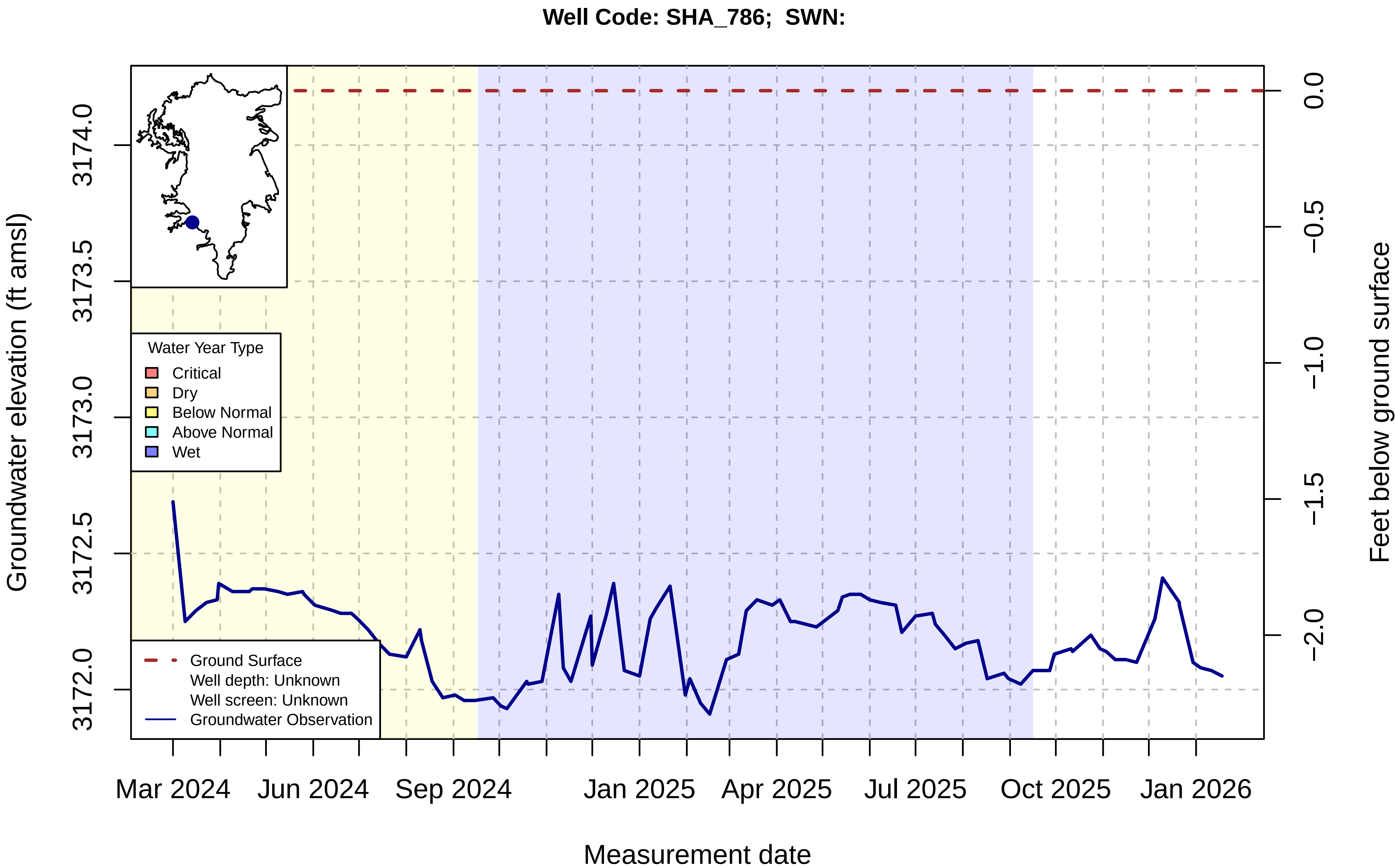

Well Code: SHA_001; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
3290
3292
3294
3296
3298
3300
0
−2
−4
−6
−8
−10
May 2019
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation



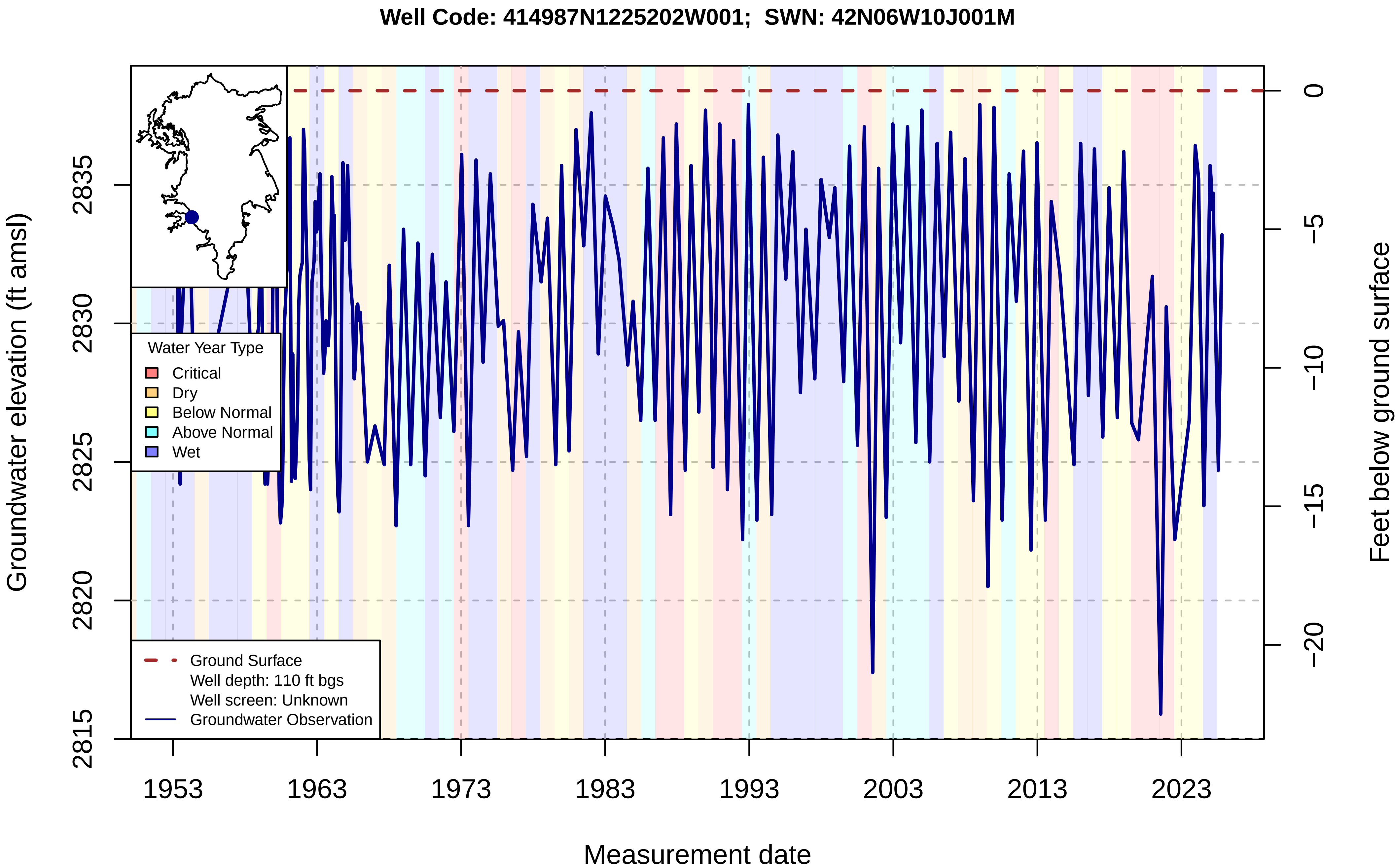
Well Code: 414719N1224394W001; SWN: 42N05W20J001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2876
2878
2880
2882
2884
0
−2
−4
−6
−8
−10
1953
1963
1973
1983
1993
2003
2013
2023
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 40 ft bgs
Well screen: Unknown
Groundwater Observation



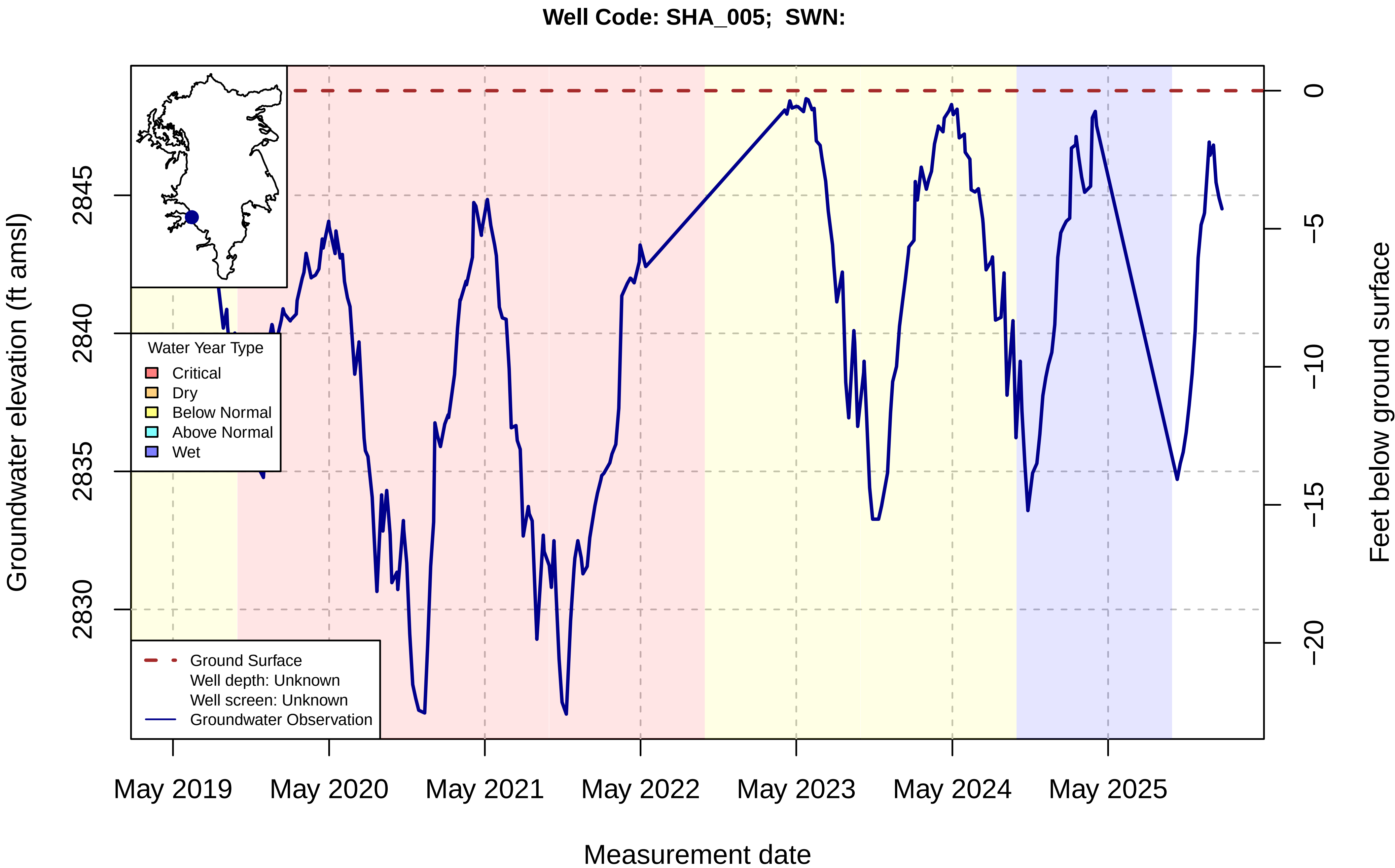
Well Code: 414796N1223568W001; SWN: 42N04W18P001M
Groundwater elevation (ft amsl)
3350
3300
3250
3200
3150
3100
Feet below ground surface
0
−50
−100
−150
−200
−250
1990
2000
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 340 ft bgs
Well screen: Unknown
Groundwater Observation

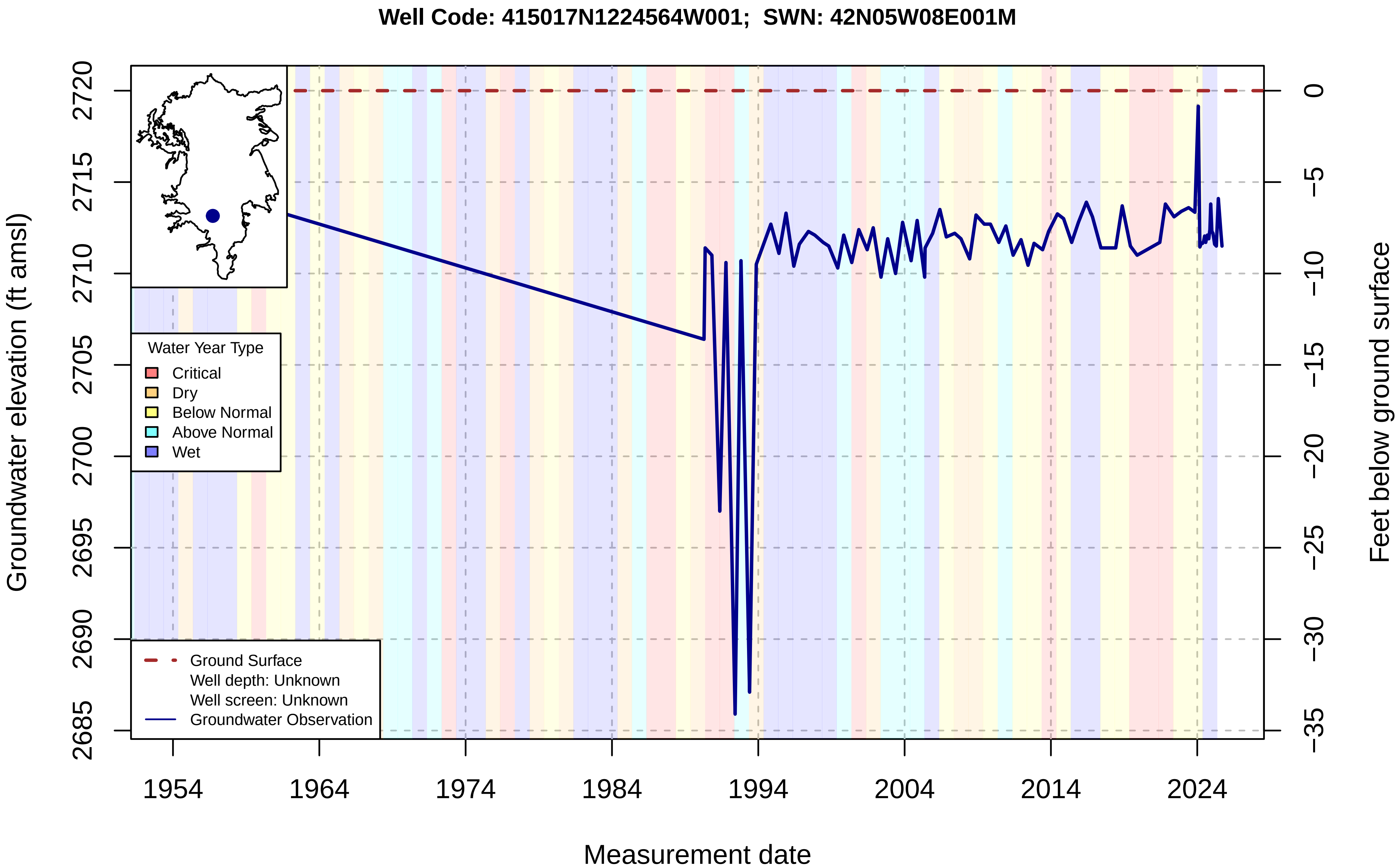


Well Code: SHA_786; SWN:
Groundwater elevation (ft amsl)
3174.0
3173.5
3173.0
3172.5
3172.0
Feet below ground surface
0.0
−0.5
−1.0
−1.5
−2.0
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
Mar 2024
Jun 2024
Sep 2024
Jan 2025
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Measurement date

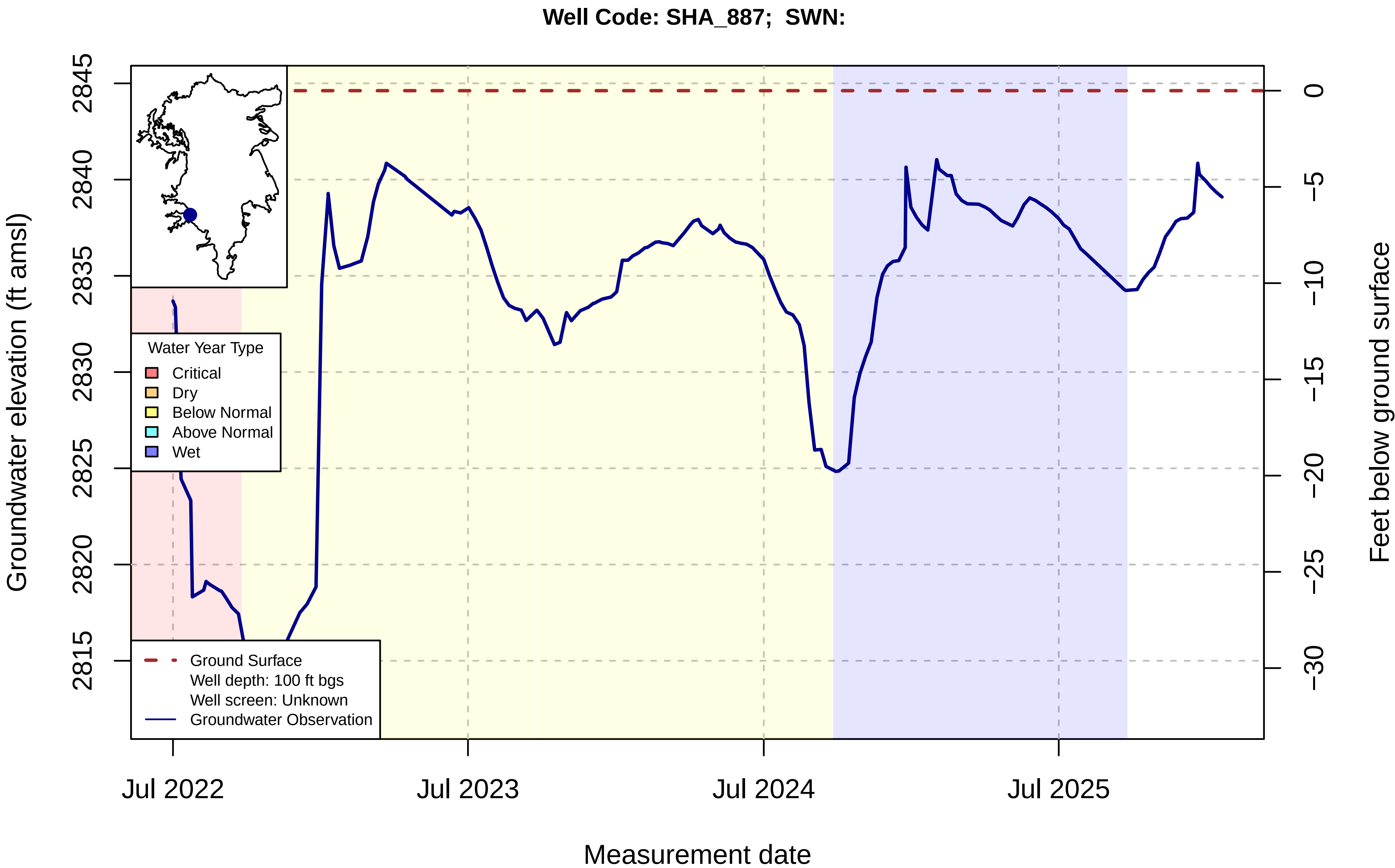


Well Code: 414987N1225202W001; SWN: 42N06W10J001M
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 110 ft bgs
Well screen: Unknown
Groundwater Observation
Groundwater elevation (ft amsl)
2815
2820
2825
2830
2835
Feet below ground surface
0
−5
−10
−15
−20
1953
1963
1973
1983
1993
2003
2013
2023
Measurement date

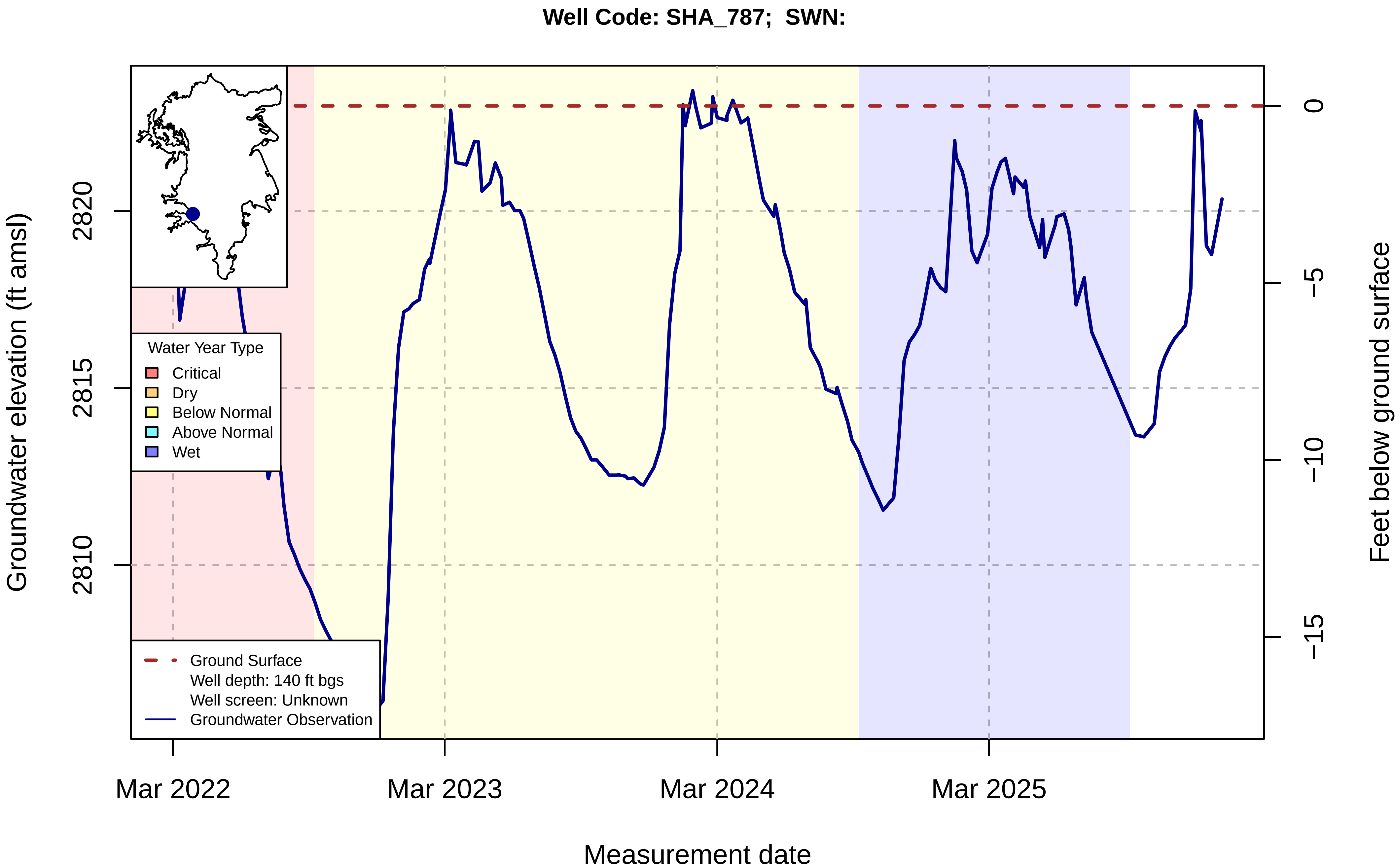

Well Code: SHA_005; SWN:
Groundwater elevation (ft amsl)
2830
2835
2840
2845
Feet below ground surface
0
−5
−10
−15
−20
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
May 2019
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Measurement date



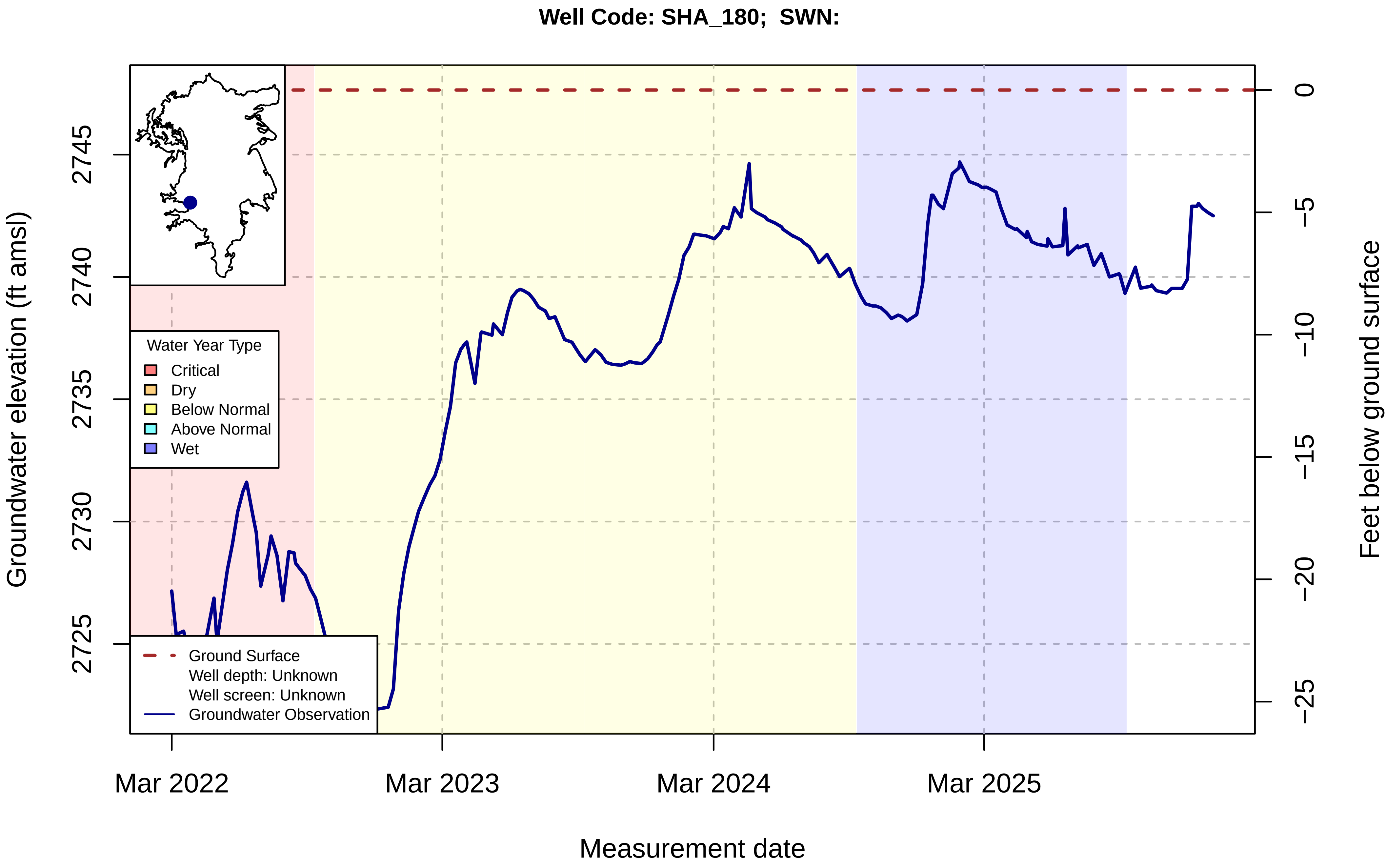
Well Code: 415017N1224564W001; SWN: 42N05W08E001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2720
2715
2710
2705
2700
2695
2690
2685
0
−5
−10
−15
−20
−25
−30
−35
1954
1964
1974
1984
1994
2004
2014
2024
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation

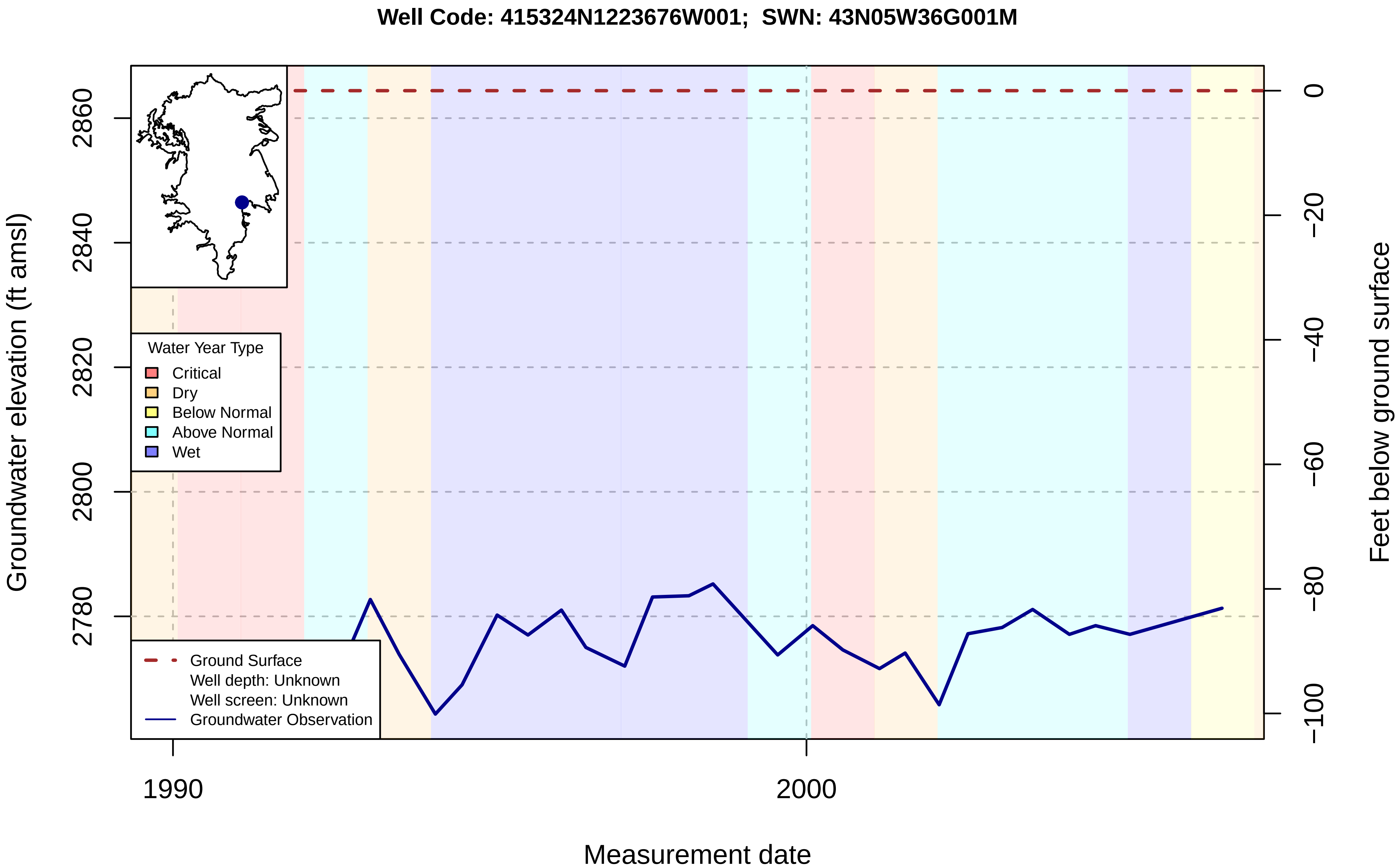


Well Code: SHA_887; SWN:
Groundwater elevation (ft amsl)
2845
2840
2835
2830
2825
2820
2815
Feet below ground surface
0
−5
−10
−15
−20
−25
−30
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 100 ft bgs
Well screen: Unknown
Groundwater Observation
Jul 2022
Jul 2023
Jul 2024
Jul 2025
Measurement date

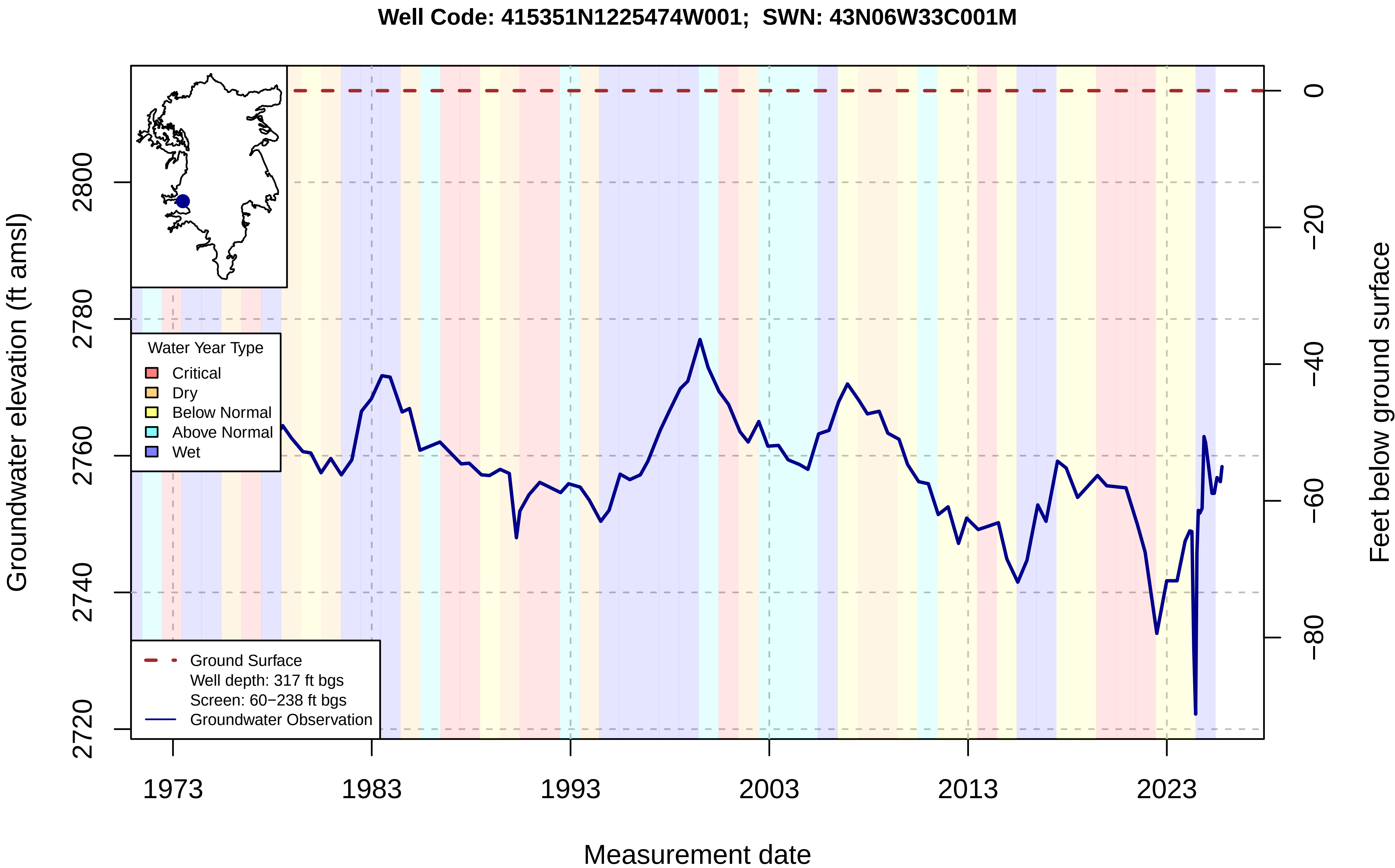


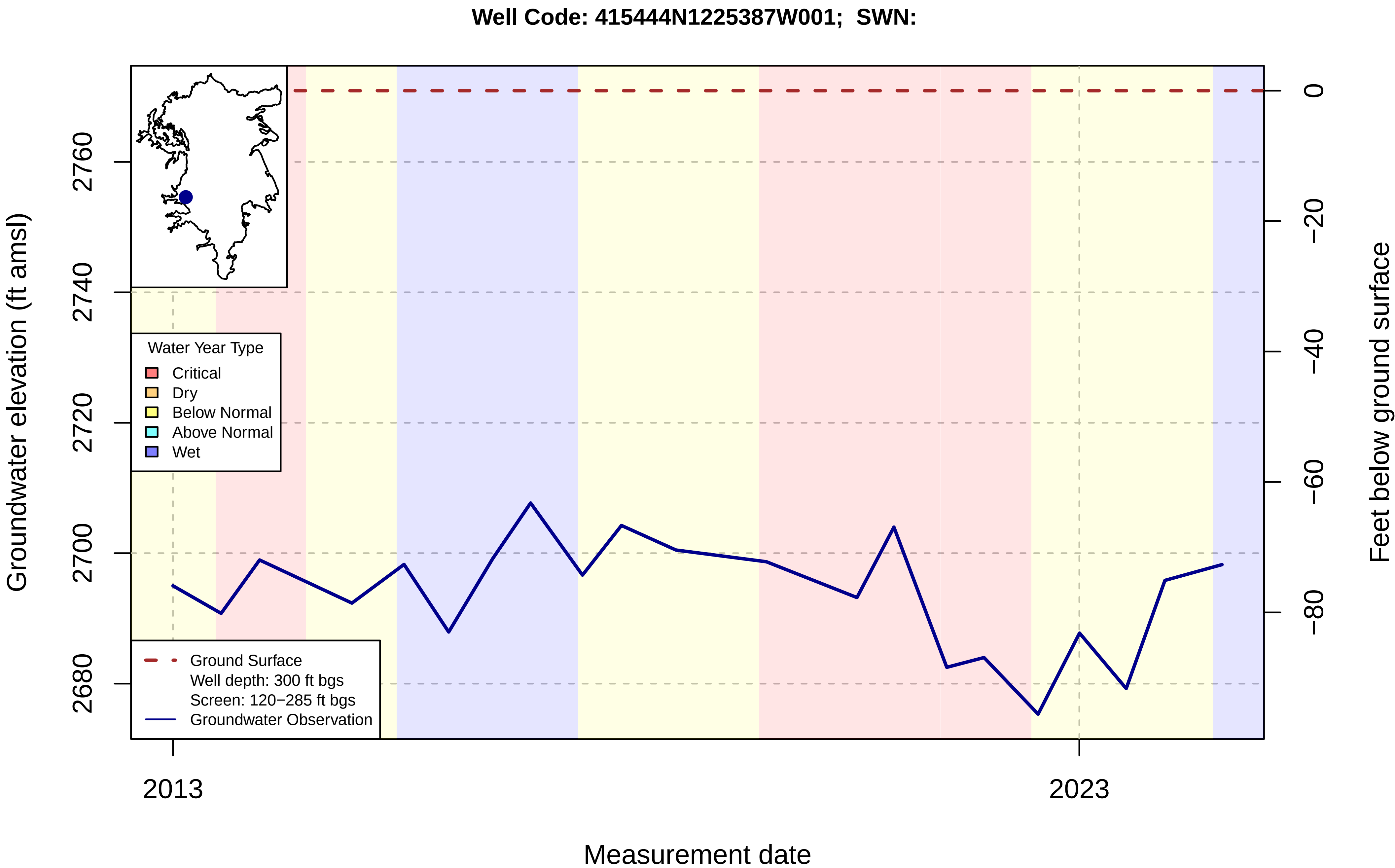
Well Code: SHA_787; SWN:
Groundwater elevation (ft amsl)
2810
2815
2820
Feet below ground surface
0
−5
−10
−15
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 140 ft bgs
Well screen: Unknown
Groundwater Observation
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Measurement date

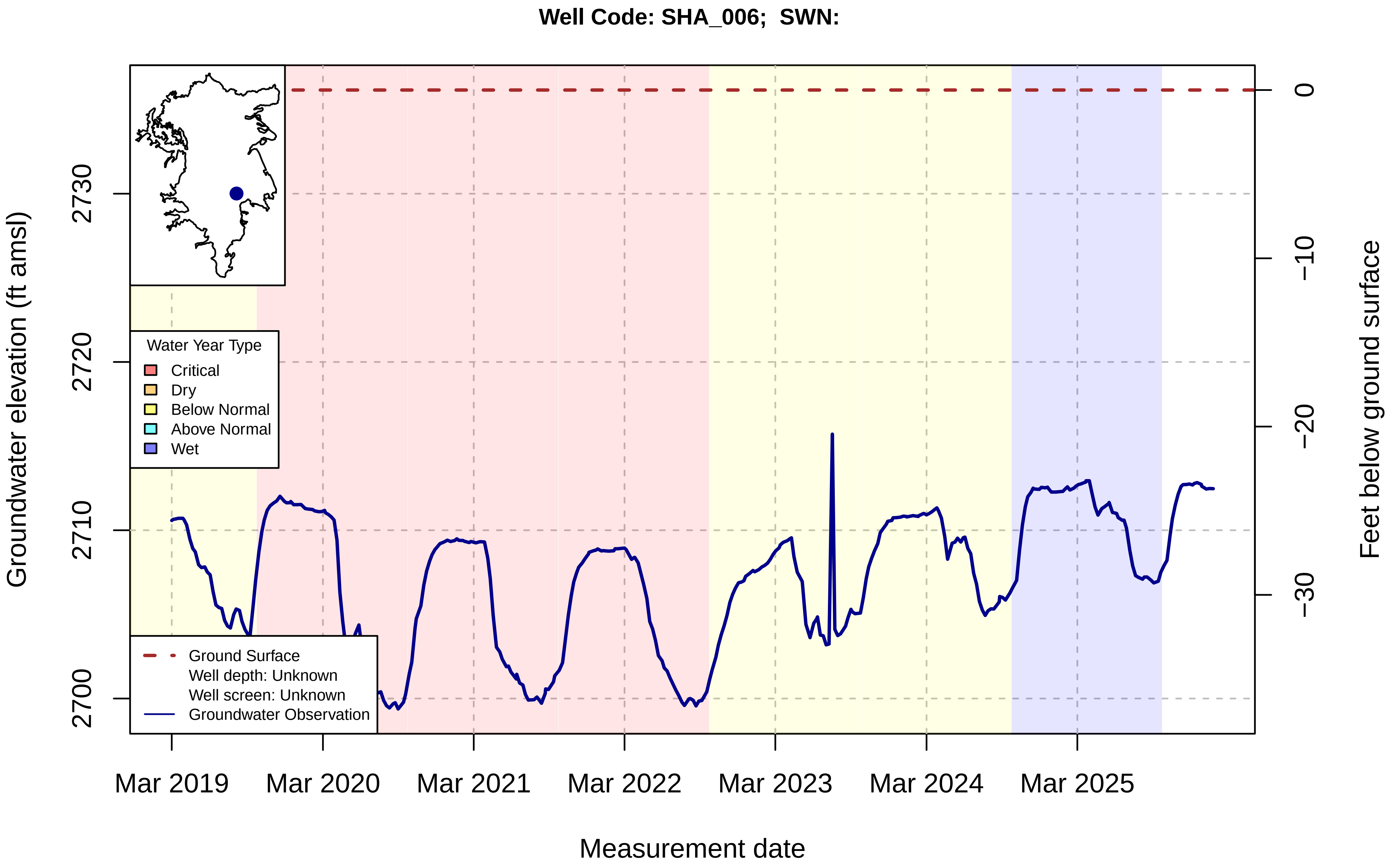

Well Code: SHA_180; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2725
2730
2735
2740
2745
0
−5
−10
−15
−20
−25
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation



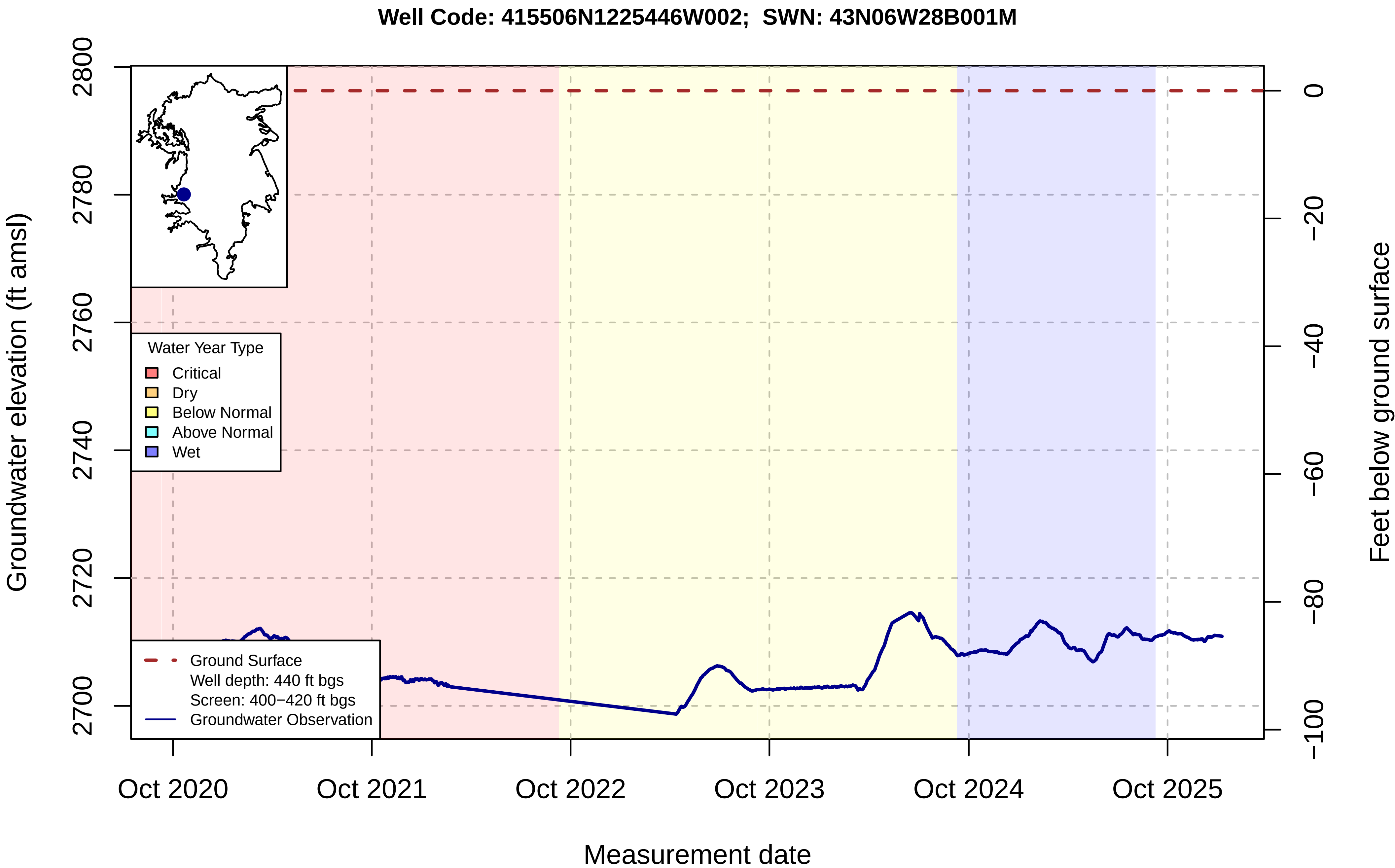
Well Code: 415324N1223676W001; SWN: 43N05W36G001M
Groundwater elevation (ft amsl)
2860
2840
2820
2800
2780
Feet below ground surface
0
−20
−40
−60
−80
−100
1990
2000
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation


Well Code: 415351N1225474W001; SWN: 43N06W33C001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2720
2740
2760
2780
2800
0
−20
−40
−60
−80
1973
1983
1993
2003
2013
2023
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 317 ft bgs
Screen: 60−238 ft bgs
Groundwater Observation

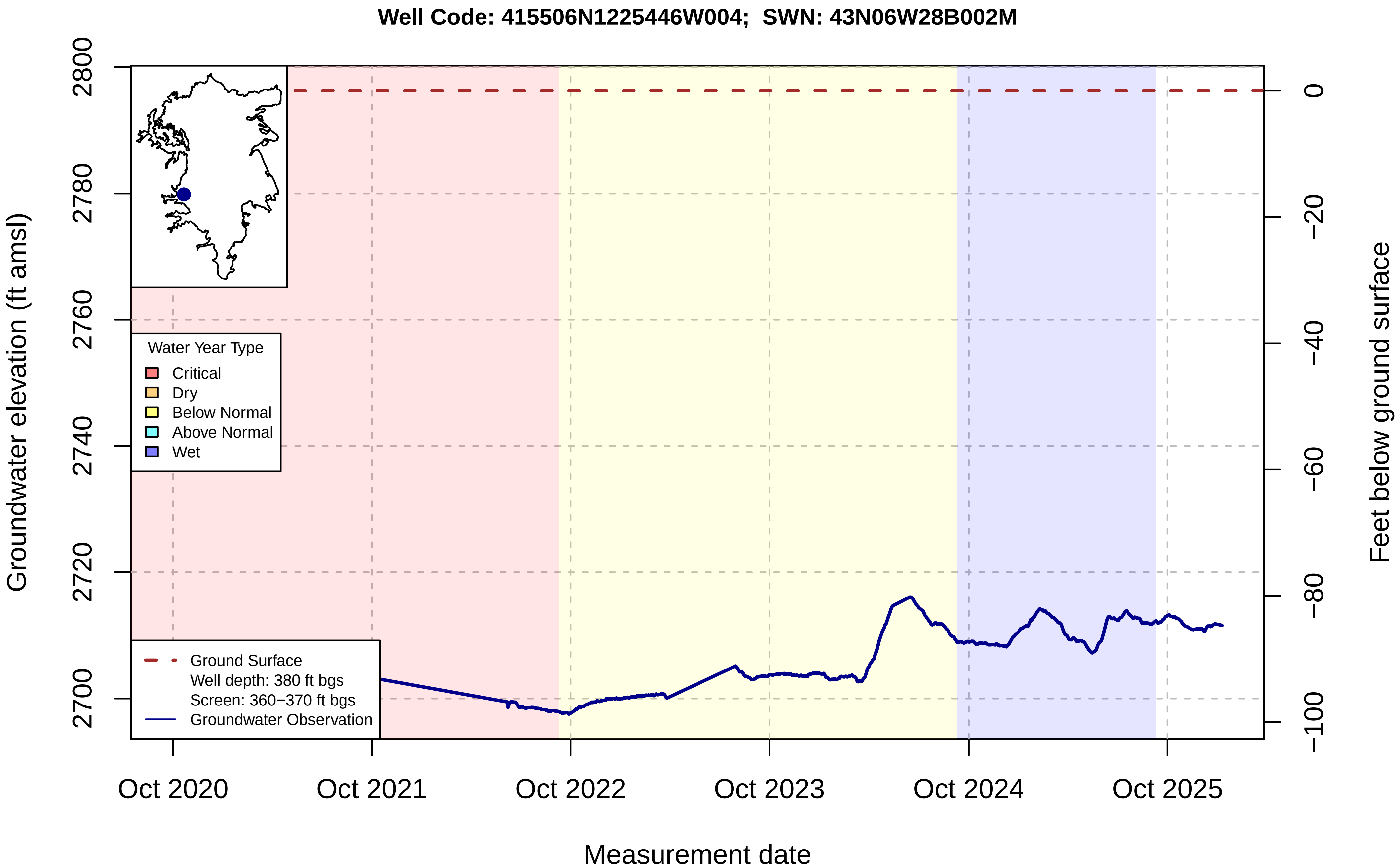

Well Code: 415444N1225387W001; SWN:
Groundwater elevation (ft amsl)
2680
2700
2720
2740
2760
Feet below ground surface
0
−20
−40
−60
−80
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 300 ft bgs
Screen: 120−285 ft bgs
Groundwater Observation
2013
2023
Measurement date

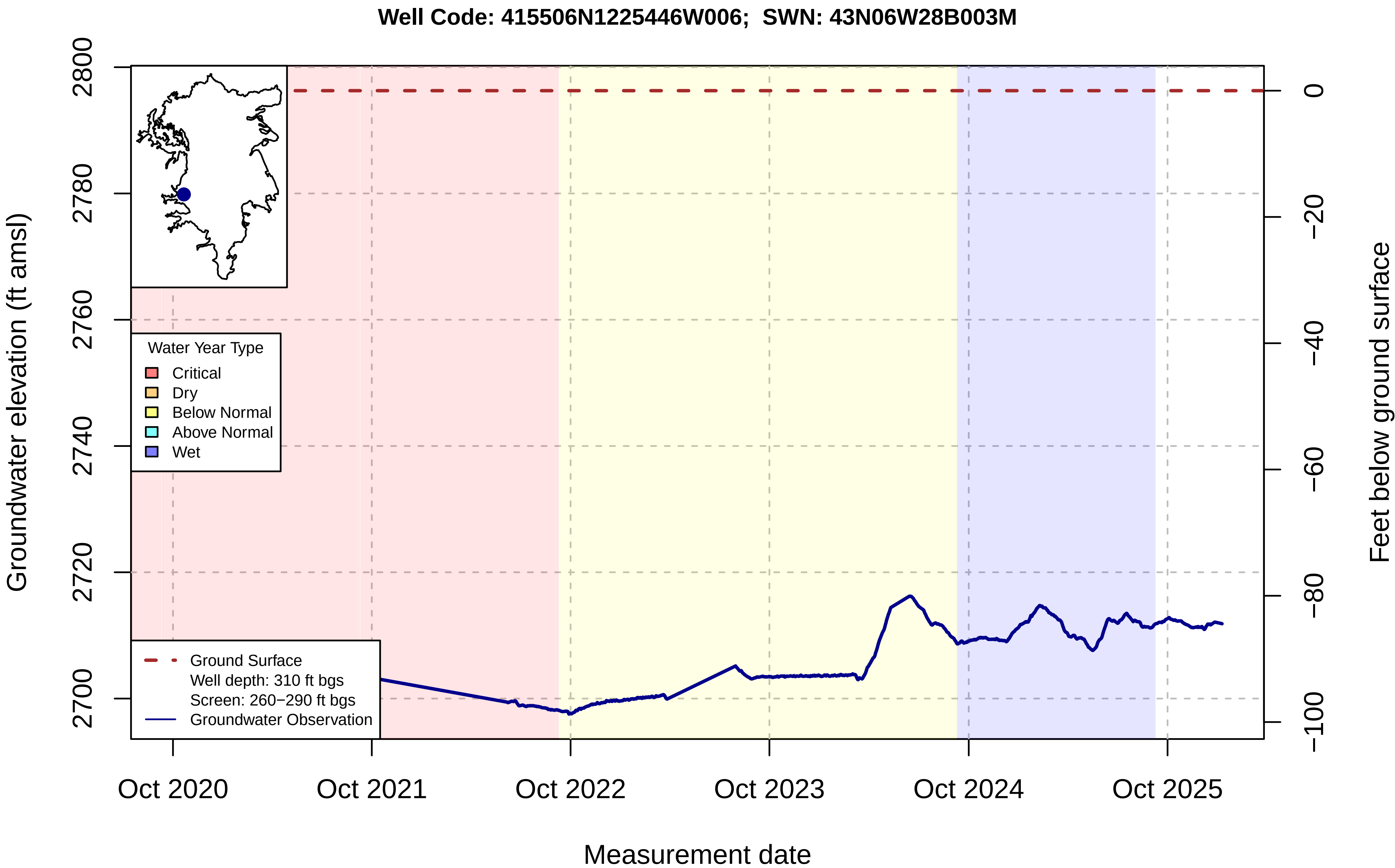


Well Code: SHA_006; SWN:
Groundwater elevation (ft amsl)
2700
2710
2720
2730
Feet below ground surface
0
−10
−20
−30
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
Mar 2019
Mar 2020
Mar 2021
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Measurement date

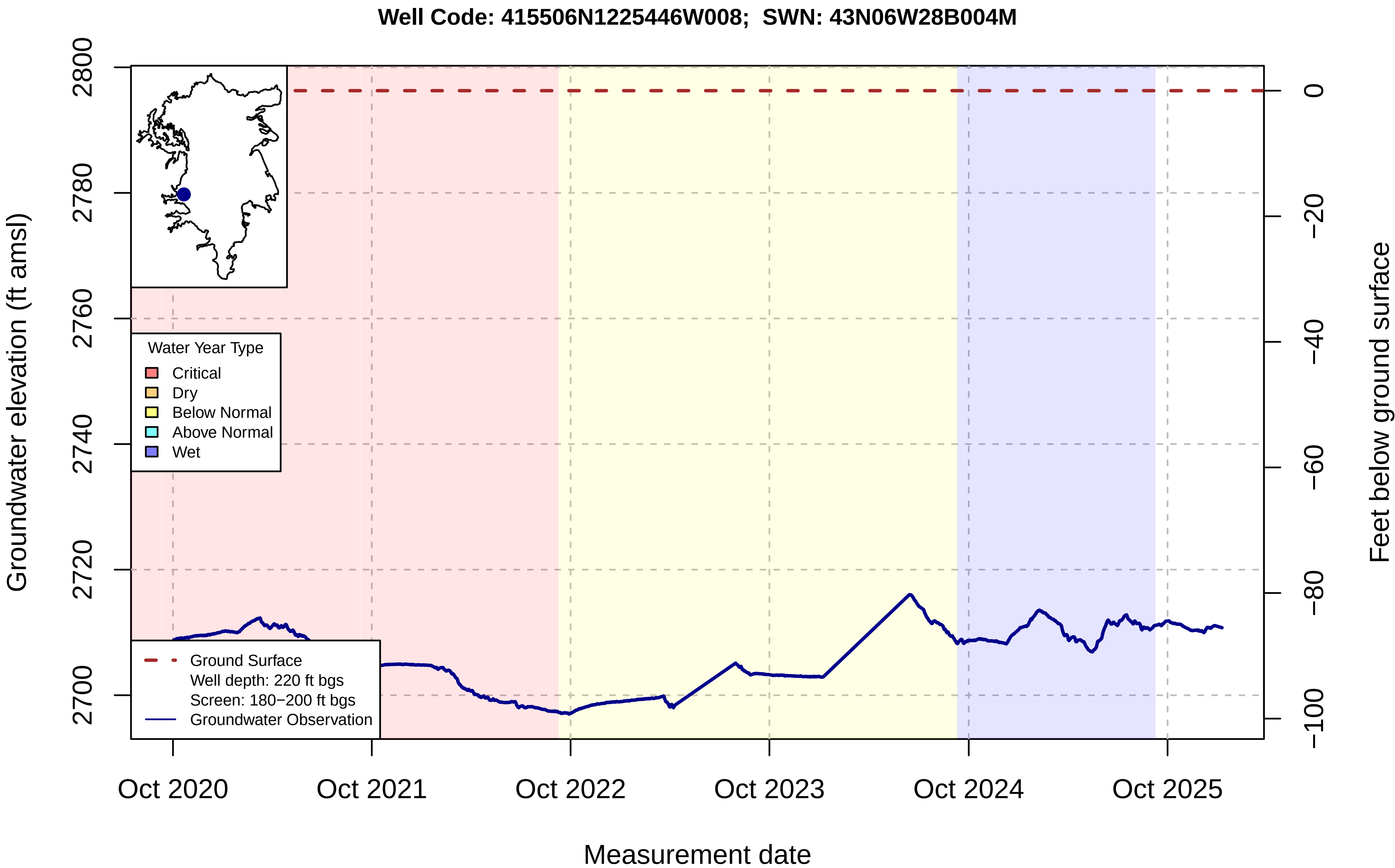


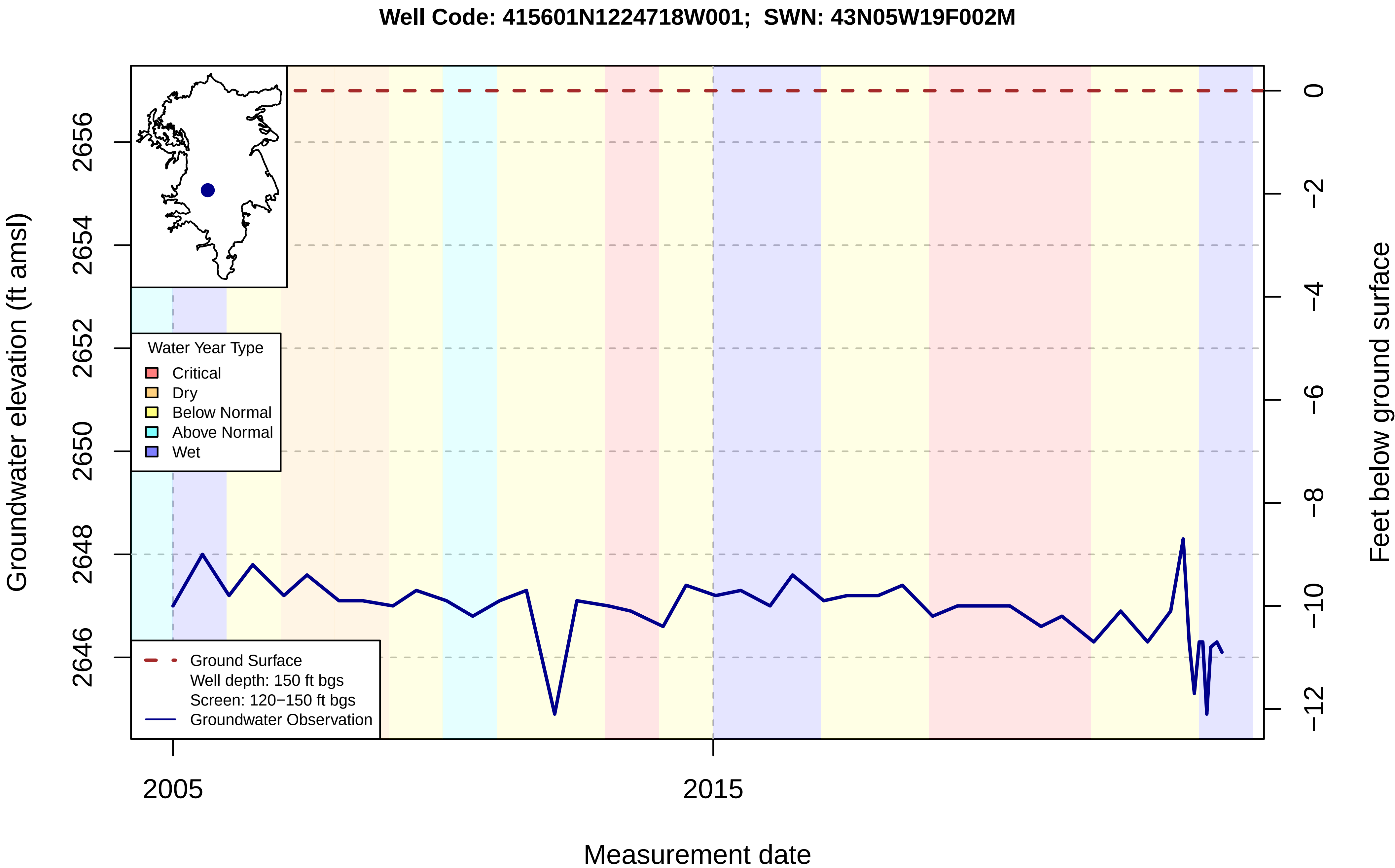
Well Code: 415506N1225446W002; SWN: 43N06W28B001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2700
2720
2740
2760
2780
2800
0
−20
−40
−60
−80
−100
Oct 2020
Oct 2021
Oct 2022
Oct 2023
Oct 2024
Oct 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 440 ft bgs
Screen: 400−420 ft bgs
Groundwater Observation


Well Code: 415506N1225446W004; SWN: 43N06W28B002M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2800
2780
2760
2740
2720
2700
0
−20
−40
−60
−80
−100
Oct 2020
Oct 2021
Oct 2022
Oct 2023
Oct 2024
Oct 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 380 ft bgs
Screen: 360−370 ft bgs
Groundwater Observation

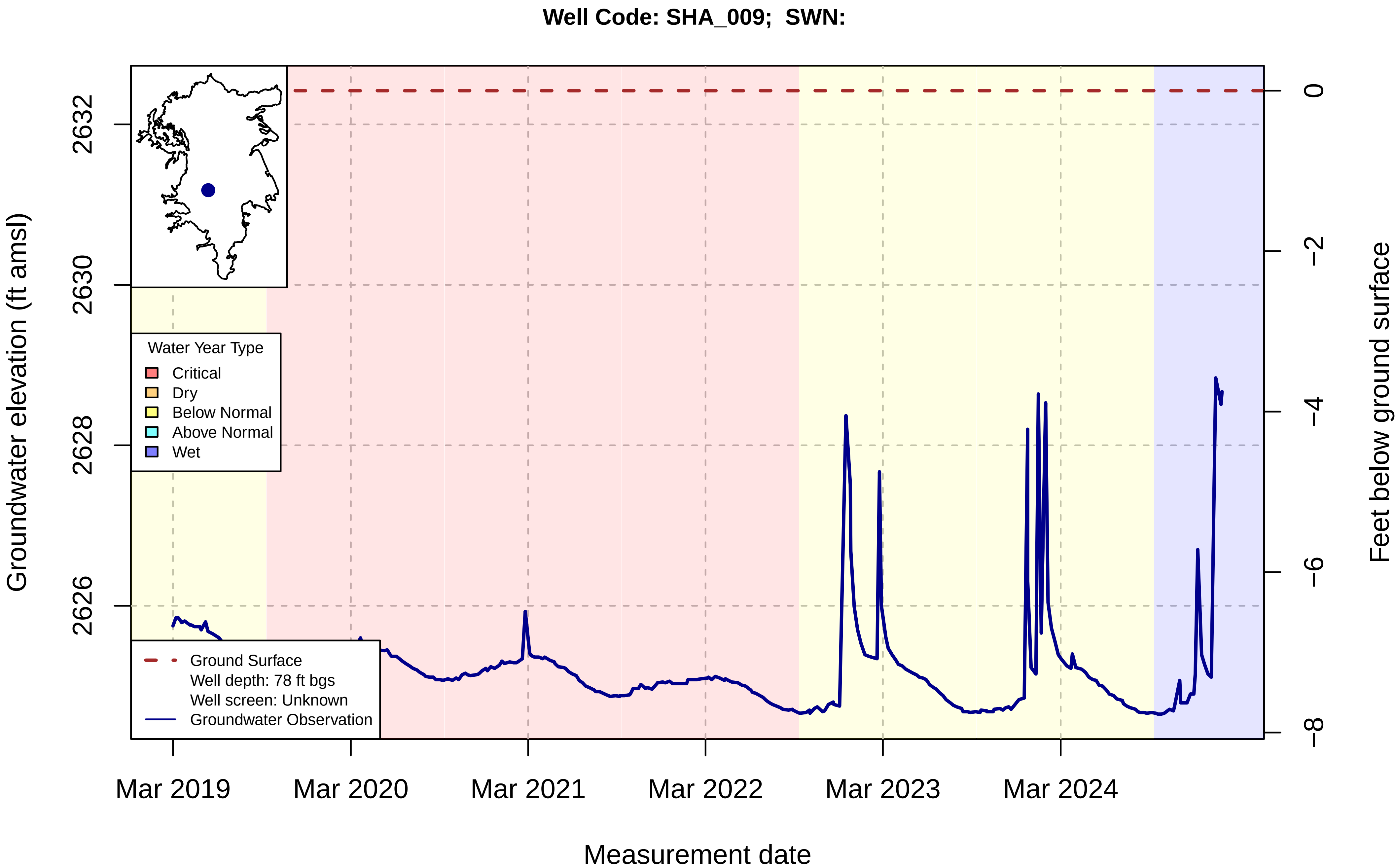


Well Code: 415506N1225446W006; SWN: 43N06W28B003M
Groundwater elevation (ft amsl)
2800
2780
2760
2740
2720
2700
Feet below ground surface
0
−20
−40
−60
−80
−100
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 310 ft bgs
Screen: 260−290 ft bgs
Groundwater Observation
Oct 2020
Oct 2021
Oct 2022
Oct 2023
Oct 2024
Oct 2025
Measurement date

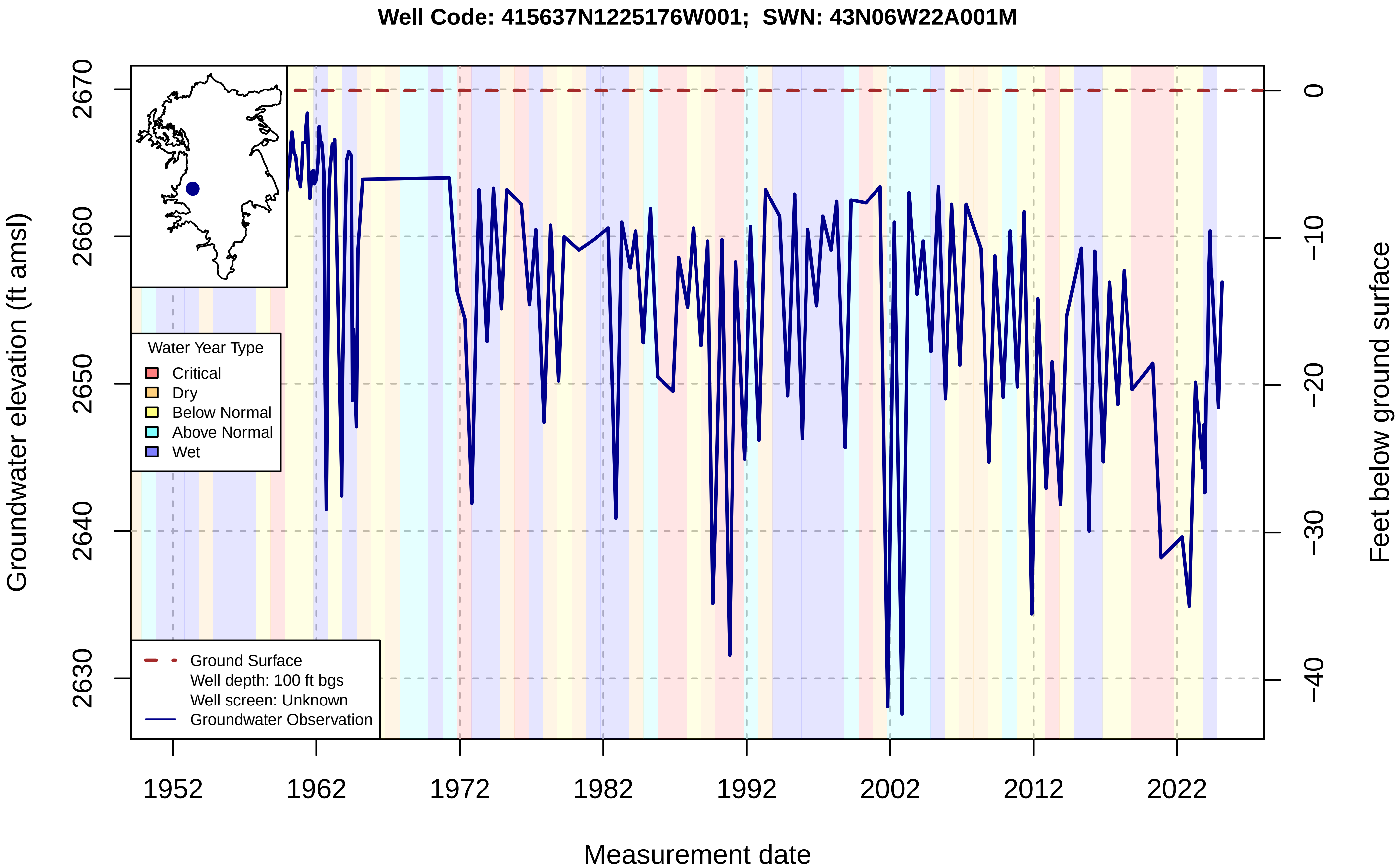

Well Code: 415506N1225446W008; SWN: 43N06W28B004M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2700
2720
2740
2760
2780
2800
0
−20
−40
−60
−80
−100
Oct 2020
Oct 2021
Oct 2022
Oct 2023
Oct 2024
Oct 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 220 ft bgs
Screen: 180−200 ft bgs
Groundwater Observation

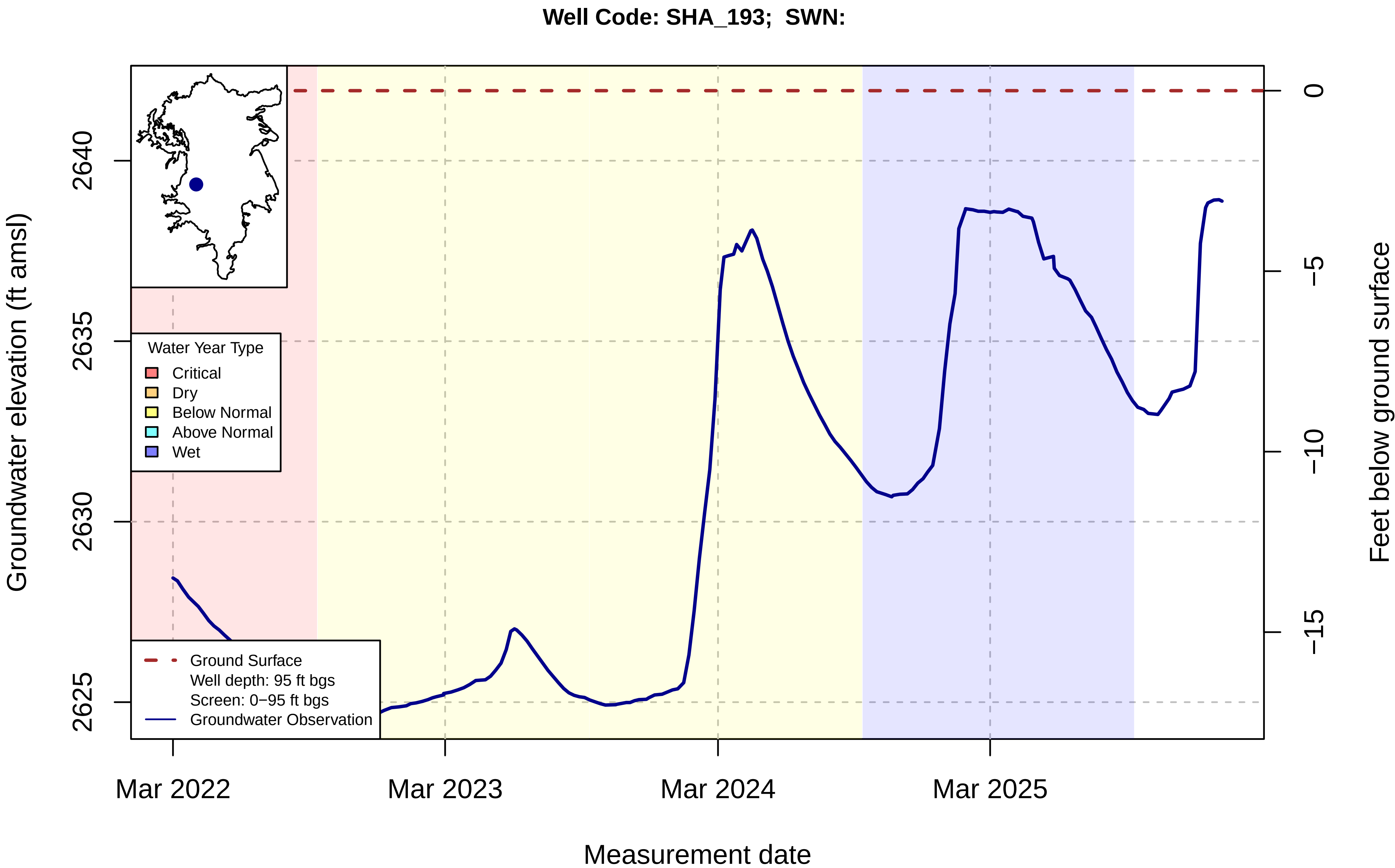


Well Code: 415601N1224718W001; SWN: 43N05W19F002M
Groundwater elevation (ft amsl)
2646
2648
2650
2652
2654
2656
Feet below ground surface
0
−2
−4
−6
−8
−10
−12
2005
2015
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 150 ft bgs
Screen: 120−150 ft bgs
Groundwater Observation

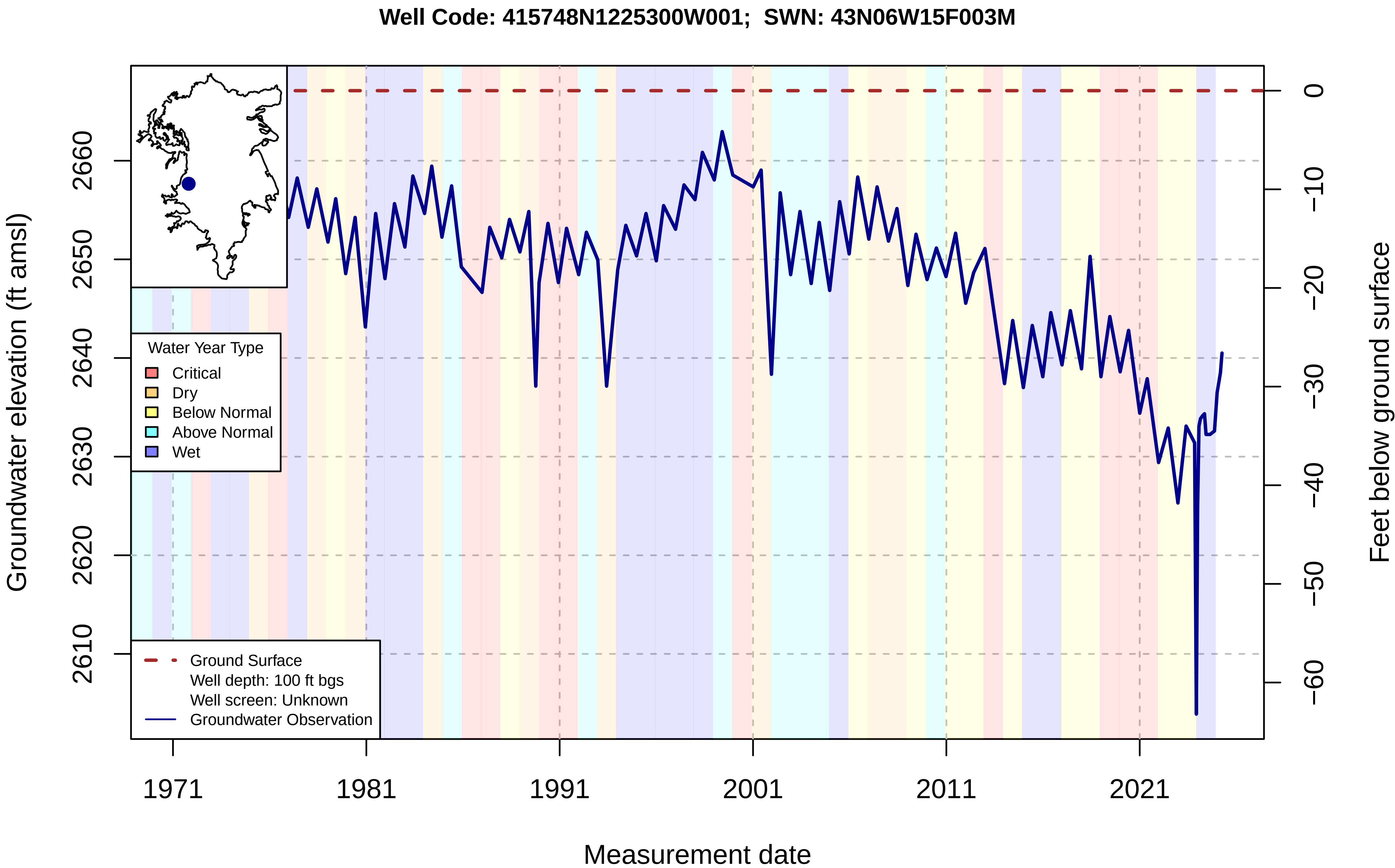


Well Code: SHA_009; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2626
2628
2630
2632
0
−2
−4
−6
−8
Mar 2019
Mar 2020
Mar 2021
Mar 2022
Mar 2023
Mar 2024
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 78 ft bgs
Well screen: Unknown
Groundwater Observation

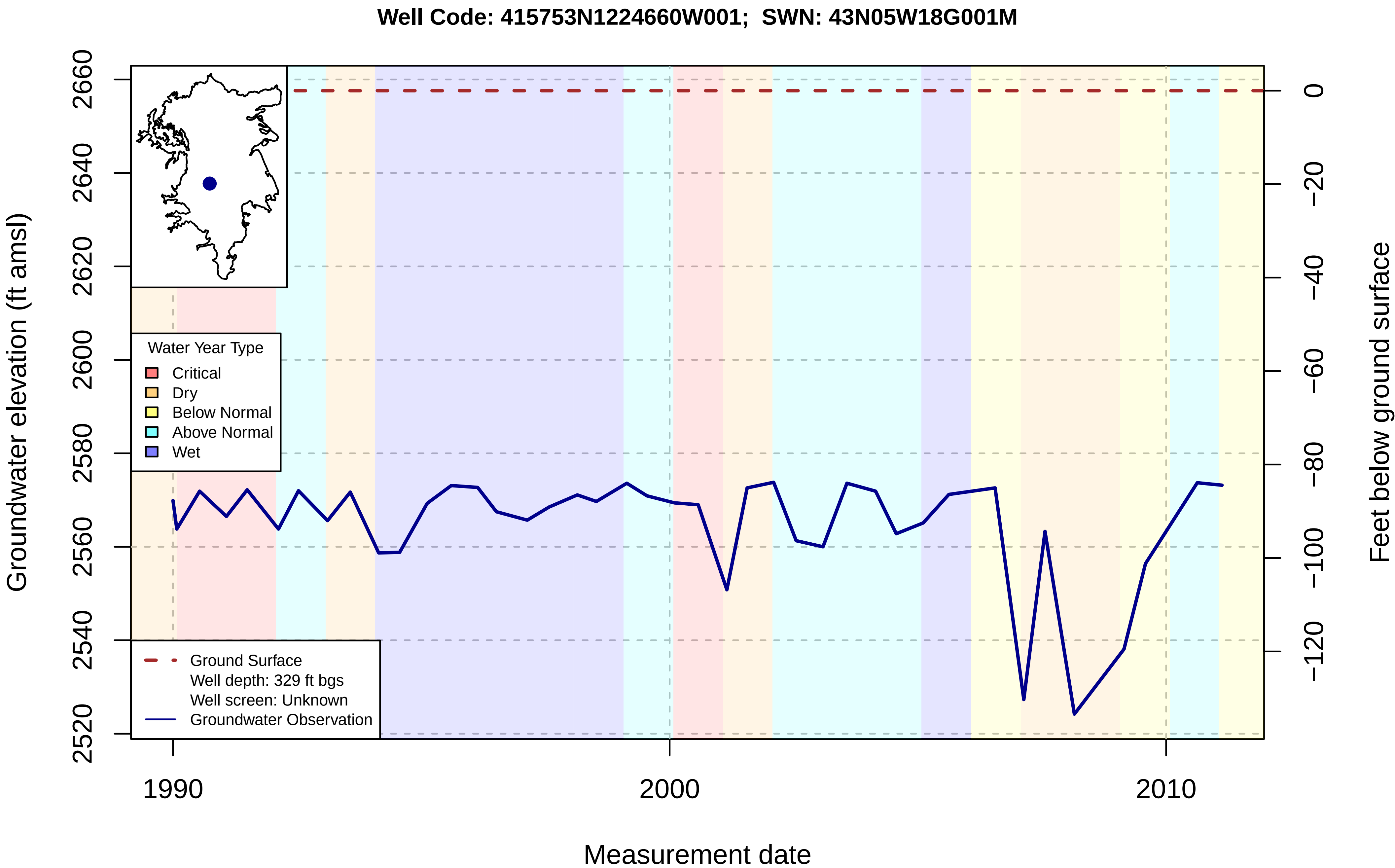

Well Code: 415637N1225176W001; SWN: 43N06W22A001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2670
2660
2650
2640
2630
0
−10
−20
−30
−40
1952
1962
1972
1982
1992
2002
2012
2022
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 100 ft bgs
Well screen: Unknown
Groundwater Observation

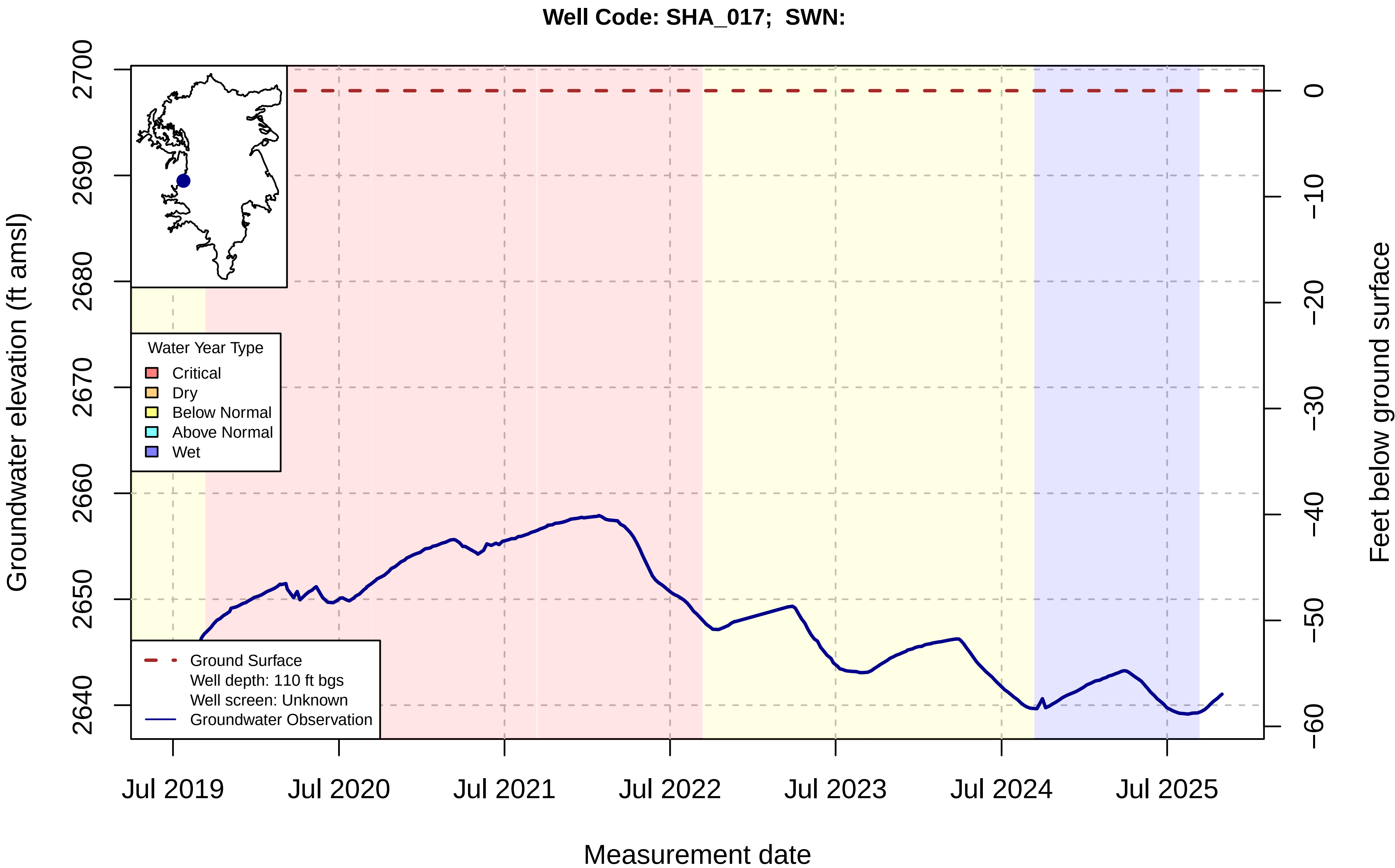


Well Code: SHA_193; SWN:
Groundwater elevation (ft amsl)
2625
2630
2635
2640
Feet below ground surface
0
−5
−10
−15
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 95 ft bgs
Screen: 0−95 ft bgs
Groundwater Observation
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Measurement date

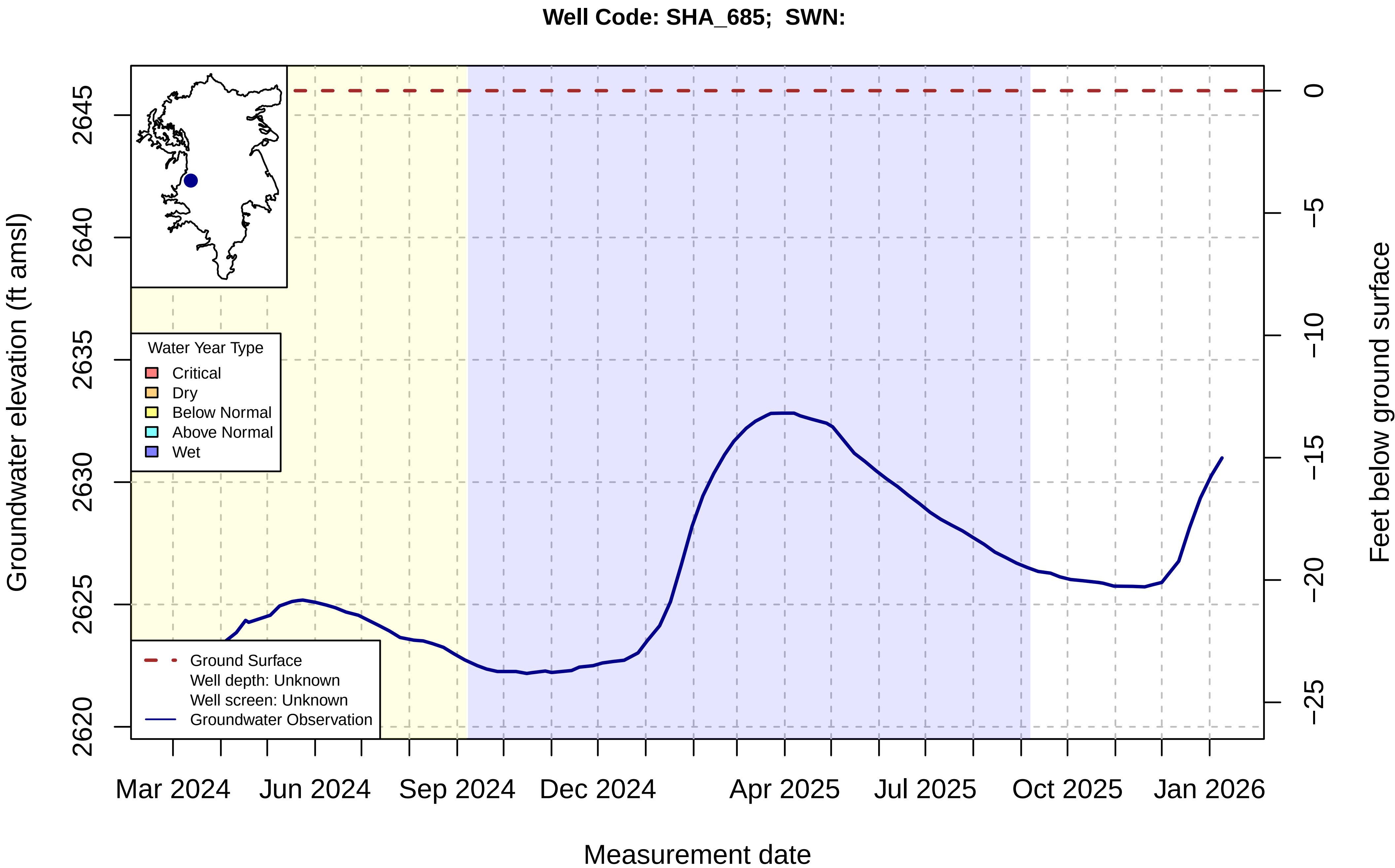


Well Code: 415748N1225300W001; SWN: 43N06W15F003M
Groundwater elevation (ft amsl)
2610
2620
2630
2640
2650
2660
Feet below ground surface
0
−10
−20
−30
−40
−50
−60
Measurement date
1971
1981
1991
2001
2011
2021
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 100 ft bgs
Well screen: Unknown
Groundwater Observation

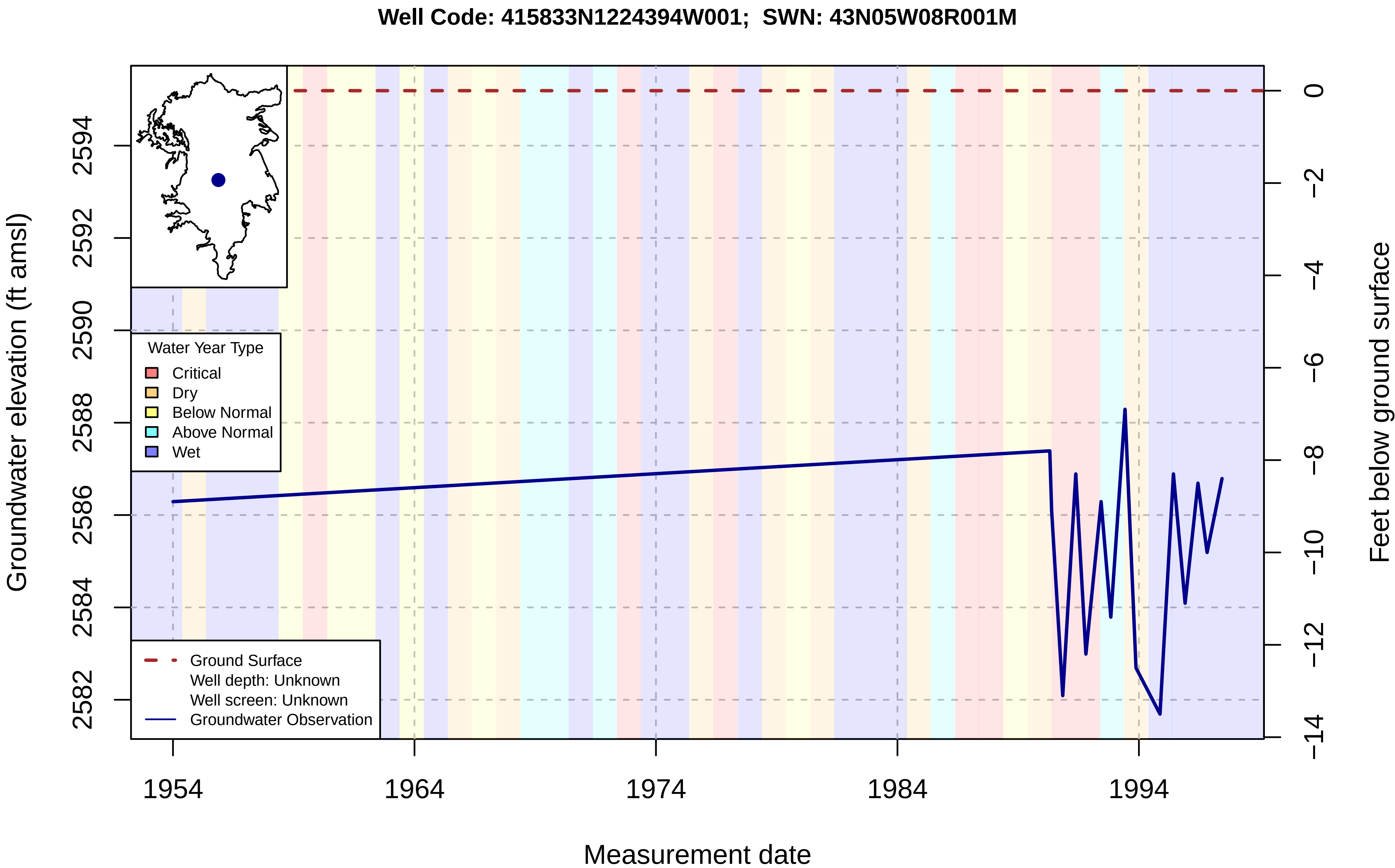

Well Code: 415753N1224660W001; SWN: 43N05W18G001M
Groundwater elevation (ft amsl)
2520
2540
2560
2580
2600
2620
2640
2660
Feet below ground surface
0
−20
−40
−60
−80
−100
−120
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 329 ft bgs
Well screen: Unknown
Groundwater Observation
1990
2000
2010
Measurement date



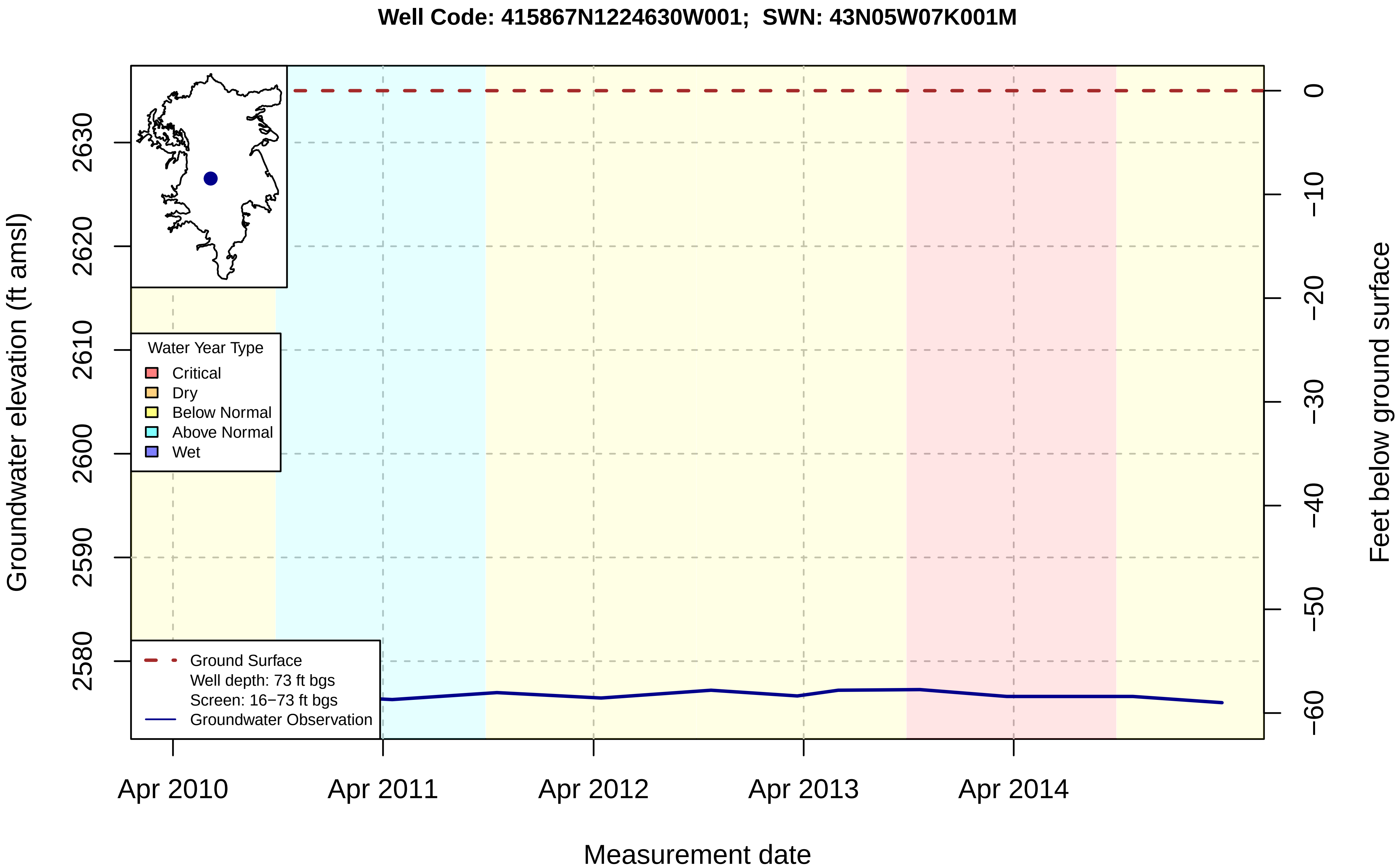
Well Code: SHA_017; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2640
2650
2660
2670
2680
2690
2700
0
−10
−20
−30
−40
−50
−60
Jul 2019
Jul 2020
Jul 2021
Jul 2022
Jul 2023
Jul 2024
Jul 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 110 ft bgs
Well screen: Unknown
Groundwater Observation

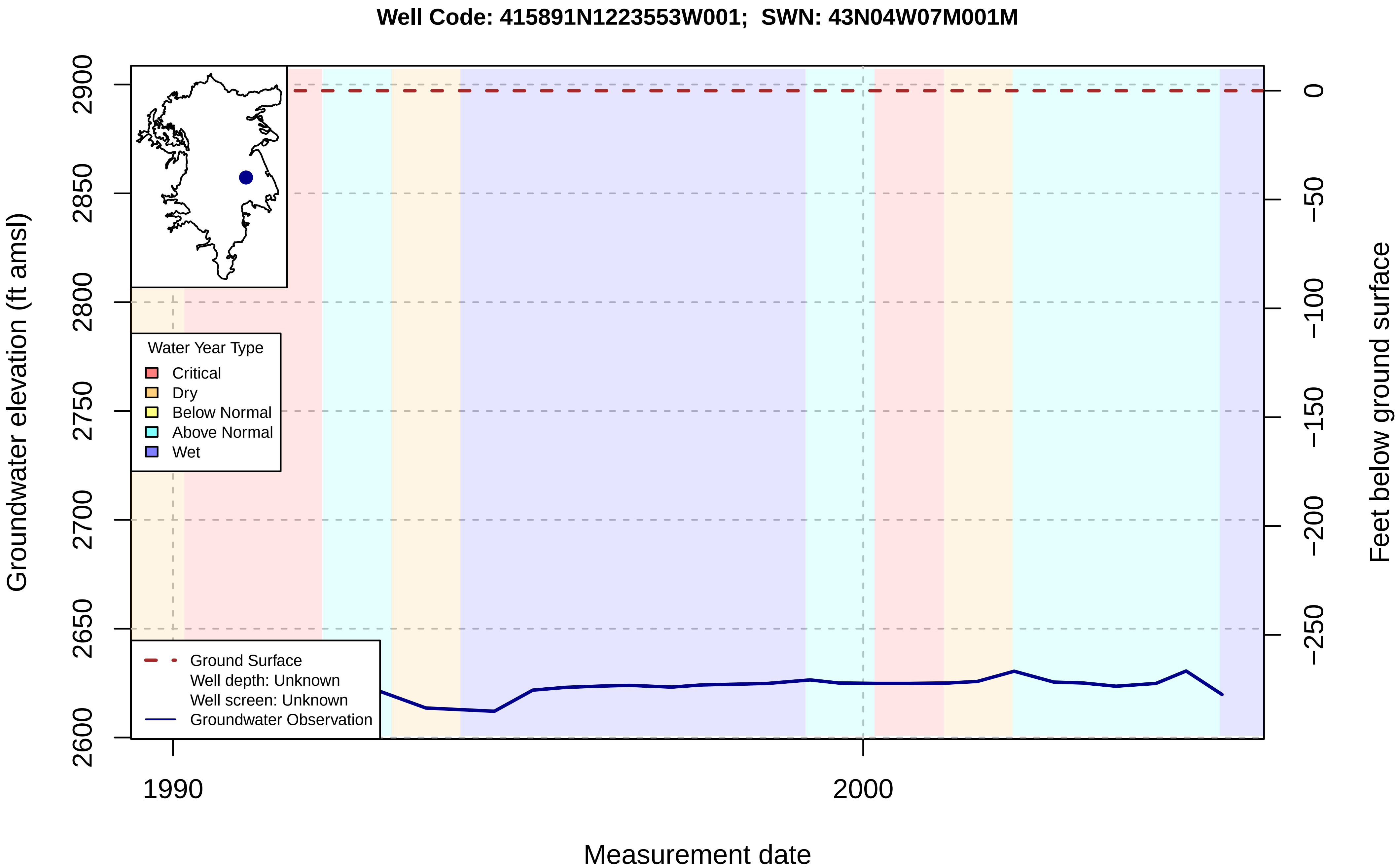


Well Code: SHA_685; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2620
2625
2630
2635
2640
2645
0
−5
−10
−15
−20
−25
Mar 2024
Jun 2024
Sep 2024
Dec 2024
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation

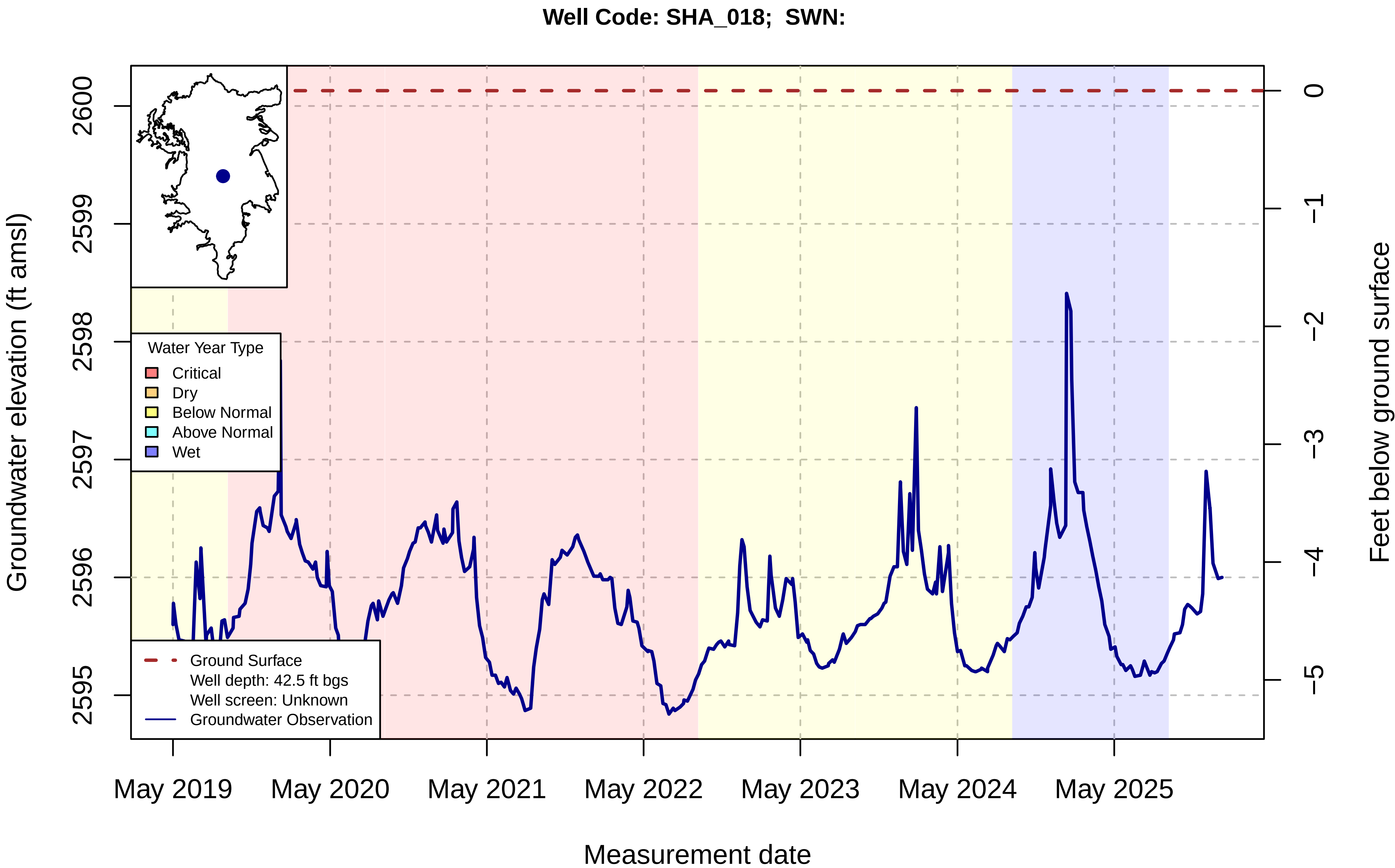


Well Code: 415833N1224394W001; SWN: 43N05W08R001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2582
2584
2586
2588
2590
2592
2594
0
−2
−4
−6
−8
−10
−12
−14
1954
1964
1974
1984
1994
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation

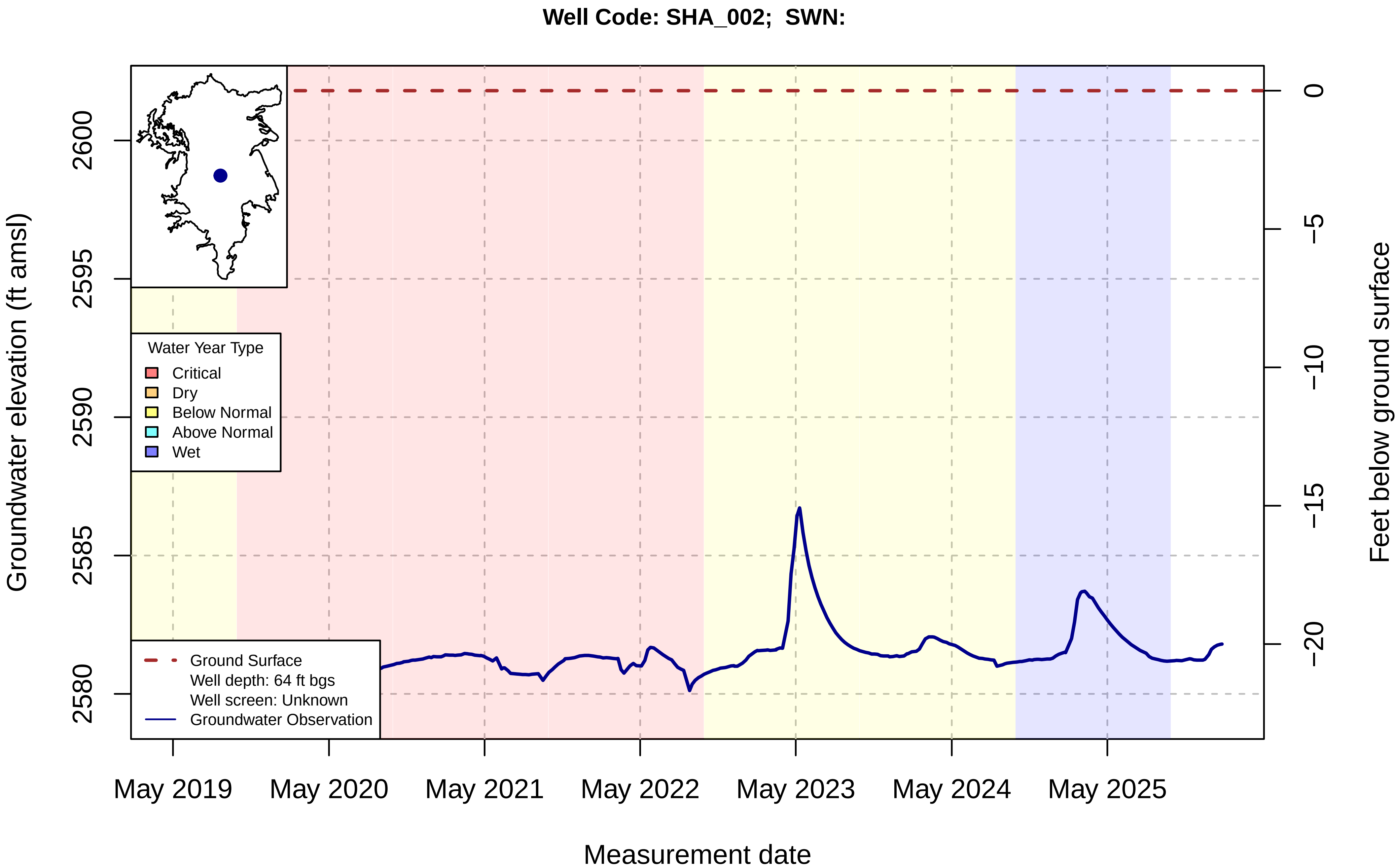

Well Code: 415867N1224630W001; SWN: 43N05W07K001M
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 73 ft bgs
Screen: 16−73 ft bgs
Groundwater Observation
Groundwater elevation (ft amsl)
2580
2590
2600
2610
2620
2630
Feet below ground surface
0
−10
−20
−30
−40
−50
−60
Apr 2010
Apr 2011
Apr 2012
Apr 2013
Apr 2014
Measurement date



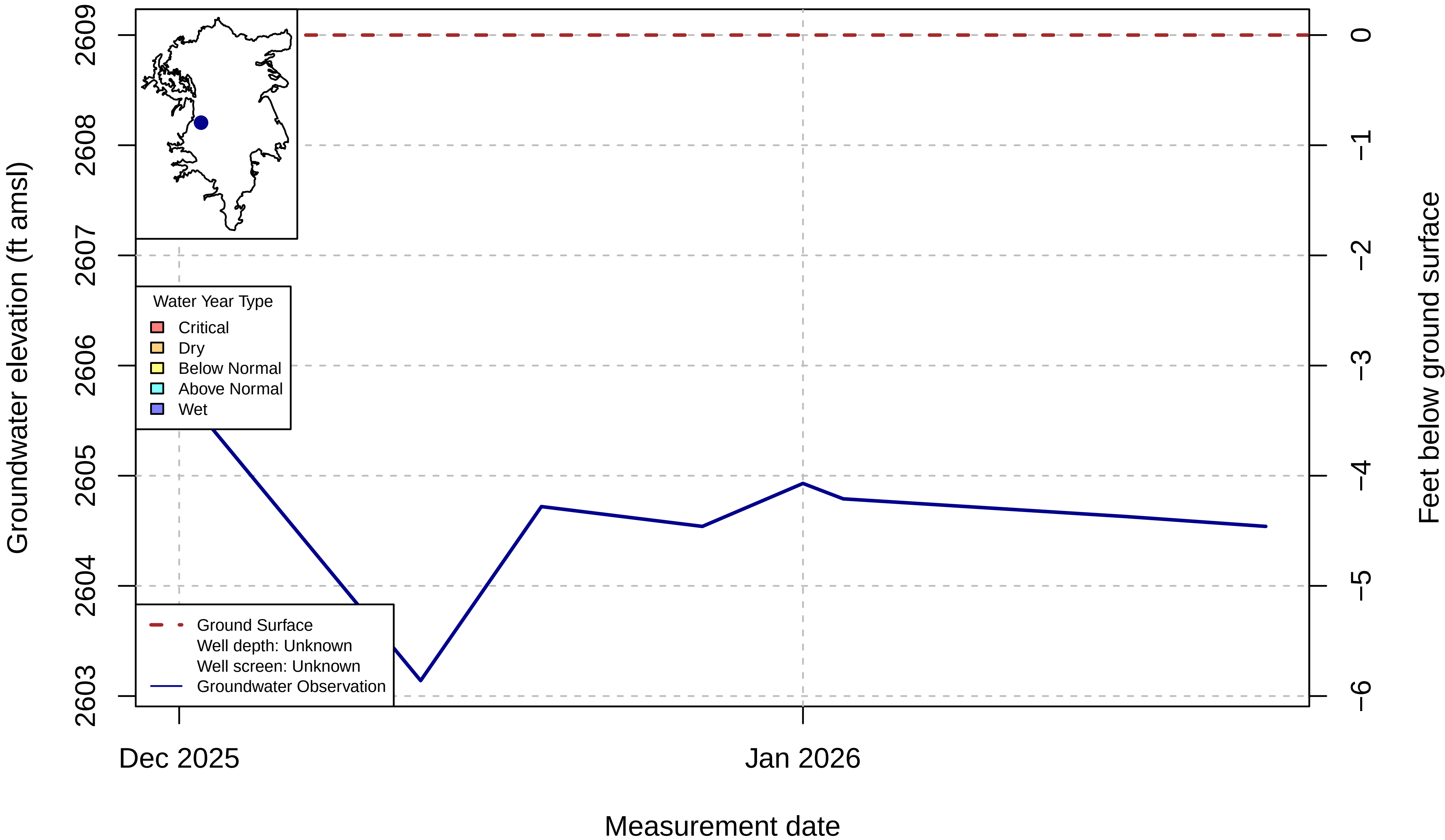
Well Code: 415891N1223553W001; SWN: 43N04W07M001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2600
2650
2700
2750
2800
2850
2900
0
−50
−100
−150
−200
−250
1990
2000
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation

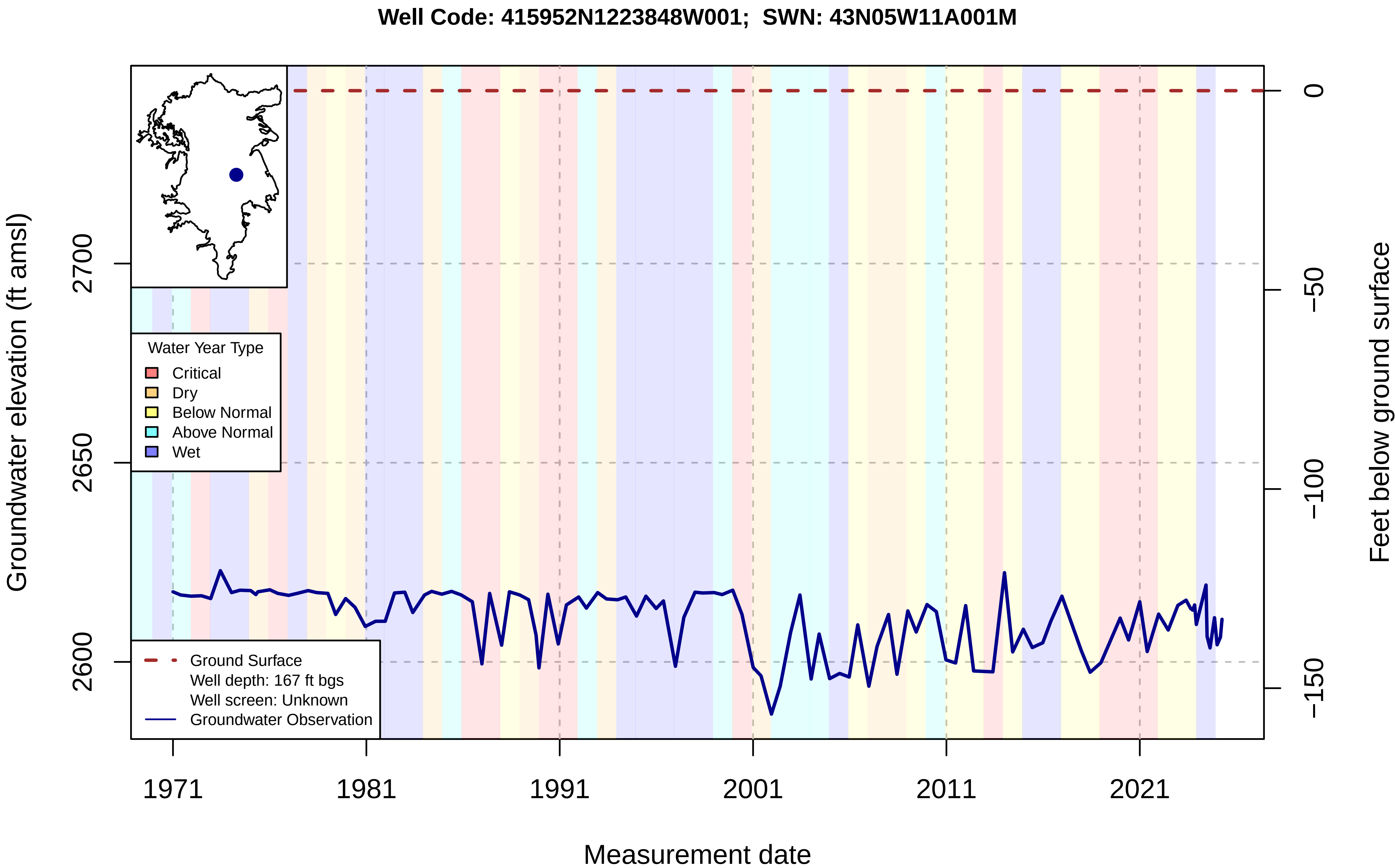


Well Code: SHA_018; SWN:
Groundwater elevation (ft amsl)
2600
2599
2598
2597
2596
2595
Feet below ground surface
0
−1
−2
−3
−4
−5
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 42.5 ft bgs
Well screen: Unknown
Groundwater Observation
May 2019
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Measurement date

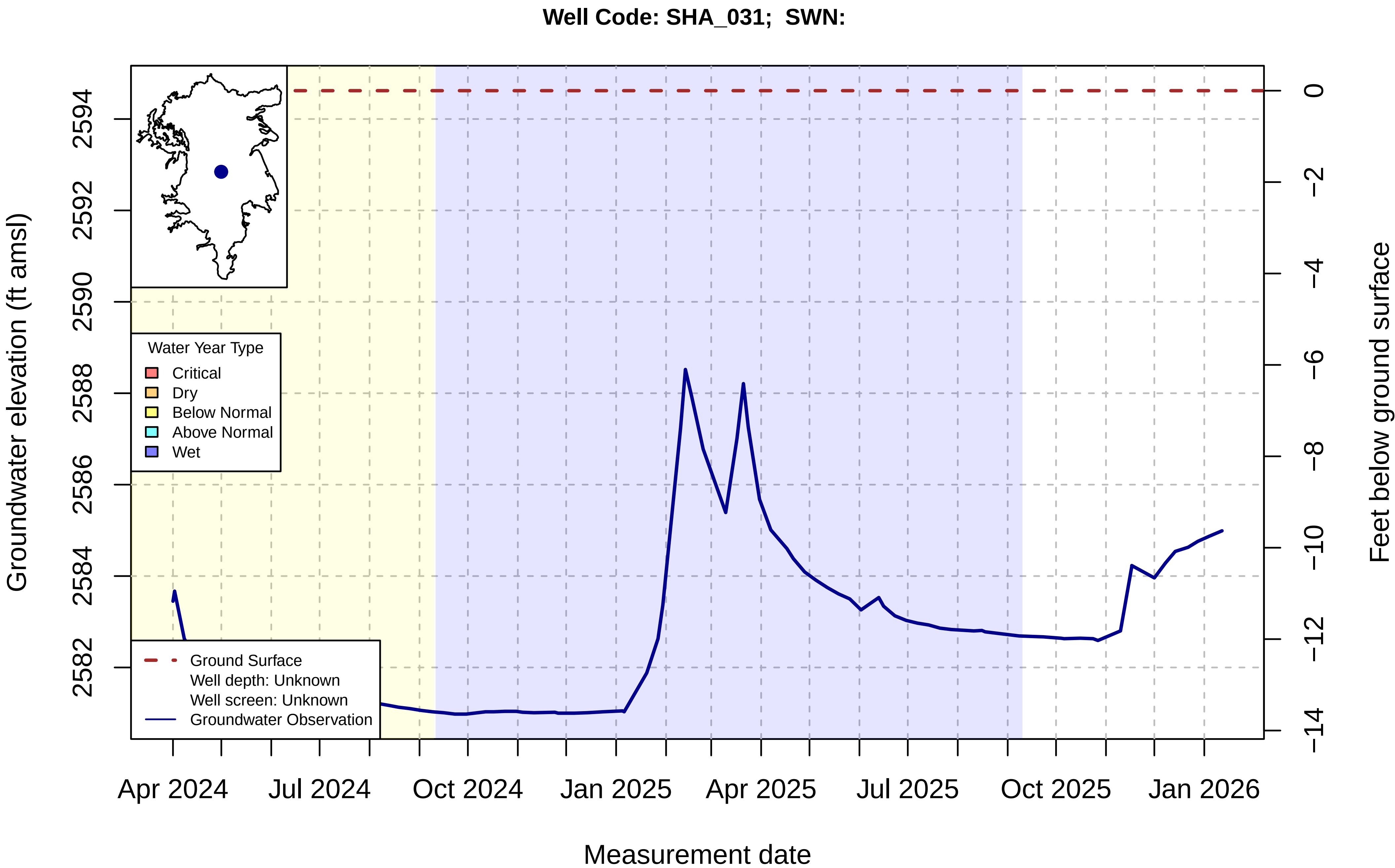

Well Code: SHA_002; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2580
2585
2590
2595
2600
0
−5
−10
−15
−20
May 2019
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 64 ft bgs
Well screen: Unknown
Groundwater Observation

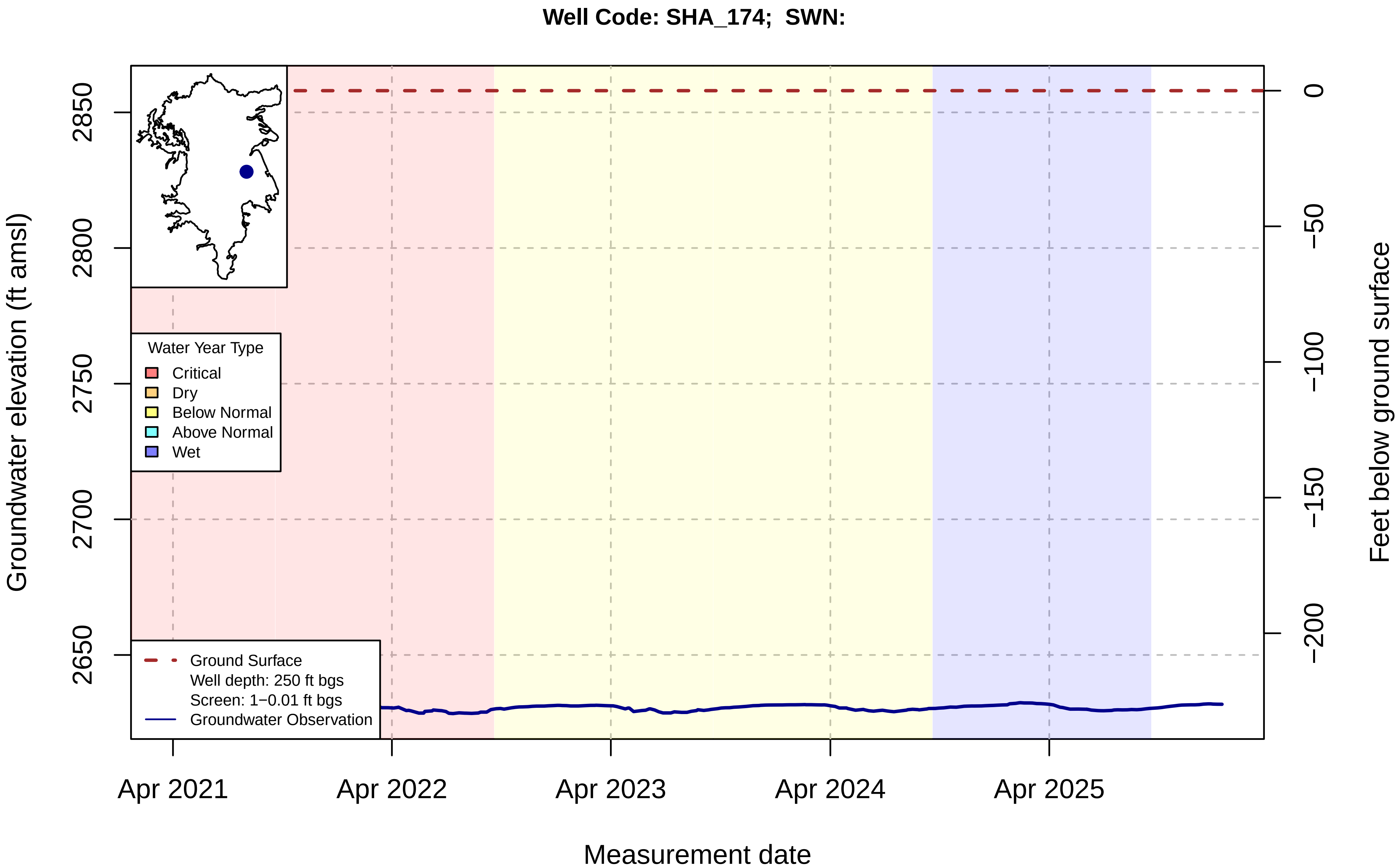
Well Code: SHA_102; SWN:

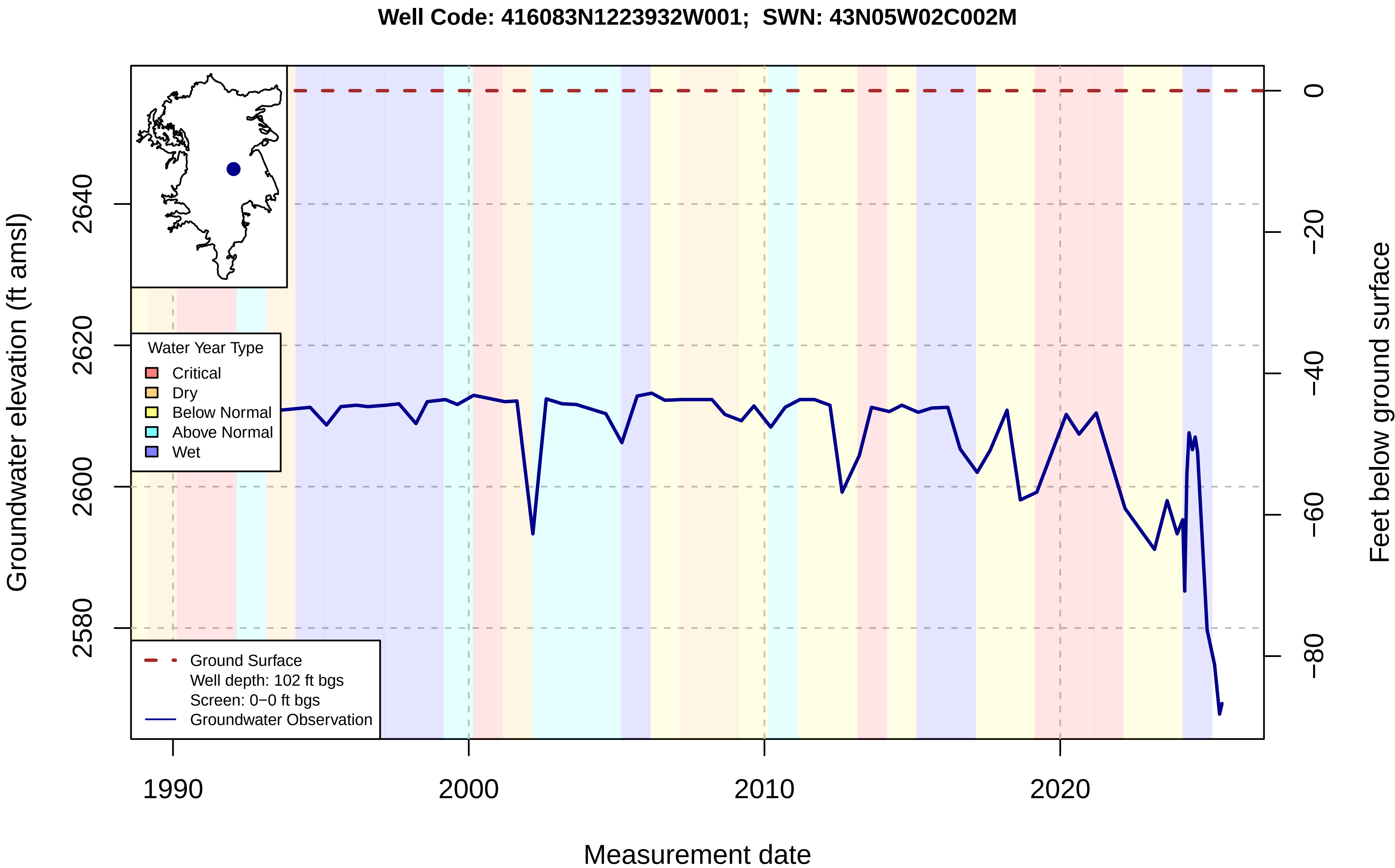




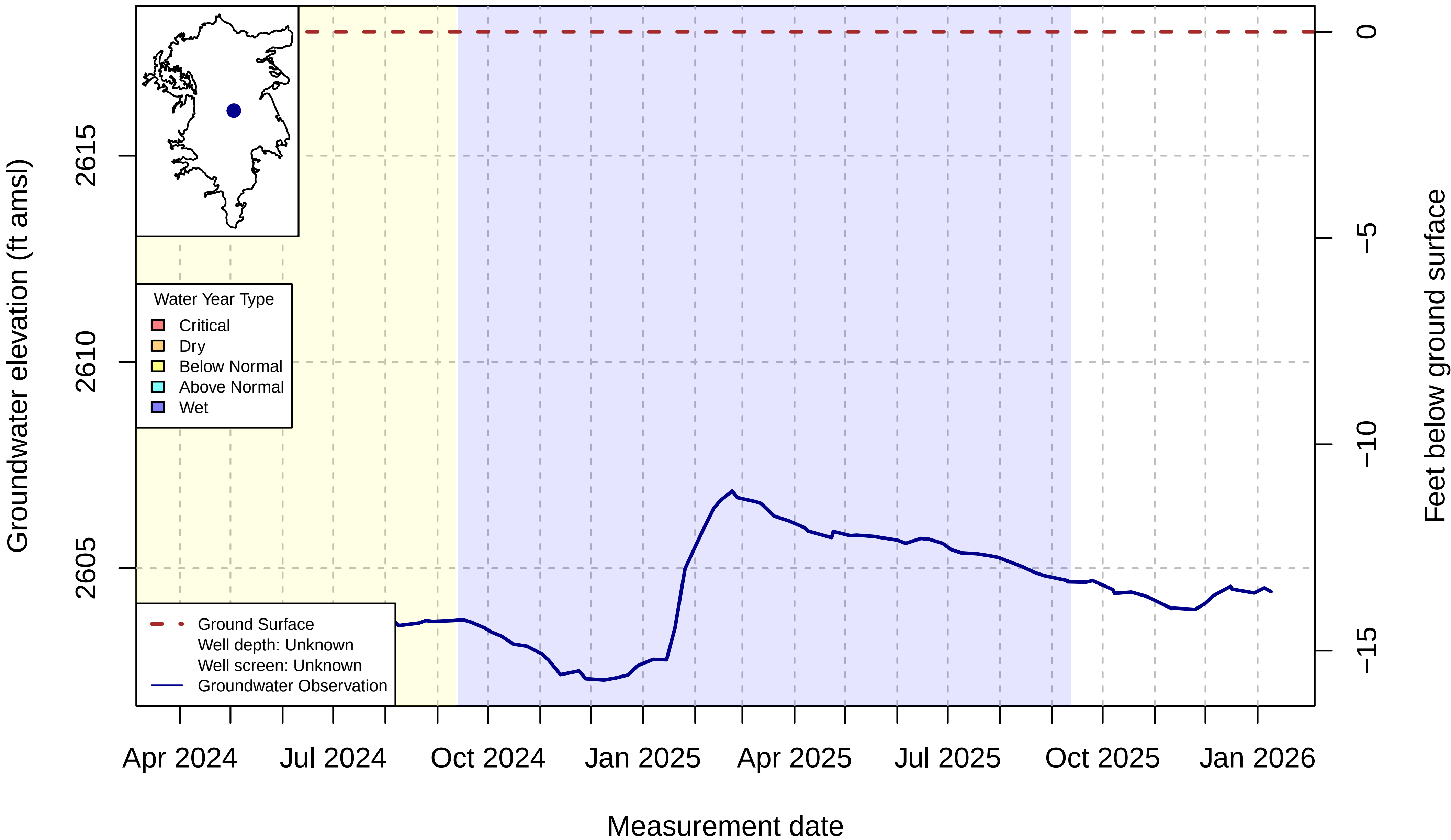
Well Code: 415952N1223848W001; SWN: 43N05W11A001M
Groundwater elevation (ft amsl)
2600
2650
2700
Feet below ground surface
0
−50
−100
−150
Measurement date
1971
1981
1991
2001
2011
2021
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 167 ft bgs
Well screen: Unknown
Groundwater Observation

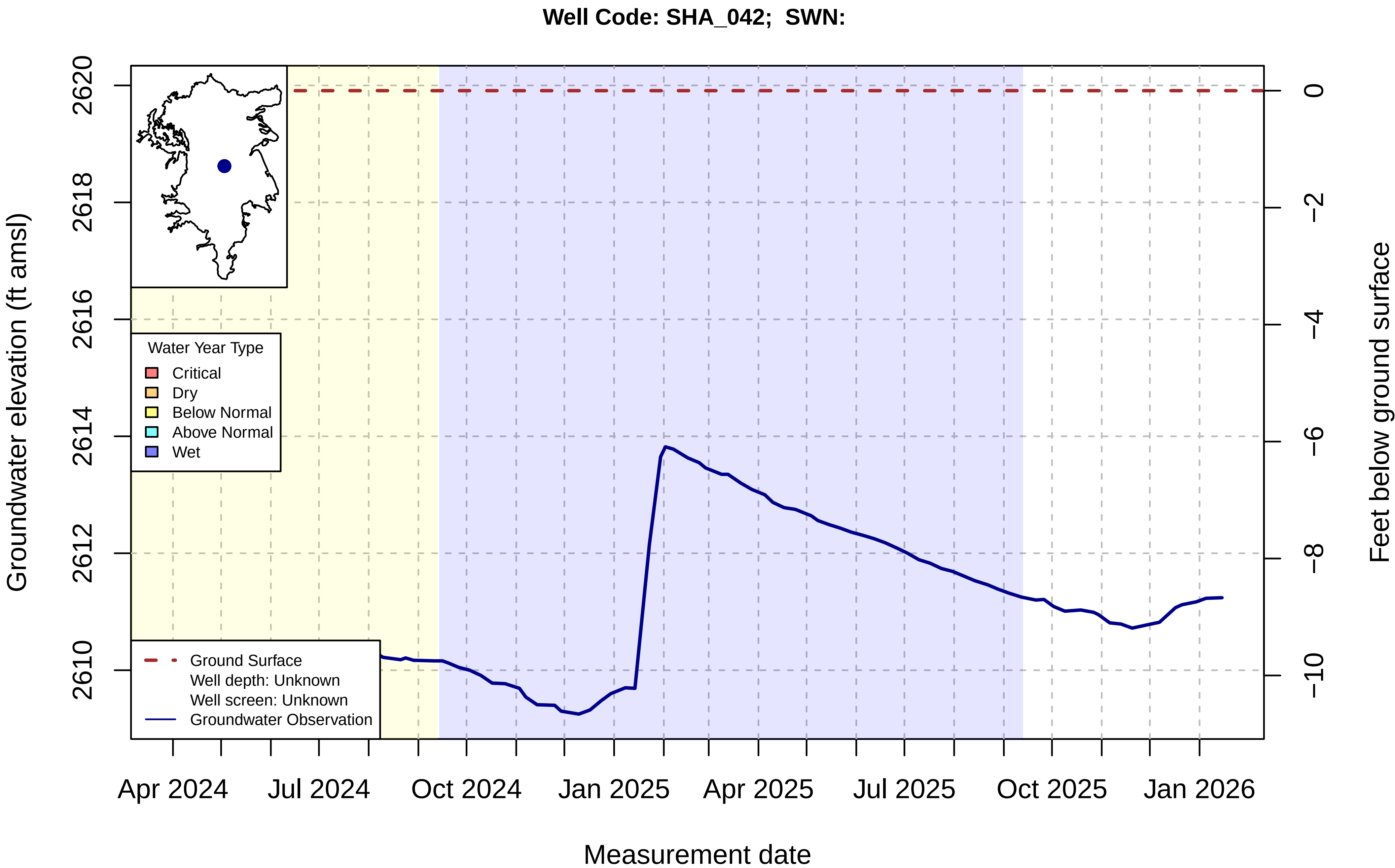

Well Code: SHA_031; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2582
2584
2586
2588
2590
2592
2594
0
−2
−4
−6
−8
−10
−12
−14
Apr 2024
Jul 2024
Oct 2024
Jan 2025
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation

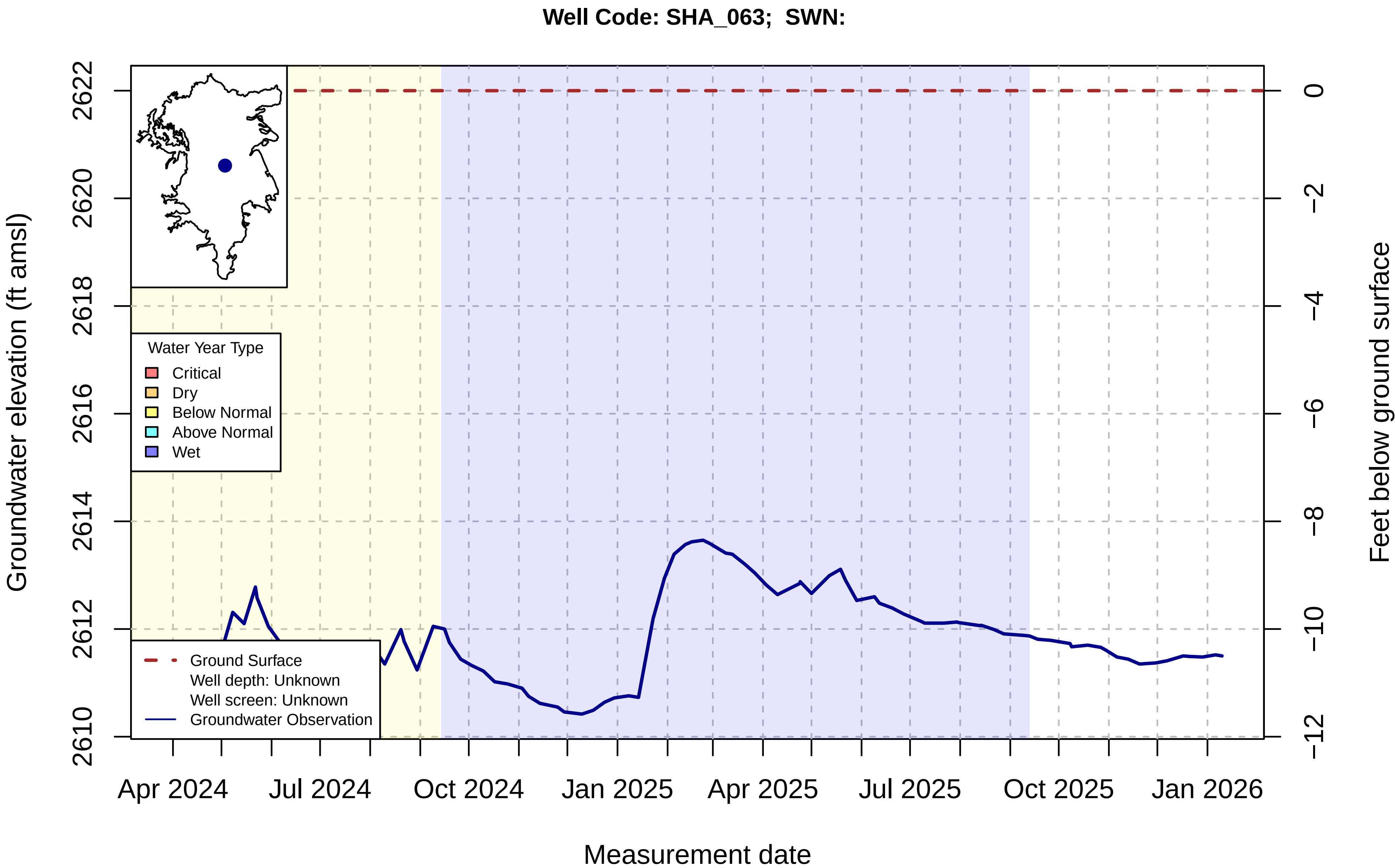

Well Code: SHA_174; SWN:
Groundwater elevation (ft amsl)
2650
2700
2750
2800
2850
Feet below ground surface
0
−50
−100
−150
−200
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 250 ft bgs
Screen: 1−0.01 ft bgs
Groundwater Observation
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date


Well Code: 416083N1223932W001; SWN: 43N05W02C002M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
1990
2000
2010
2020
2580
2600
2620
2640
0
−20
−40
−60
−80
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 102 ft bgs
Screen: 0−0 ft bgs
Groundwater Observation

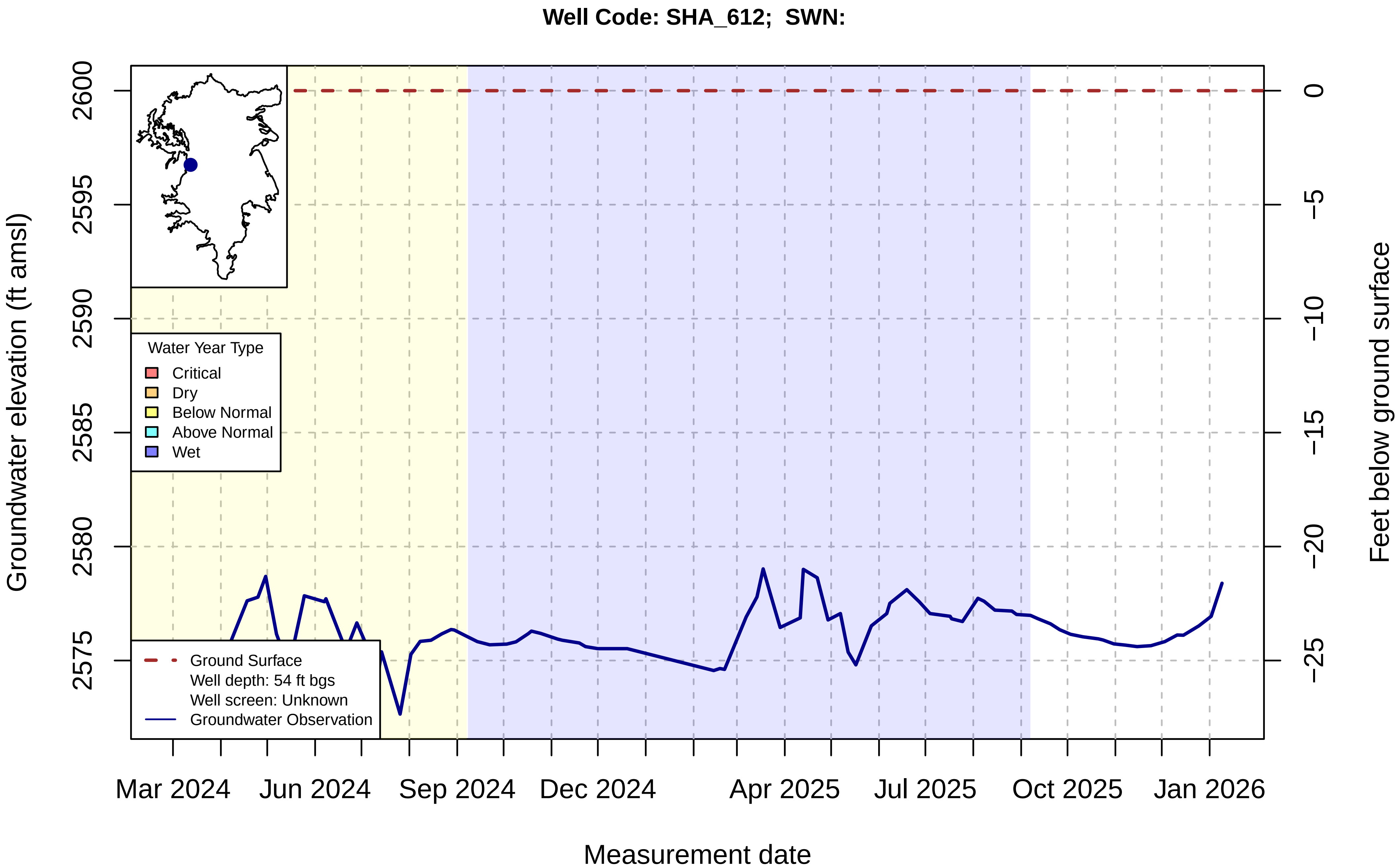
Well Code: SHA_030; SWN:



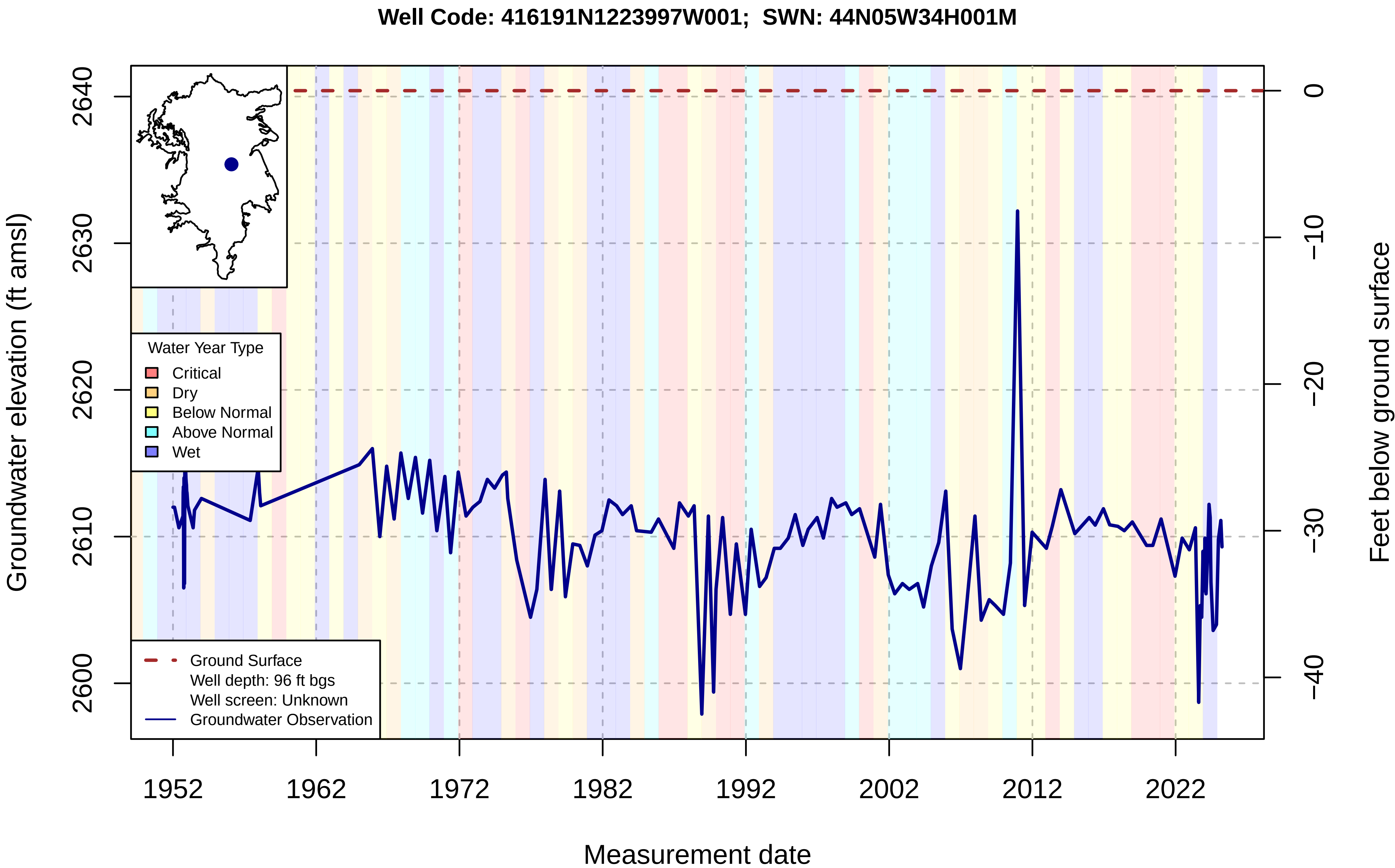

Well Code: SHA_042; SWN:
Groundwater elevation (ft amsl)
2610
2612
2614
2616
2618
2620
Feet below ground surface
0
−2
−4
−6
−8
−10
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
Apr 2024
Jul 2024
Oct 2024
Jan 2025
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Measurement date



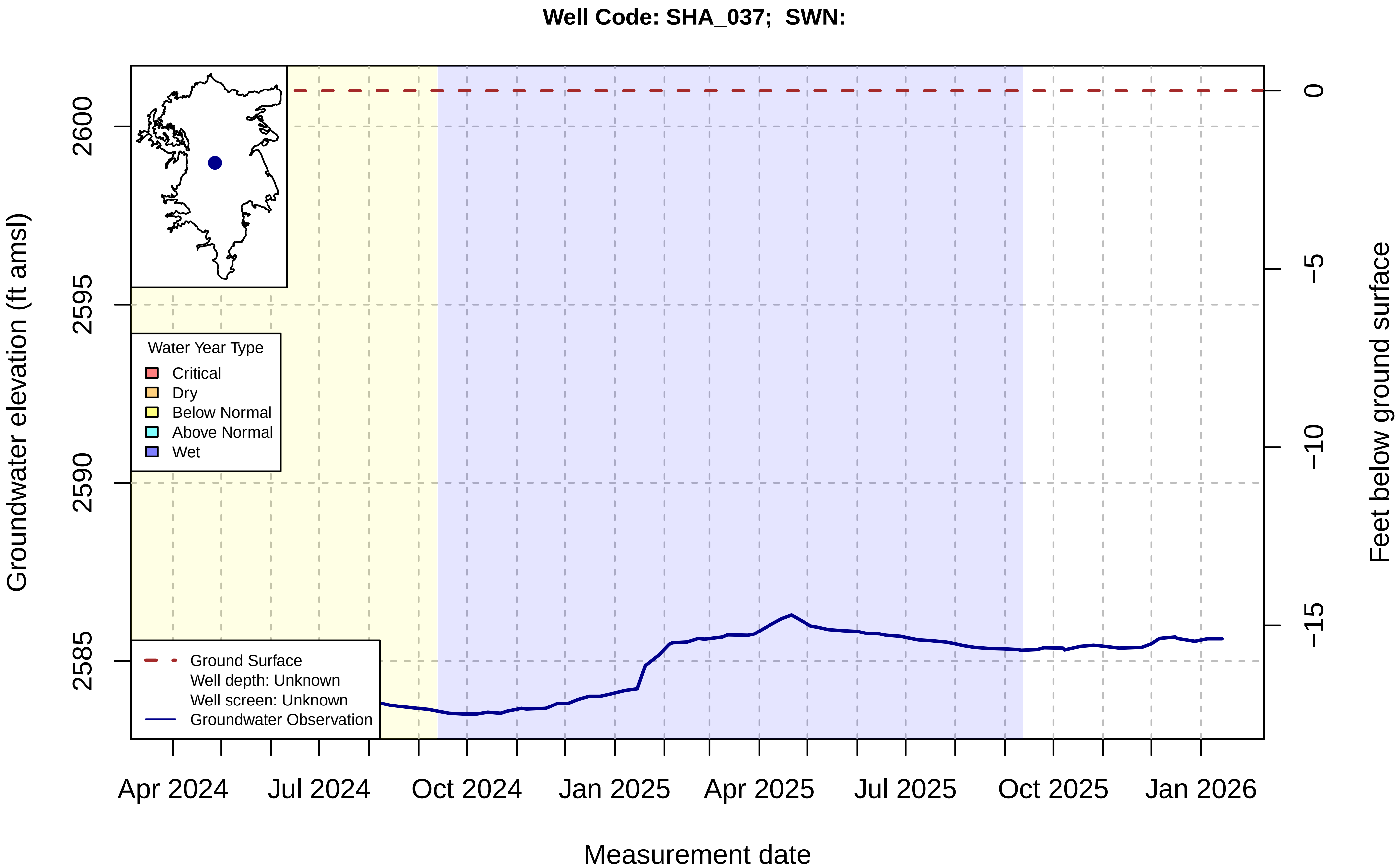
Well Code: SHA_063; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
2610
2612
2614
2616
2618
2620
2622
0
−2
−4
−6
−8
−10
−12
Apr 2024
Jul 2024
Oct 2024
Jan 2025
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation



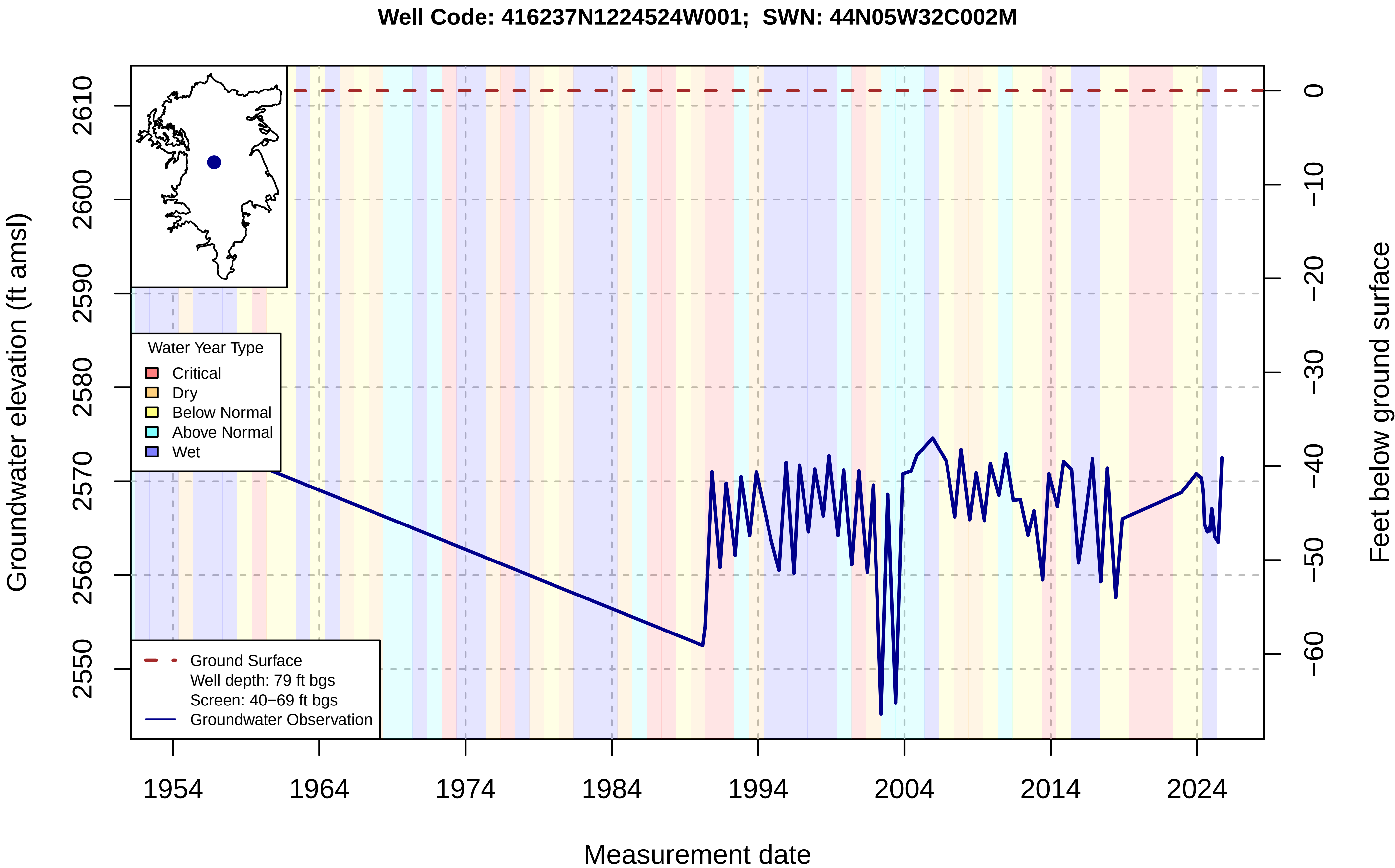
Well Code: SHA_612; SWN:
Groundwater elevation (ft amsl)
2600
2595
2590
2585
2580
2575
Feet below ground surface
0
−5
−10
−15
−20
−25
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 54 ft bgs
Well screen: Unknown
Groundwater Observation
Mar 2024
Jun 2024
Sep 2024
Dec 2024
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Measurement date



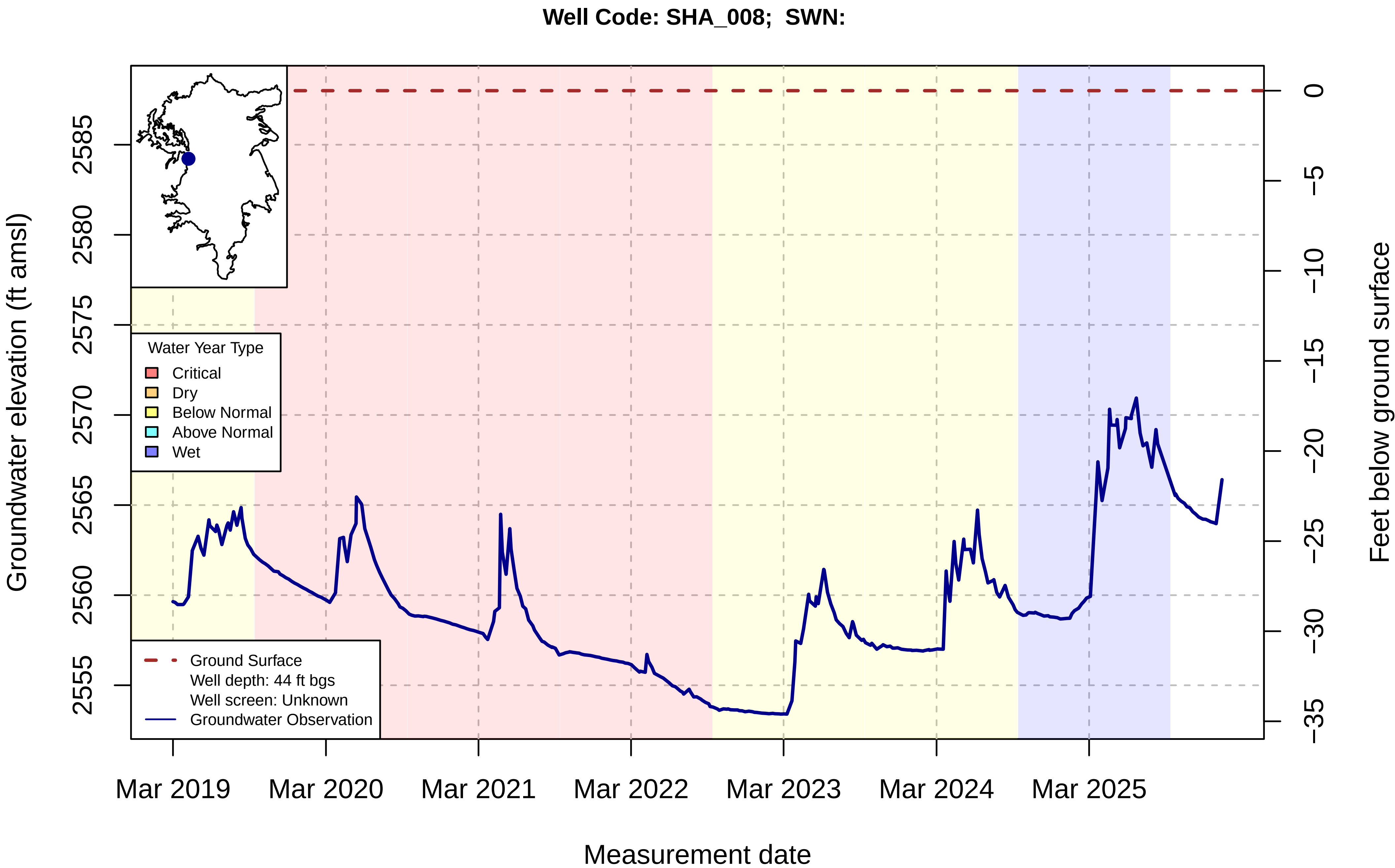
Well Code: 416191N1223997W001; SWN: 44N05W34H001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2600
2610
2620
2630
2640
0
−10
−20
−30
−40
1952
1962
1972
1982
1992
2002
2012
2022
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 96 ft bgs
Well screen: Unknown
Groundwater Observation



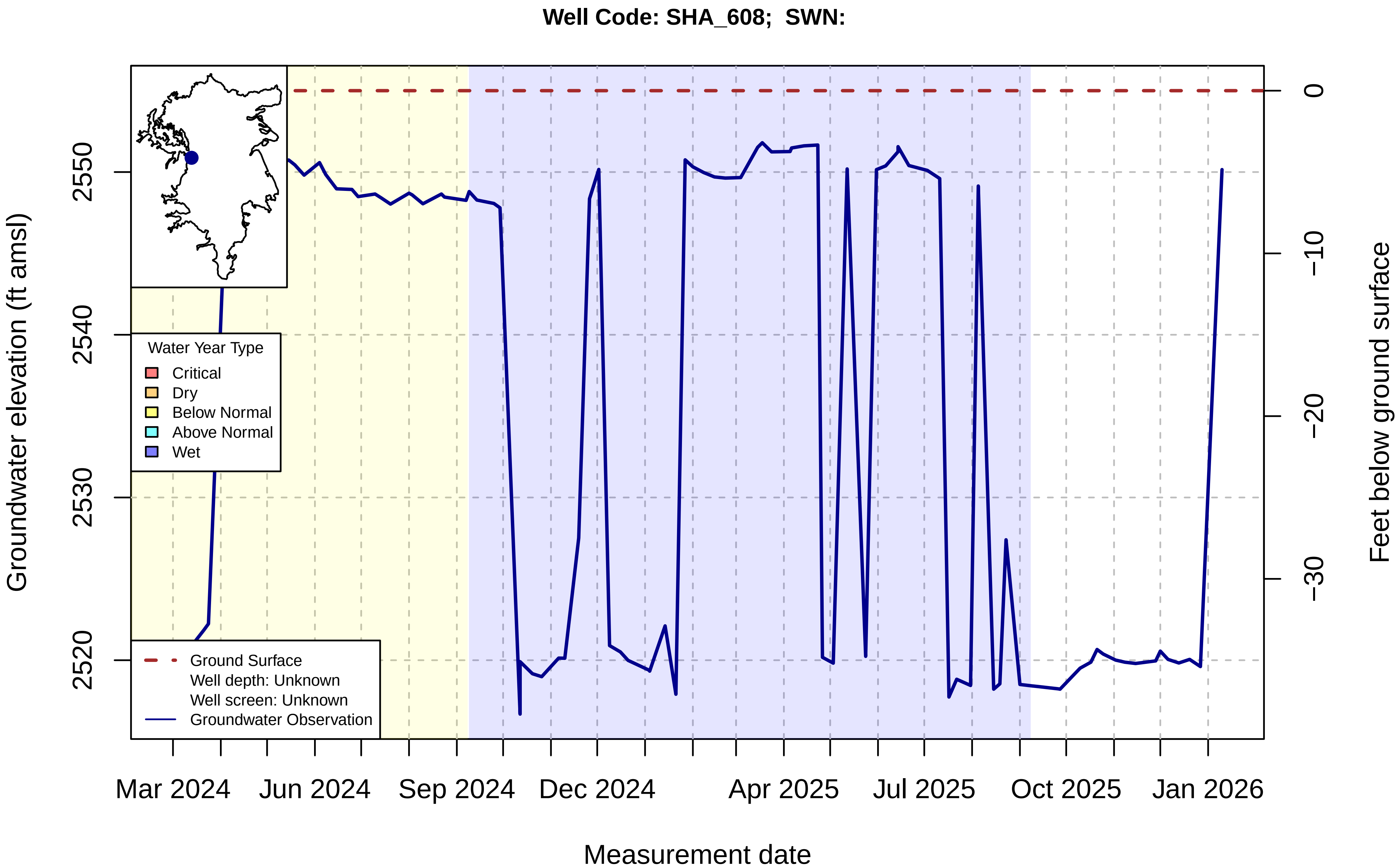
Well Code: SHA_037; SWN:
Groundwater elevation (ft amsl)
2600
2595
2590
2585
Feet below ground surface
0
−5
−10
−15
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
Apr 2024
Jul 2024
Oct 2024
Jan 2025
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Measurement date



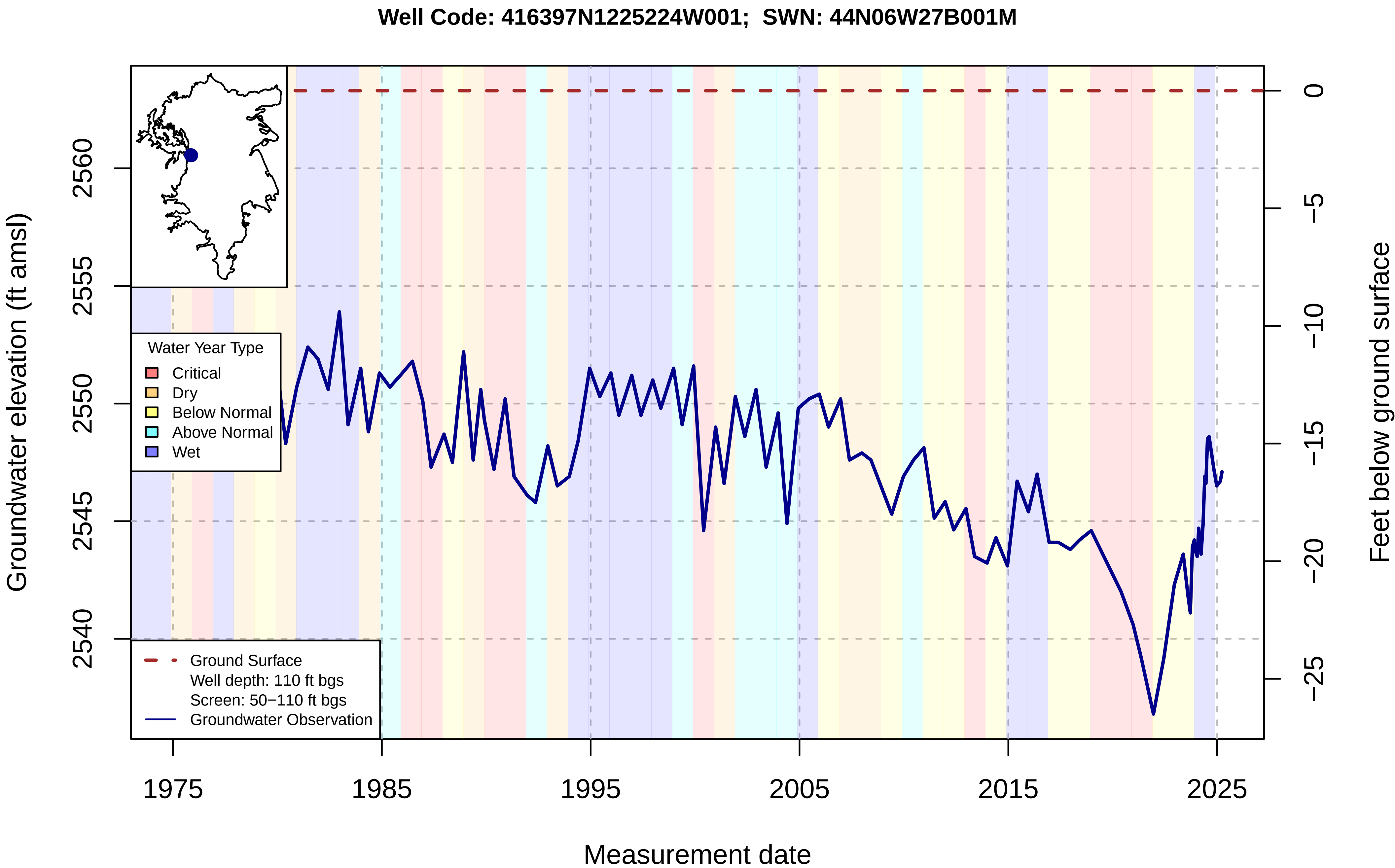
Well Code: 416237N1224524W001; SWN: 44N05W32C002M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 79 ft bgs
Screen: 40−69 ft bgs
Groundwater Observation
1954
1964
1974
1984
1994
2004
2014
2024
2550
2560
2570
2580
2590
2600
2610
0
−10
−20
−30
−40
−50
−60



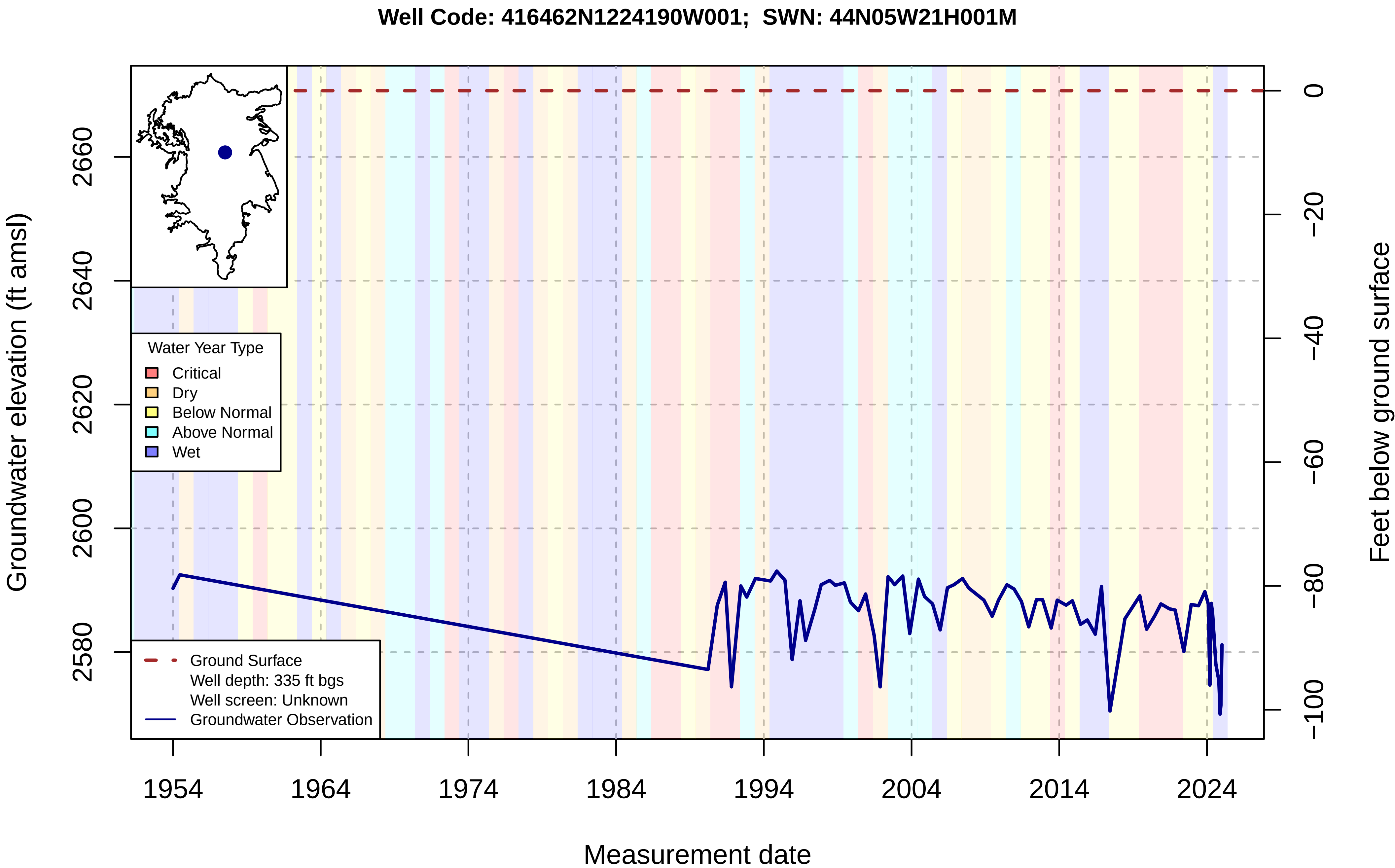
Well Code: SHA_008; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2555
2560
2565
2570
2575
2580
2585
0
−5
−10
−15
−20
−25
−30
−35
Mar 2019
Mar 2020
Mar 2021
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 44 ft bgs
Well screen: Unknown
Groundwater Observation

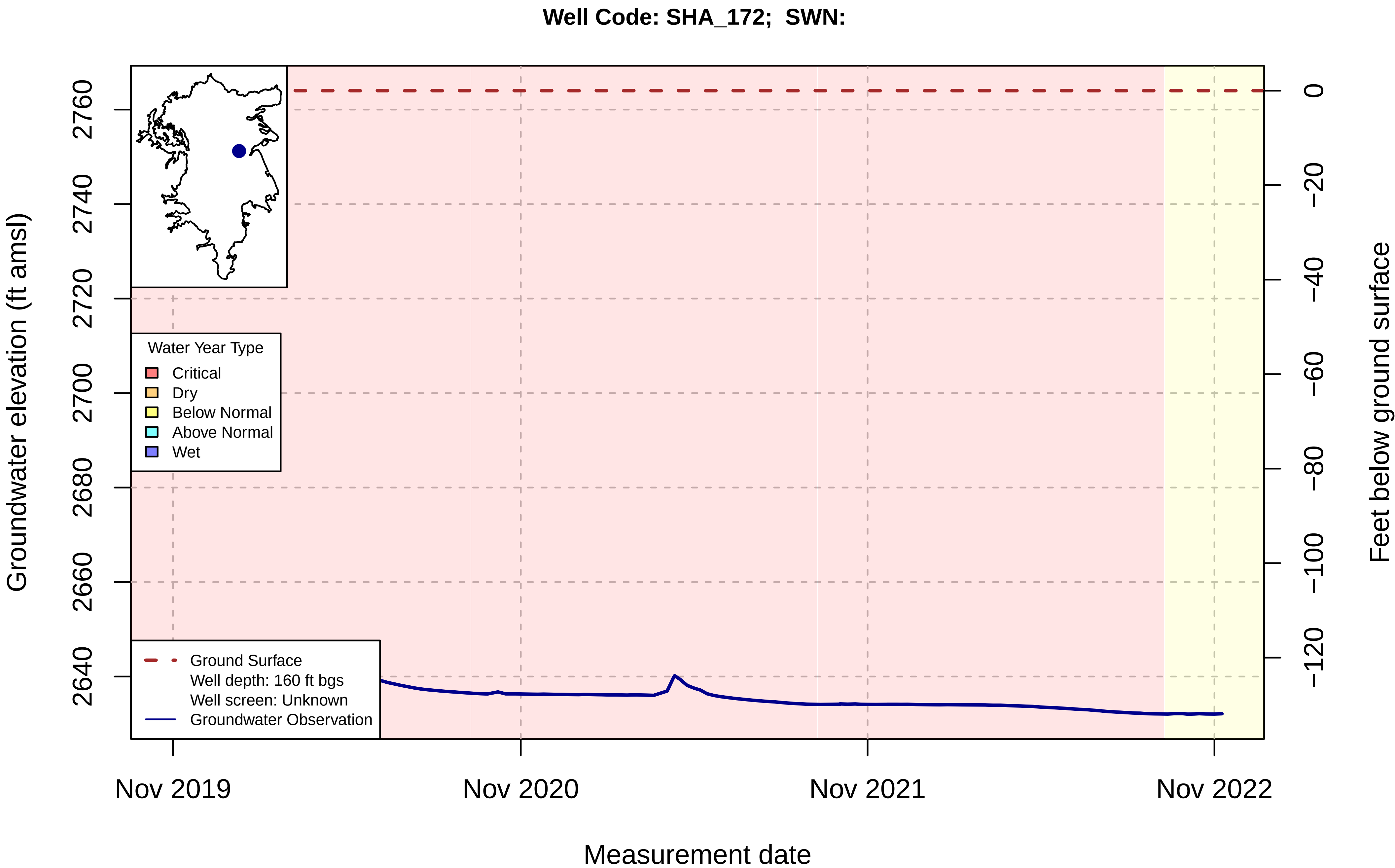


Well Code: SHA_608; SWN:
Groundwater elevation (ft amsl)
2520
2530
2540
2550
Feet below ground surface
0
−10
−20
−30
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
Mar 2024
Jun 2024
Sep 2024
Dec 2024
Apr 2025
Jul 2025
Oct 2025
Jan 2026
Measurement date

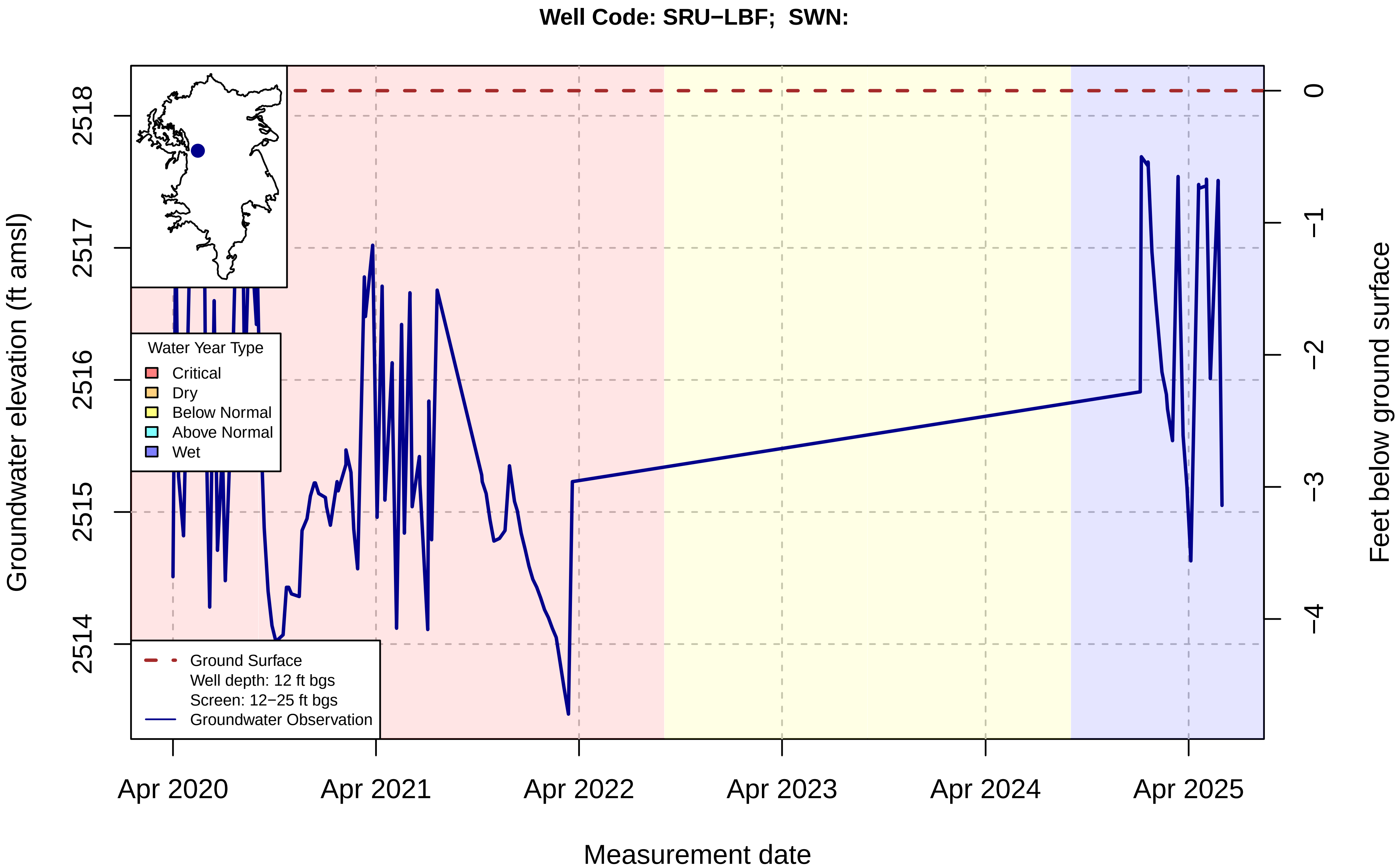


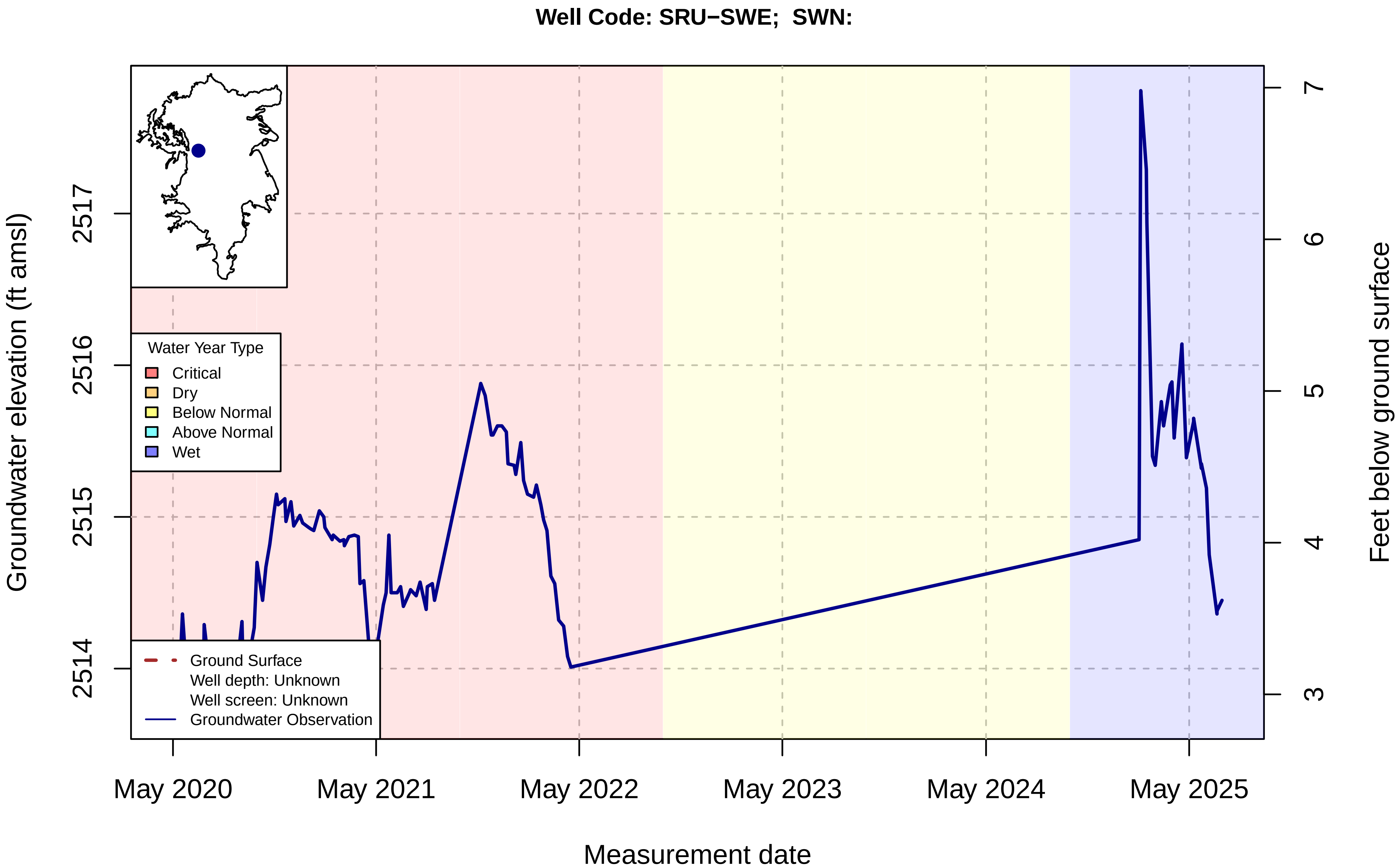
Well Code: 416397N1225224W001; SWN: 44N06W27B001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 110 ft bgs
Screen: 50−110 ft bgs
Groundwater Observation
2540
2545
2550
2555
2560
0
−5
−10
−15
−20
−25
1975
1985
1995
2005
2015
2025


Well Code: 416462N1224190W001; SWN: 44N05W21H001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 335 ft bgs
Well screen: Unknown
Groundwater Observation
2580
2600
2620
2640
2660
0
−20
−40
−60
−80
−100
1954
1964
1974
1984
1994
2004
2014
2024

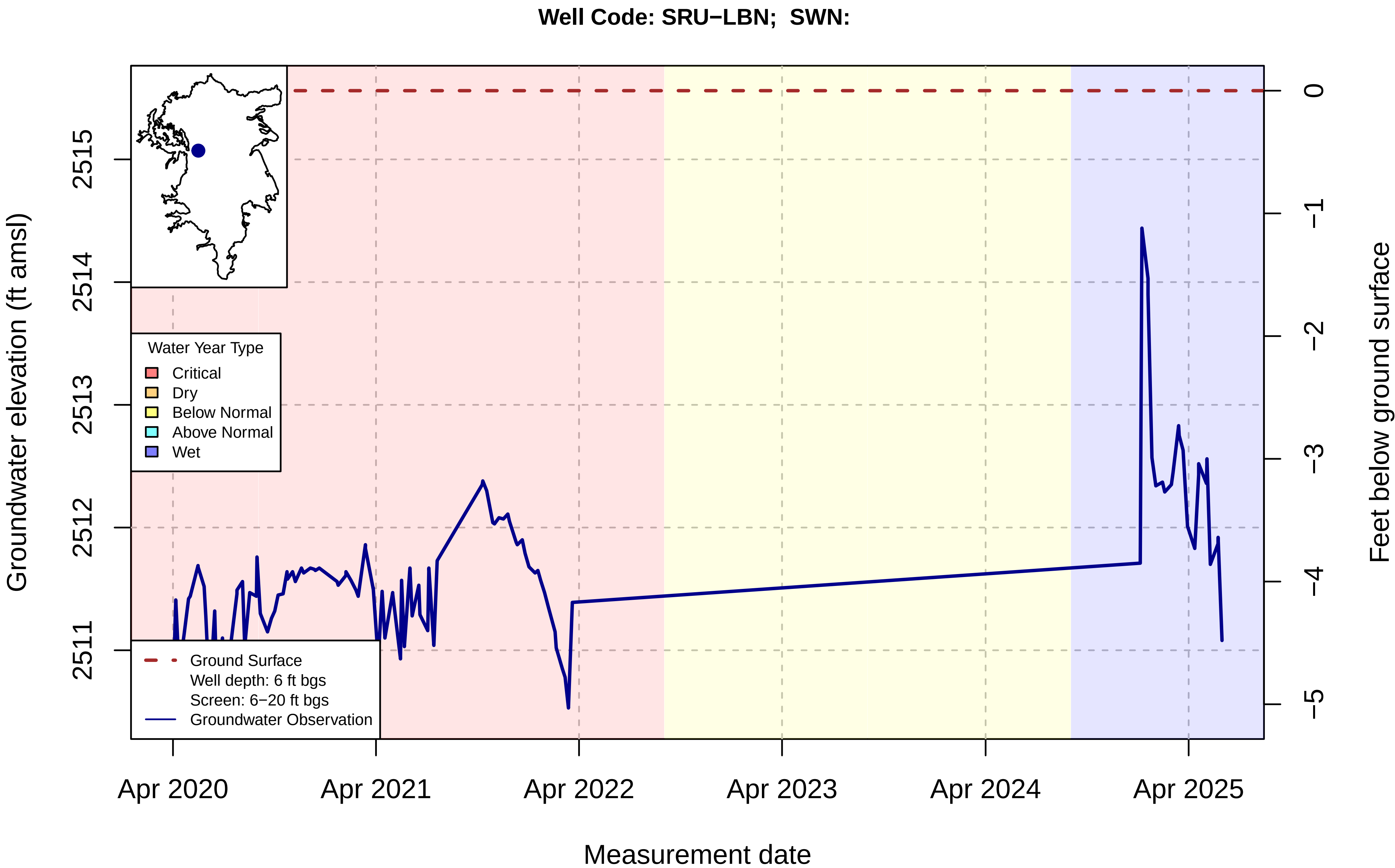


Well Code: SHA_172; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2640
2660
2680
2700
2720
2740
2760
0
−20
−40
−60
−80
−100
−120
Nov 2019
Nov 2020
Nov 2021
Nov 2022
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 160 ft bgs
Well screen: Unknown
Groundwater Observation


Well Code: SRU−LBF; SWN:
Groundwater elevation (ft amsl)
2514
2515
2516
2517
2518
Feet below ground surface
0
−1
−2
−3
−4
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 12 ft bgs
Screen: 12−25 ft bgs
Groundwater Observation

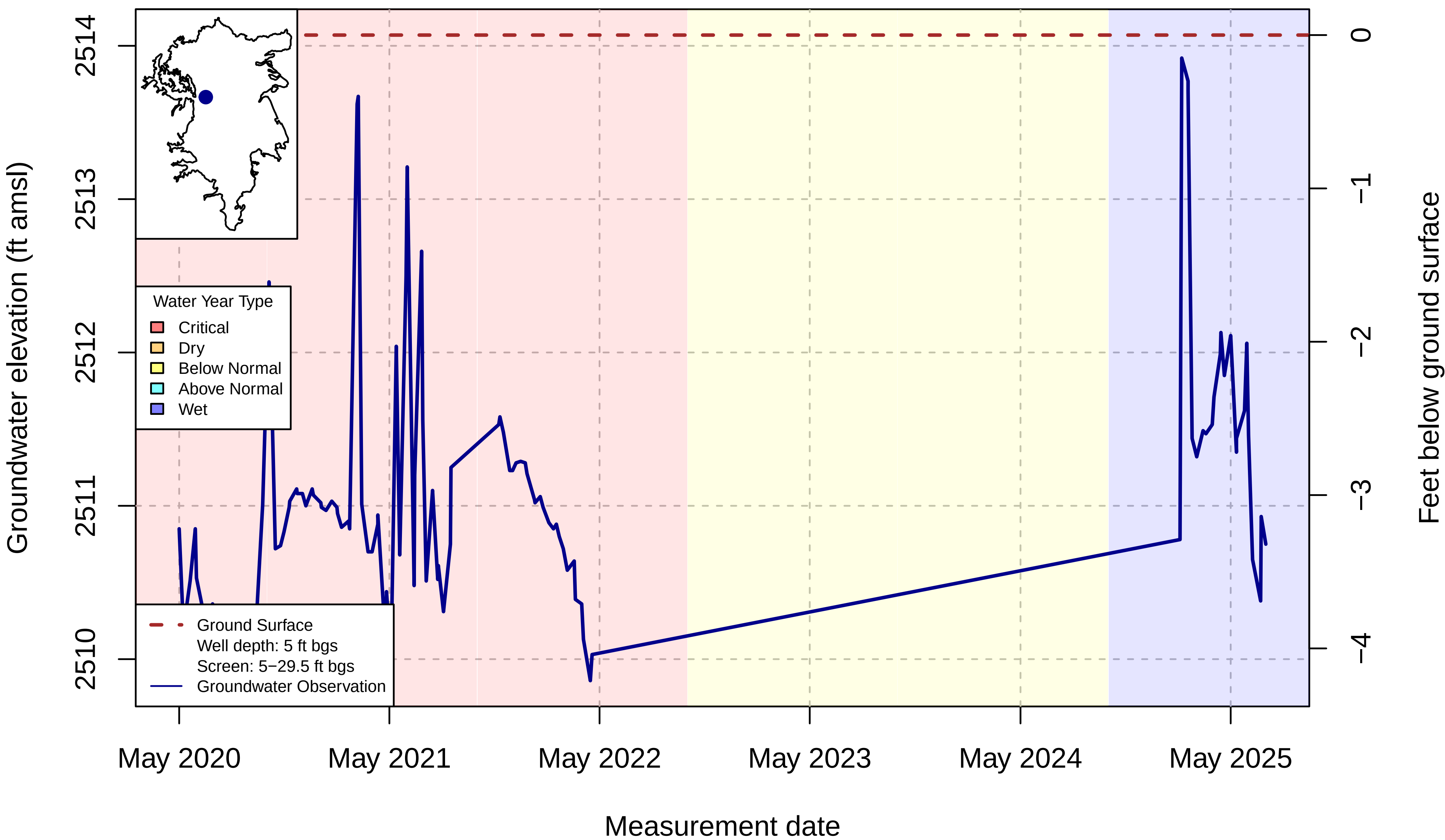


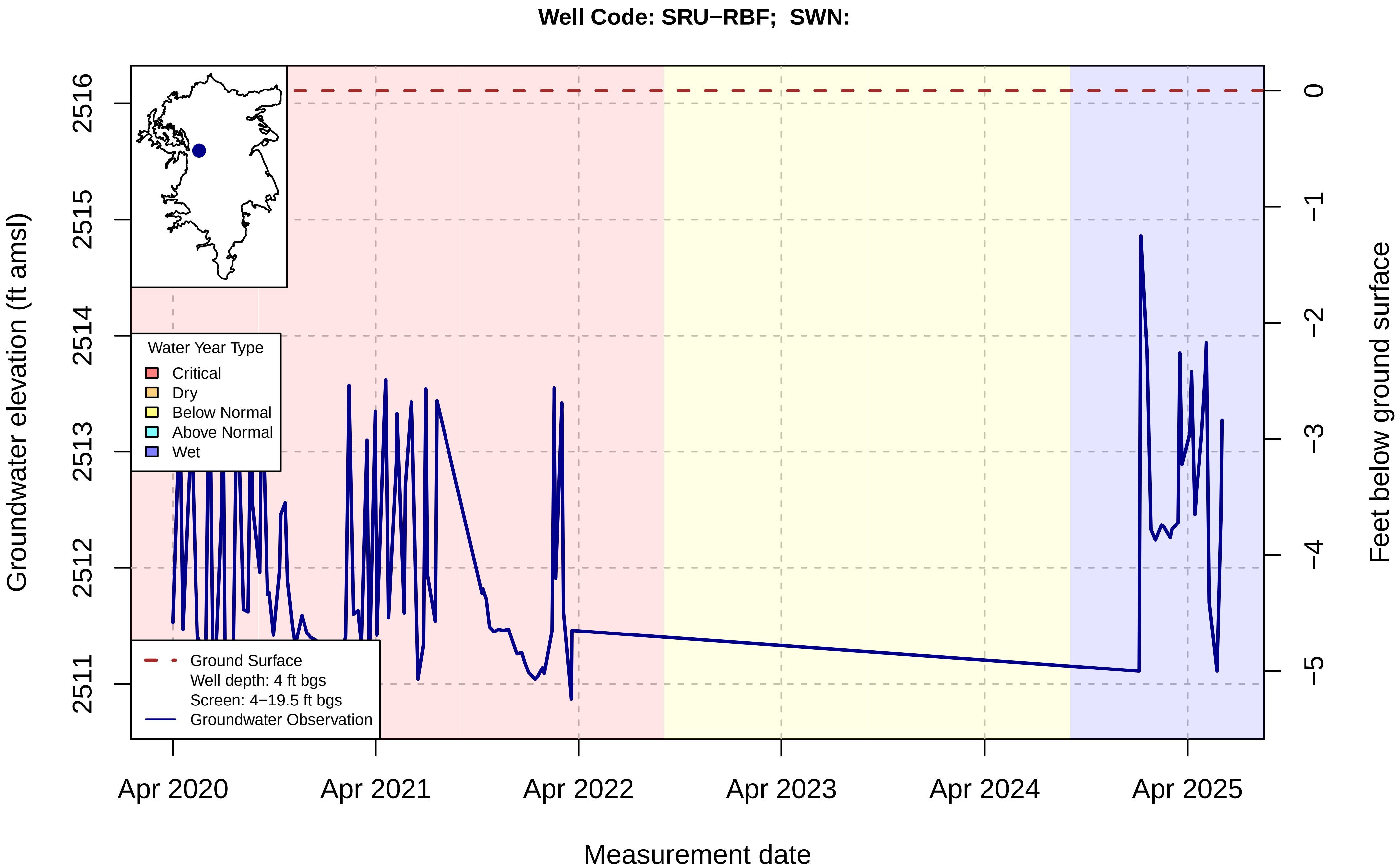
Well Code: SRU−SWE; SWN:
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
Groundwater elevation (ft amsl)
2514
2515
2516
2517
Feet below ground surface
3
4
5
6
7
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Measurement date

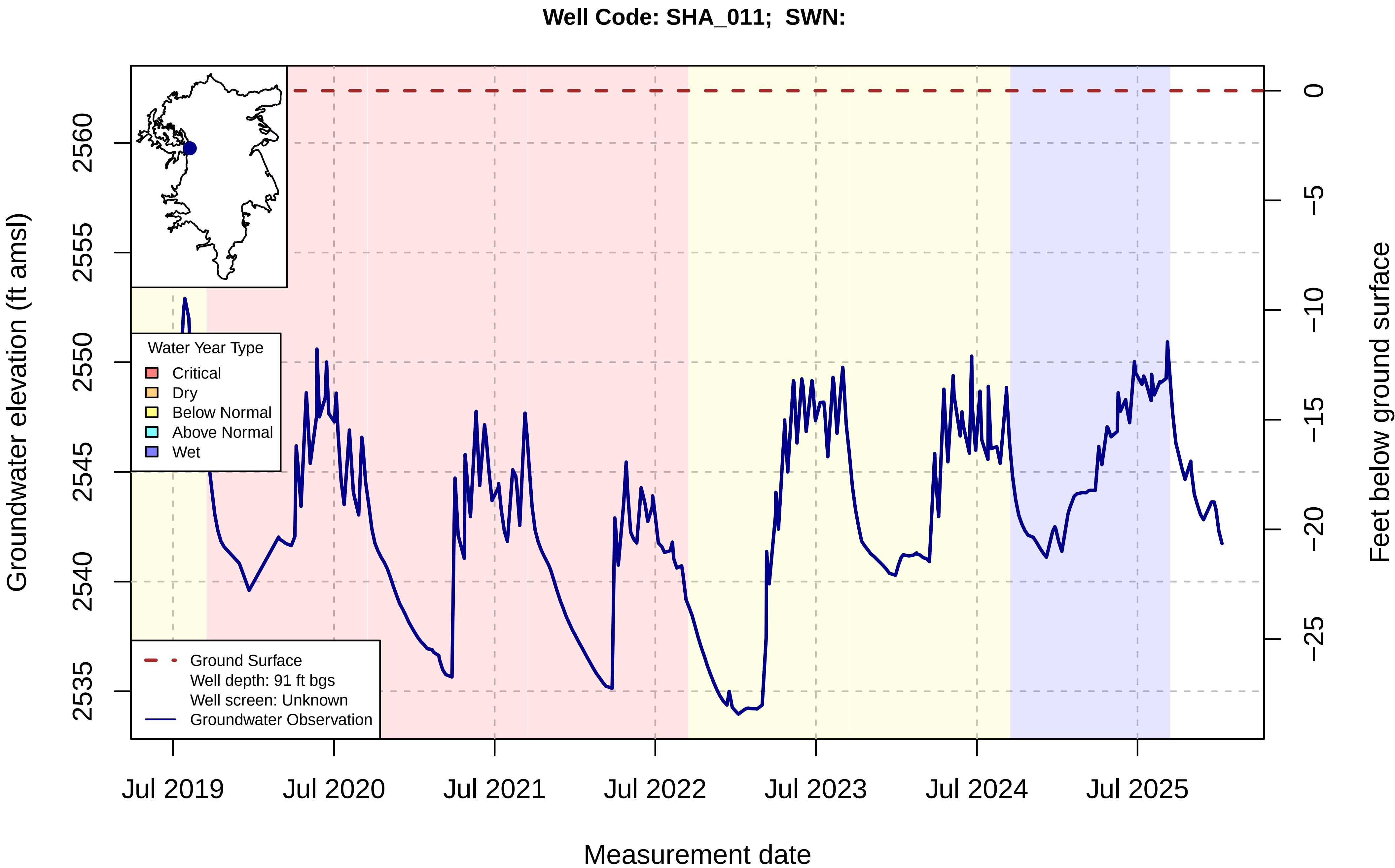


Well Code: SRU−LBN; SWN:
Groundwater elevation (ft amsl)
2511
2512
2513
2514
2515
Feet below ground surface
0
−1
−2
−3
−4
−5
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 6 ft bgs
Screen: 6−20 ft bgs
Groundwater Observation

Well Code: SRU−RBN; SWN:

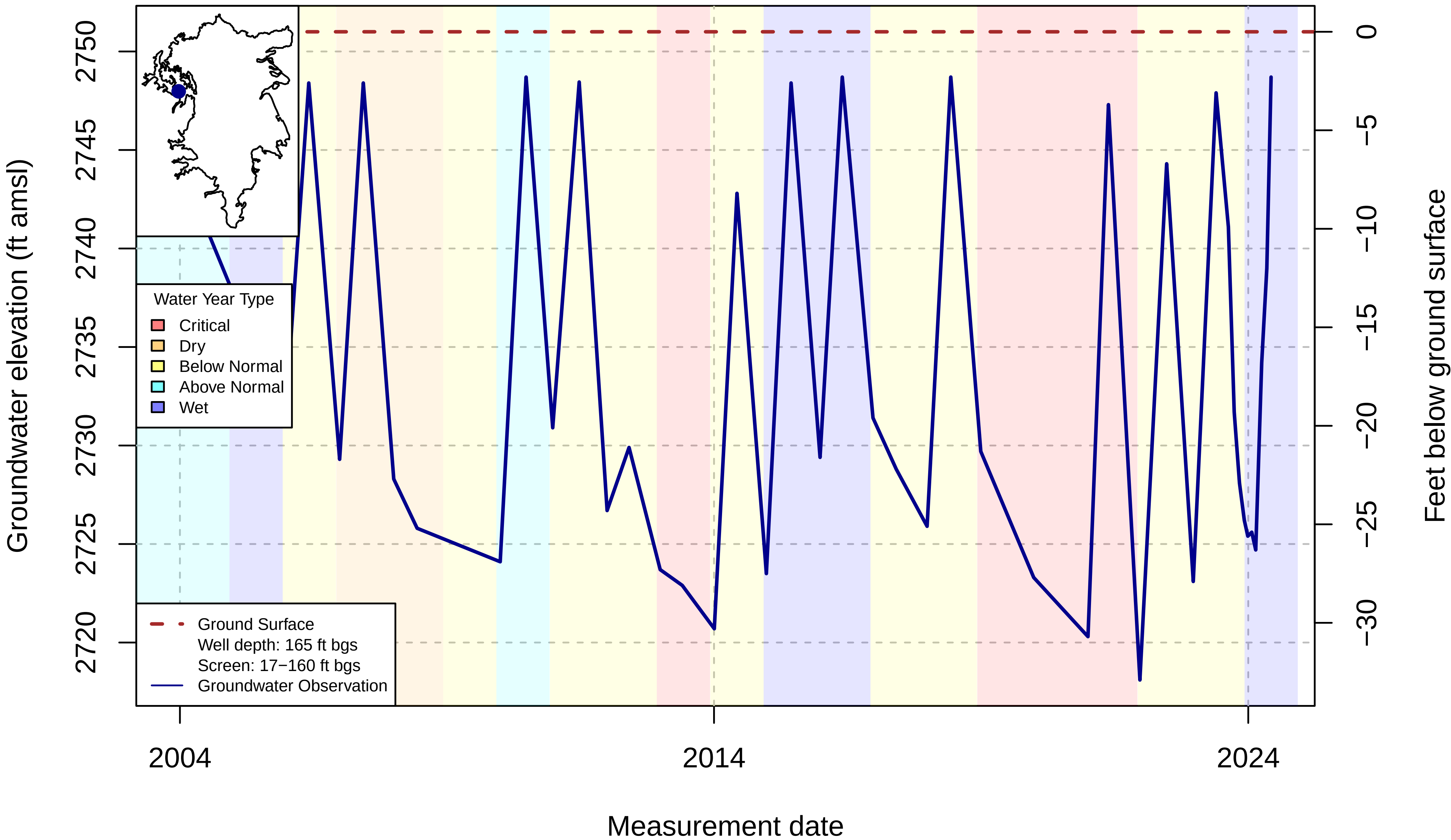


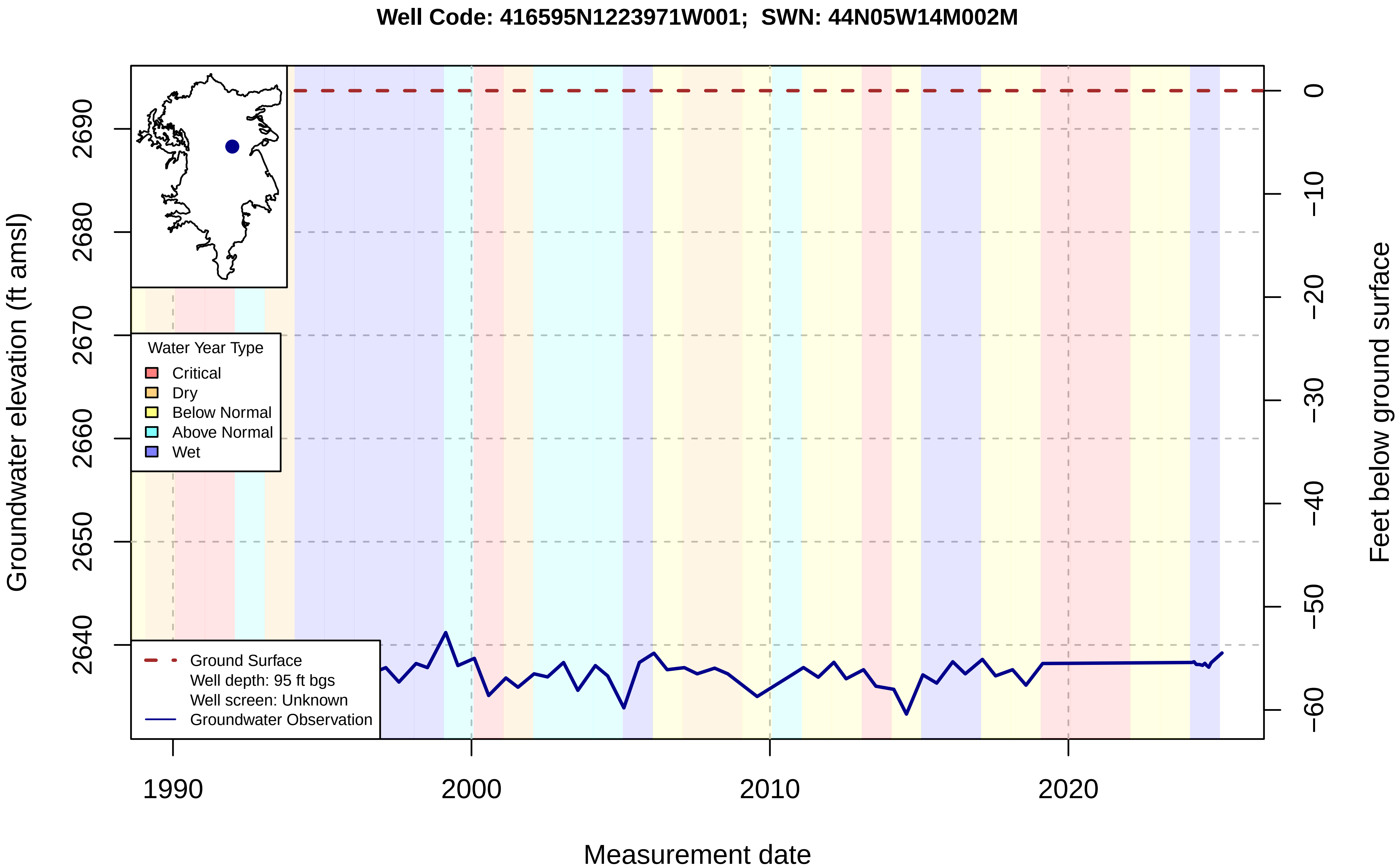

Well Code: SRU−RBF; SWN:
Groundwater elevation (ft amsl)
2511
2512
2513
2514
2515
2516
Feet below ground surface
0
−1
−2
−3
−4
−5
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 4 ft bgs
Screen: 4−19.5 ft bgs
Groundwater Observation
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date



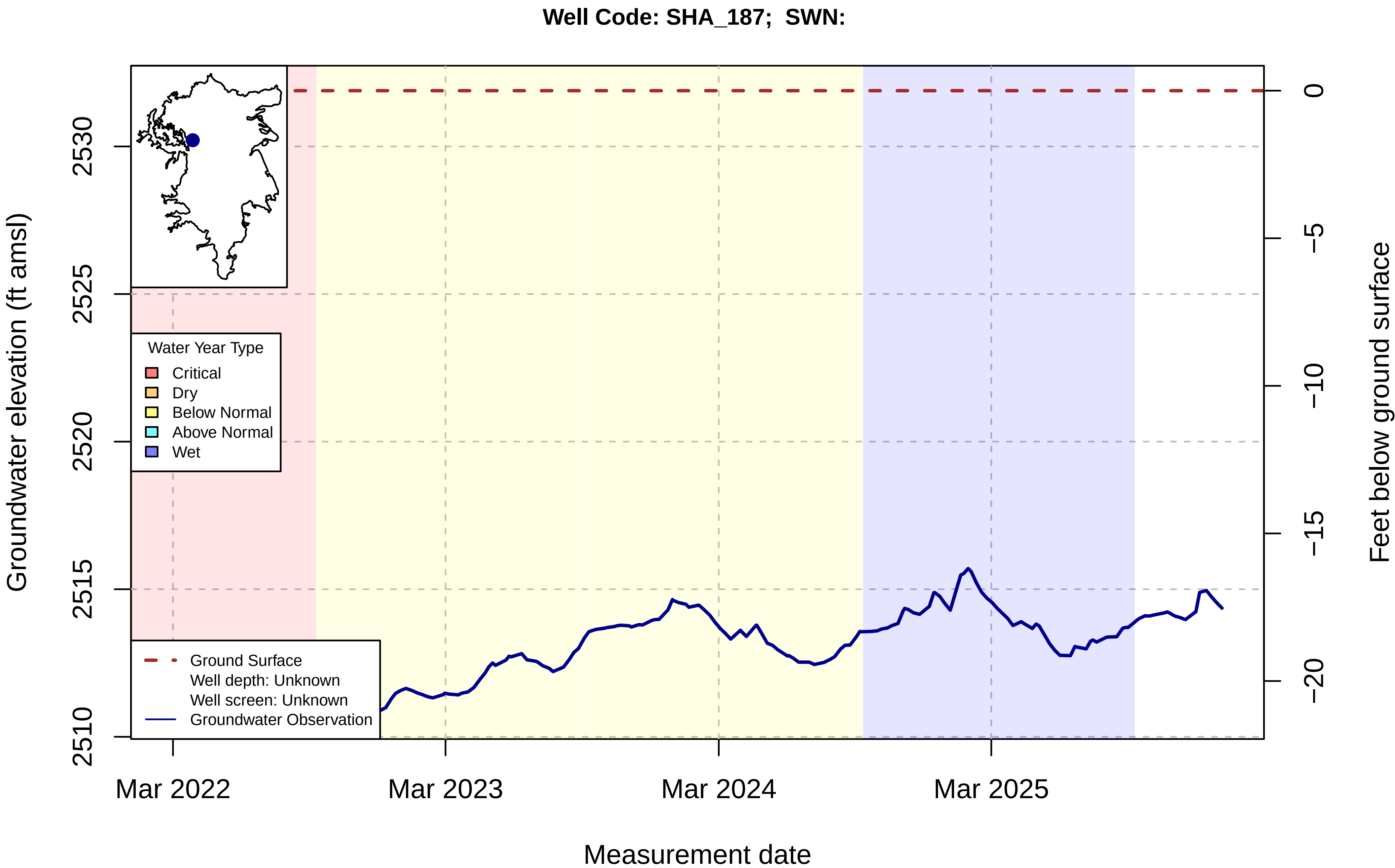
Well Code: SHA_011; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2535
2540
2545
2550
2555
2560
0
−5
−10
−15
−20
−25
Jul 2019
Jul 2020
Jul 2021
Jul 2022
Jul 2023
Jul 2024
Jul 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 91 ft bgs
Well screen: Unknown
Groundwater Observation

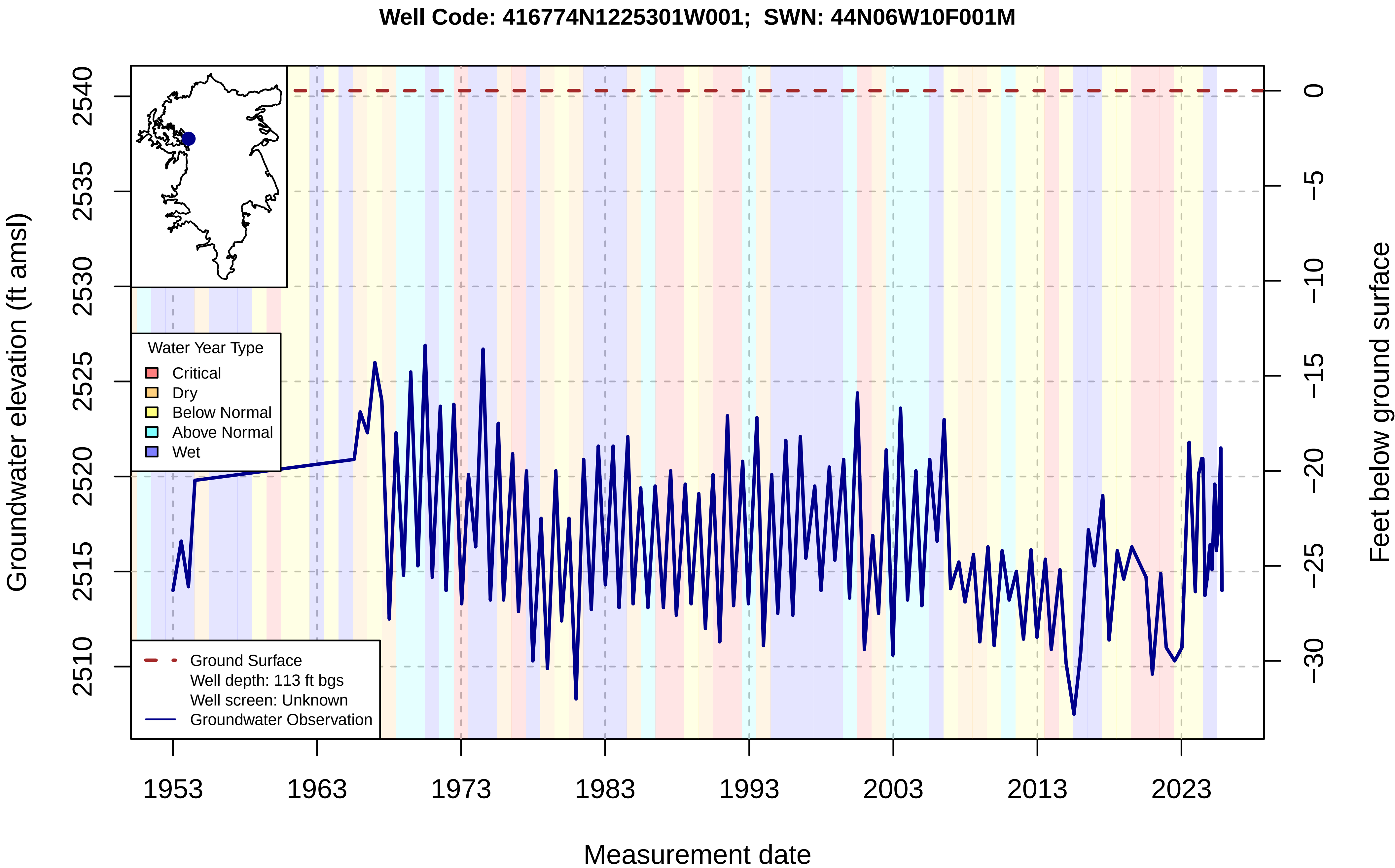
Well Code: 416563N1225813W001; SWN: 44N06W18Q001M



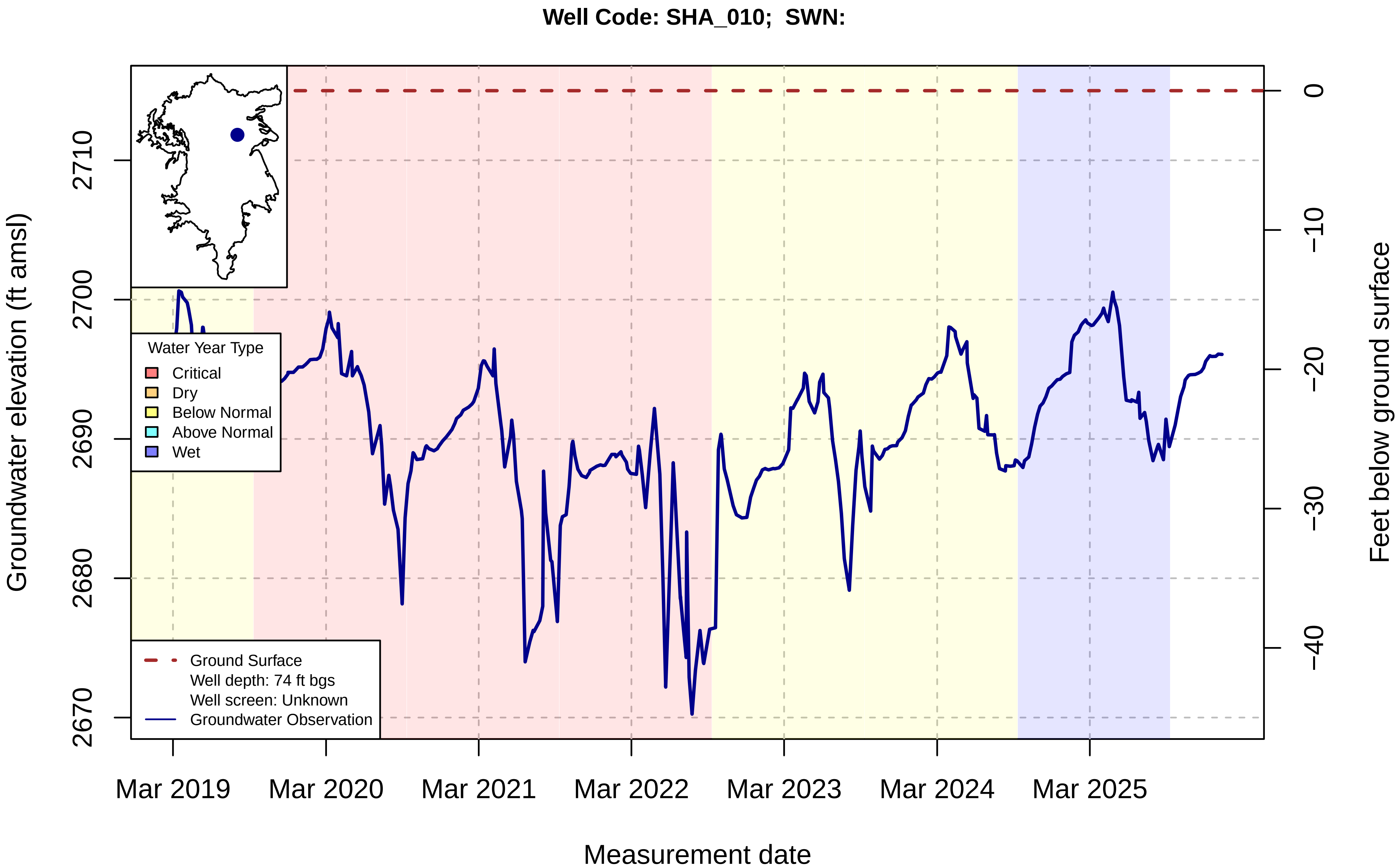


Well Code: 416595N1223971W001; SWN: 44N05W14M002M
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 95 ft bgs
Well screen: Unknown
Groundwater Observation
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
1990
2000
2010
2020
2640
2650
2660
2670
2680
2690
0
−10
−20
−30
−40
−50
−60

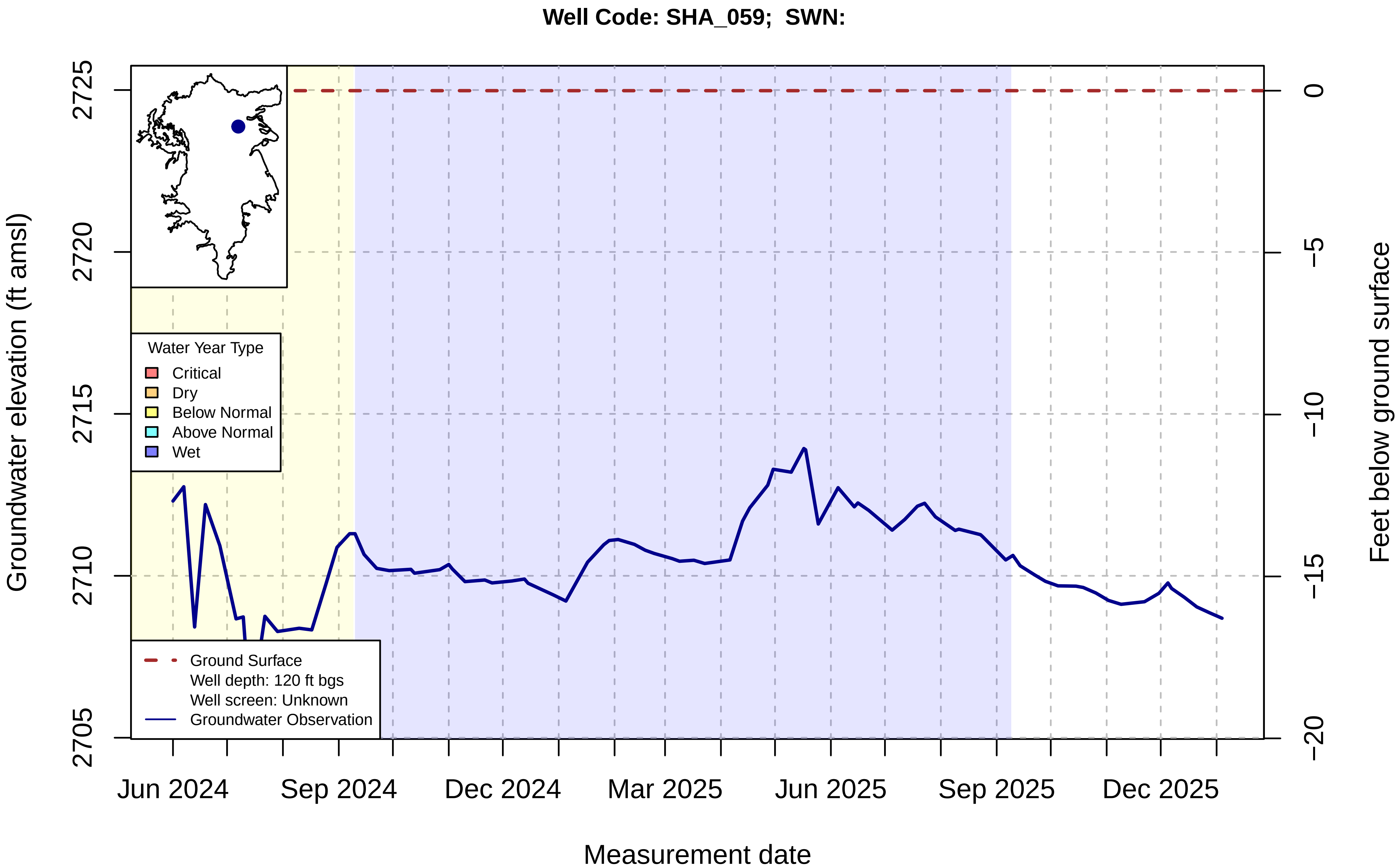

Well Code: SHA_187; SWN:
Groundwater elevation (ft amsl)
2510
2515
2520
2525
2530
Feet below ground surface
0
−5
−10
−15
−20
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation



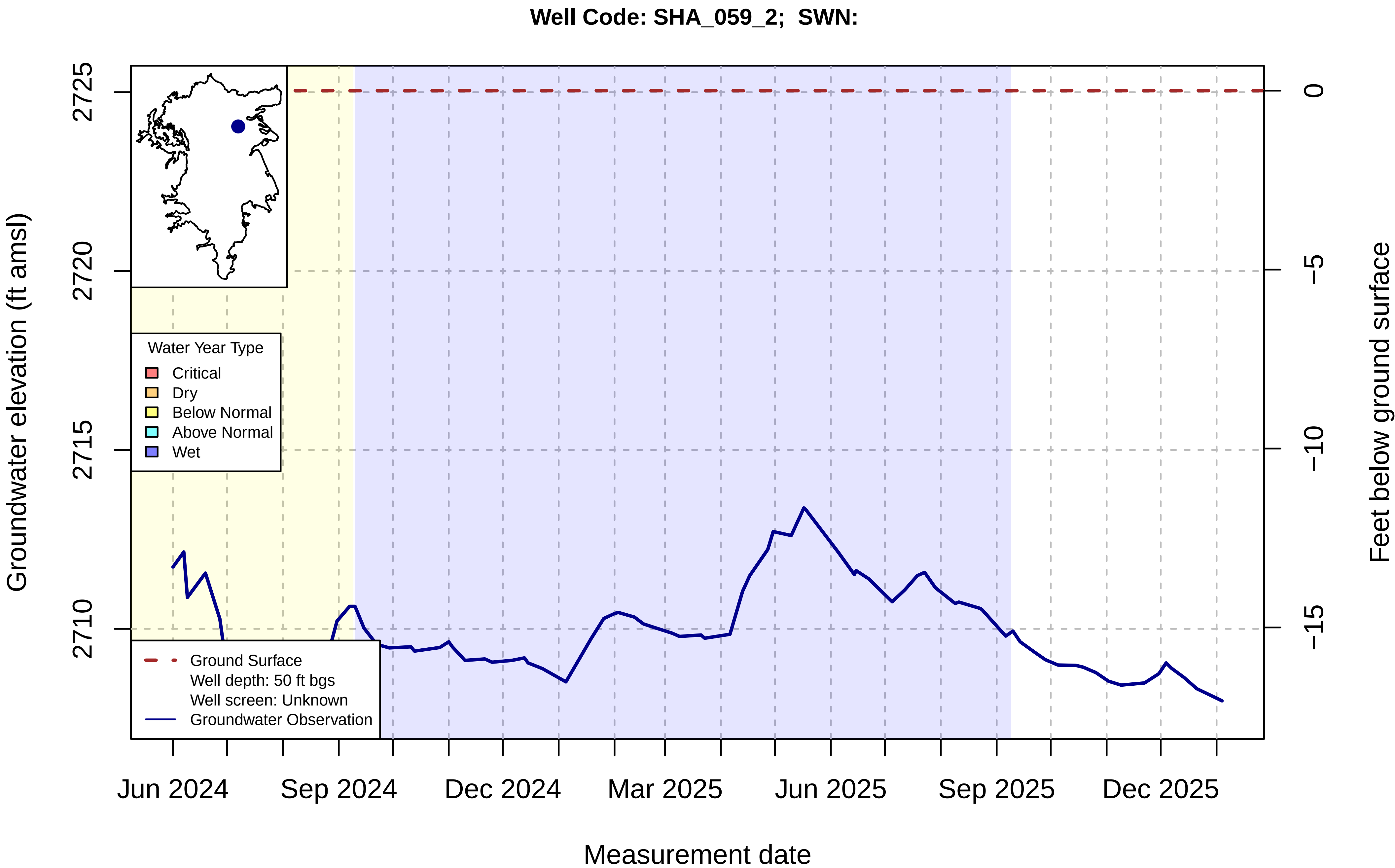
Well Code: 416774N1225301W001; SWN: 44N06W10F001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2510
2515
2520
2525
2530
2535
2540
0
−5
−10
−15
−20
−25
−30
1953
1963
1973
1983
1993
2003
2013
2023
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 113 ft bgs
Well screen: Unknown
Groundwater Observation



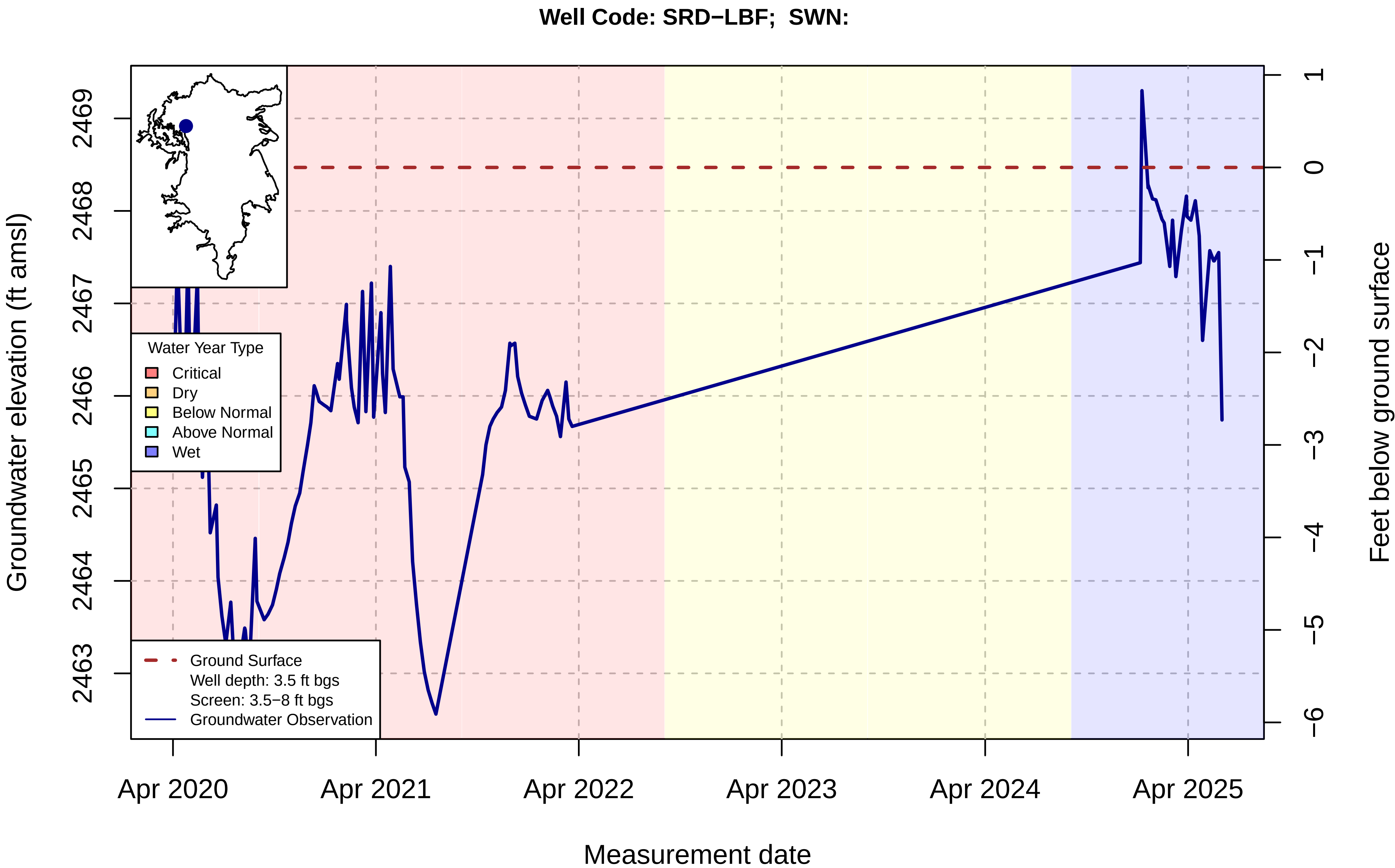
Well Code: SHA_010; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2670
2680
2690
2700
2710
0
−10
−20
−30
−40
Mar 2019
Mar 2020
Mar 2021
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 74 ft bgs
Well screen: Unknown
Groundwater Observation



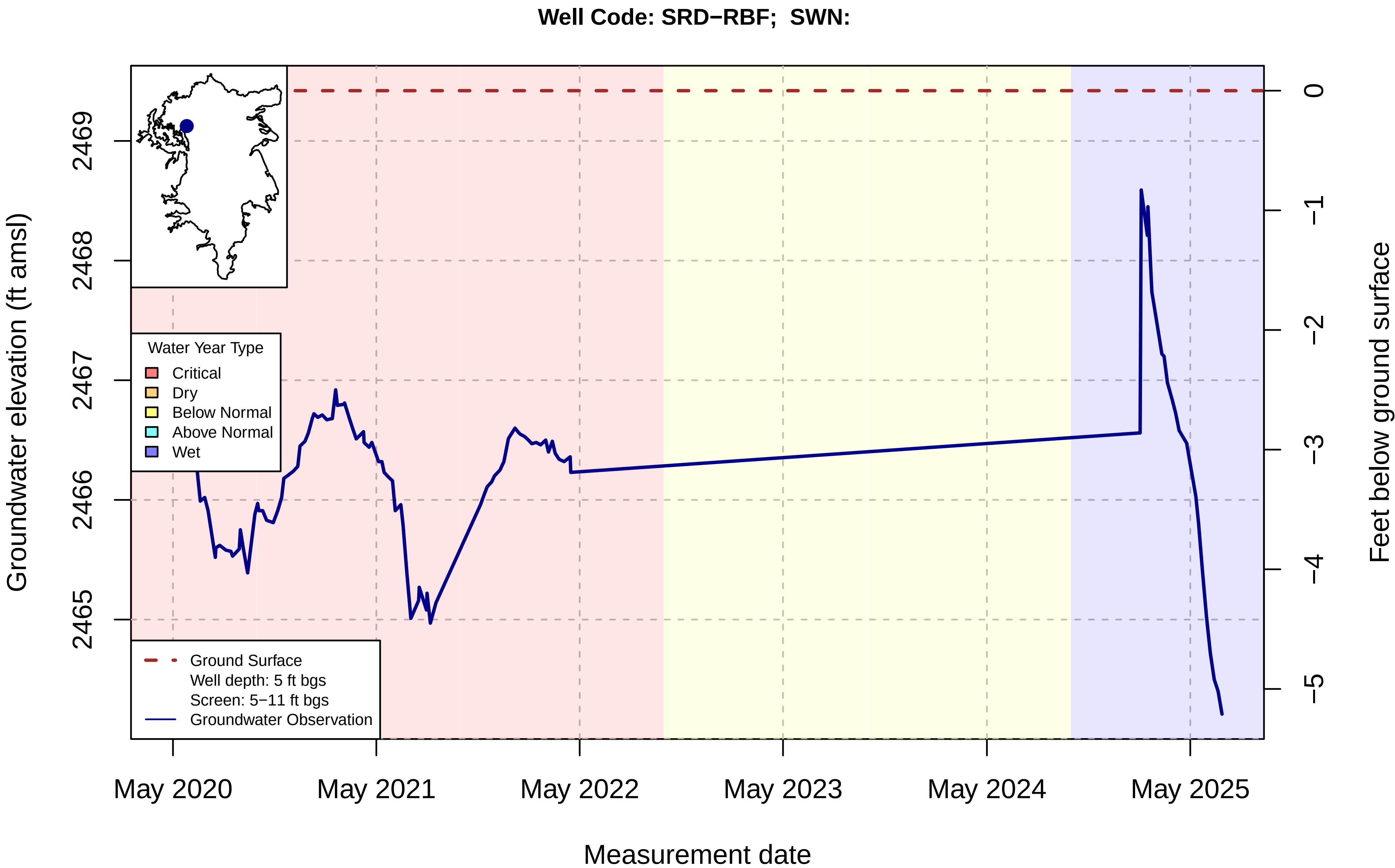
Well Code: SHA_059; SWN:
Groundwater elevation (ft amsl)
2705
2710
2715
2720
2725
Feet below ground surface
0
−5
−10
−15
−20
Jun 2024
Sep 2024
Dec 2024
Mar 2025
Jun 2025
Sep 2025
Dec 2025
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 120 ft bgs
Well screen: Unknown
Groundwater Observation

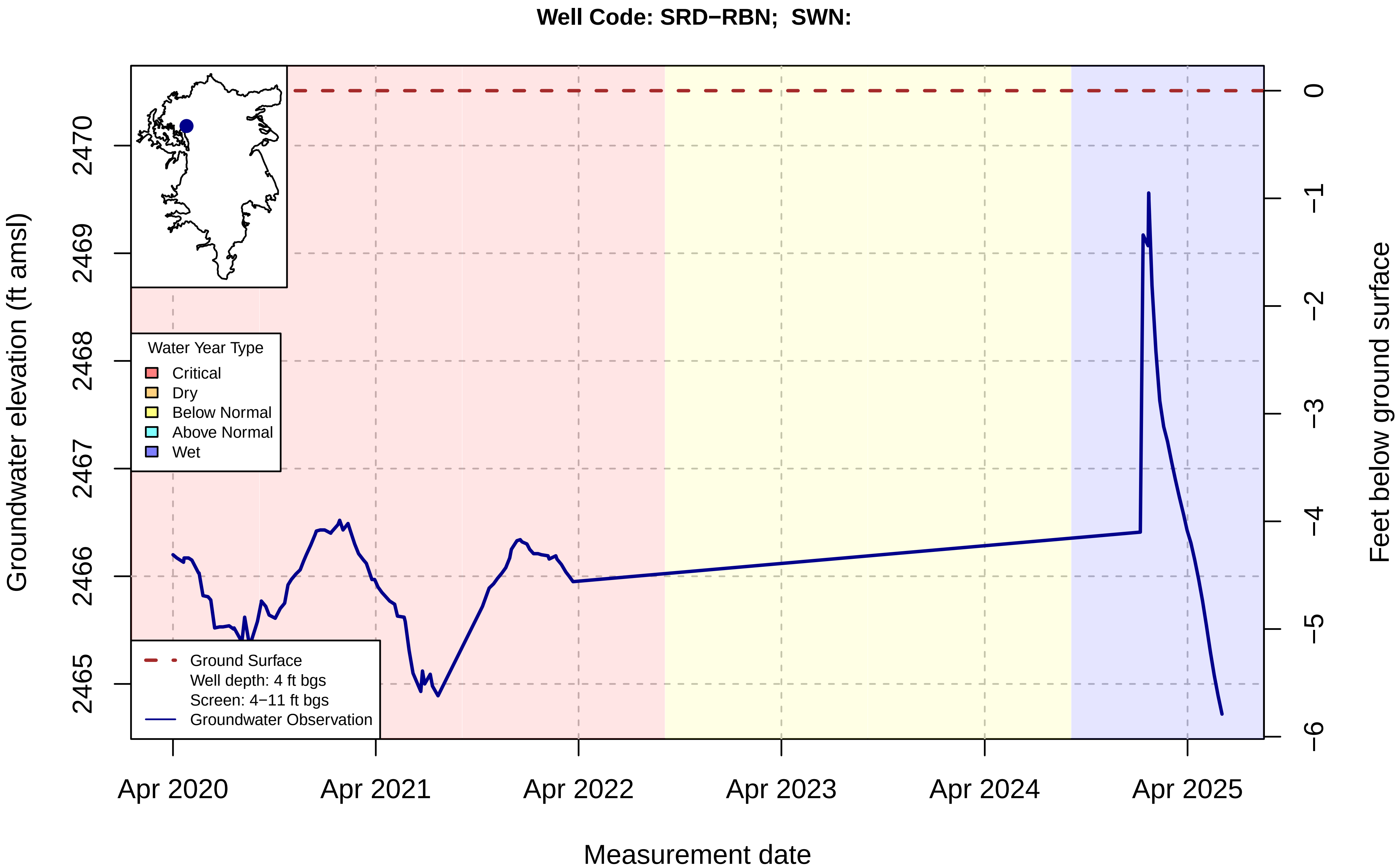


Well Code: SHA_059_2; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2725
2720
2715
2710
0
−5
−10
−15
Jun 2024
Sep 2024
Dec 2024
Mar 2025
Jun 2025
Sep 2025
Dec 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 50 ft bgs
Well screen: Unknown
Groundwater Observation

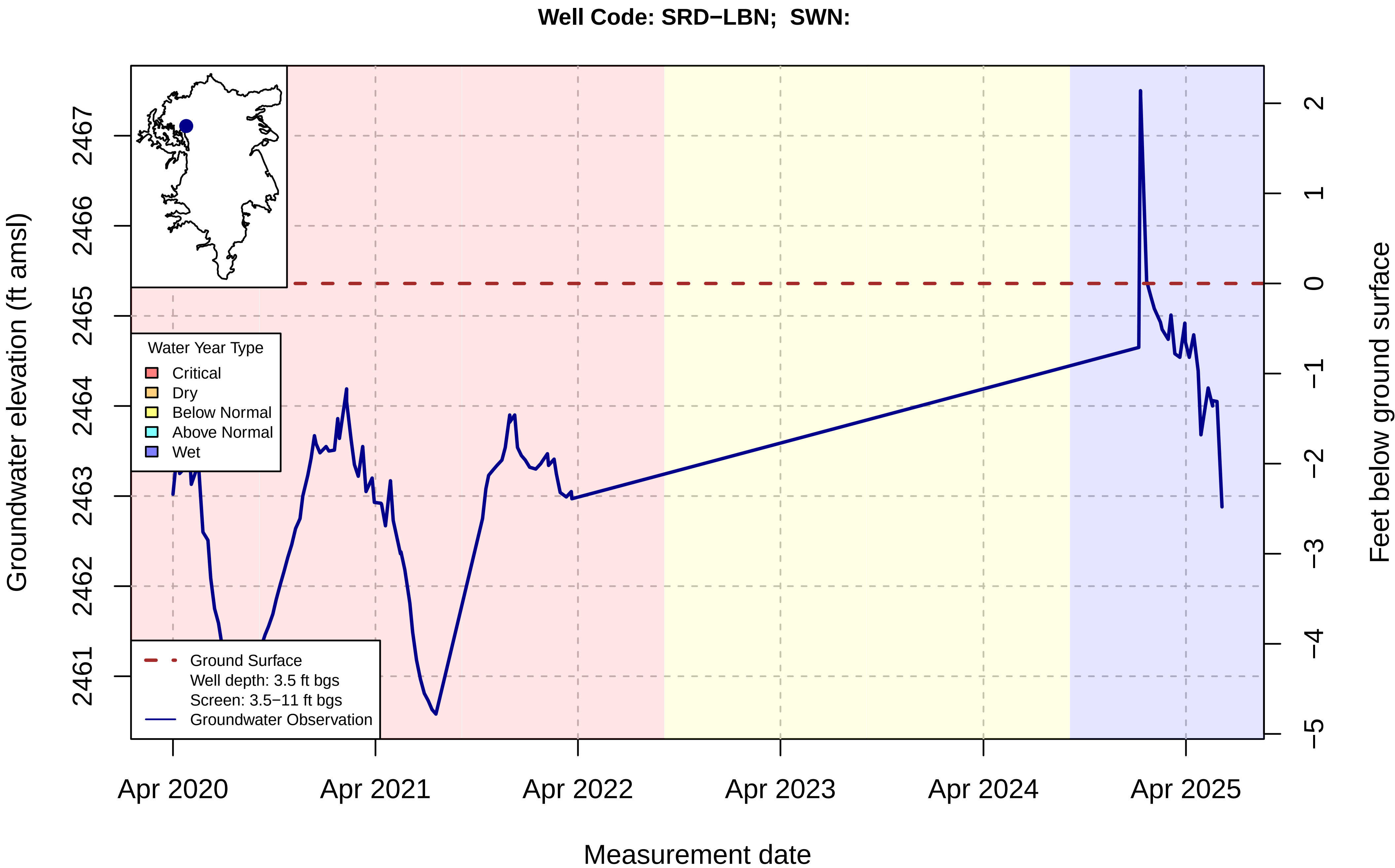


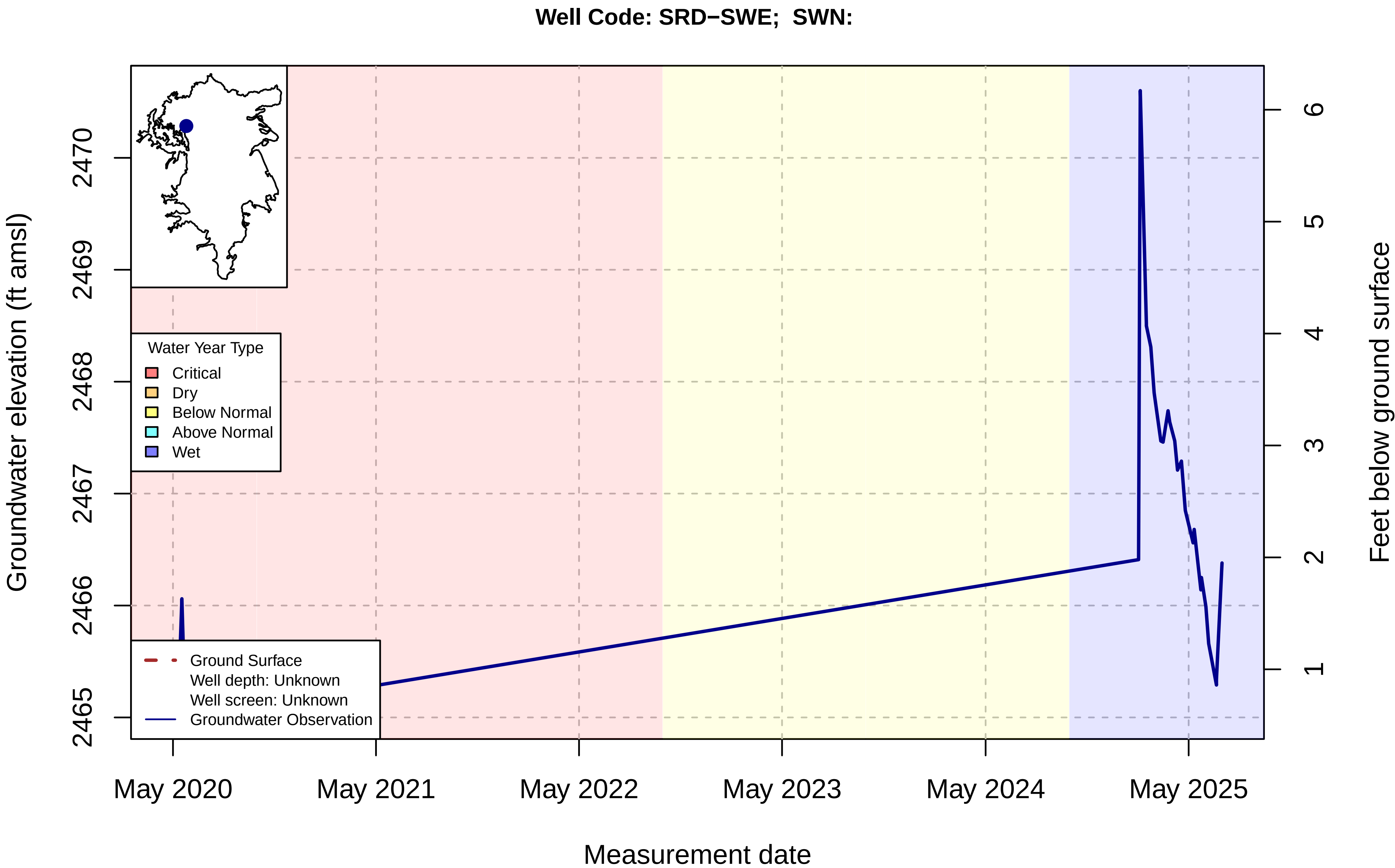
Well Code: SRD−LBF; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
2463
2464
2465
2466
2467
2468
2469
1
0
−1
−2
−3
−4
−5
−6
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 3.5 ft bgs
Screen: 3.5−8 ft bgs
Groundwater Observation

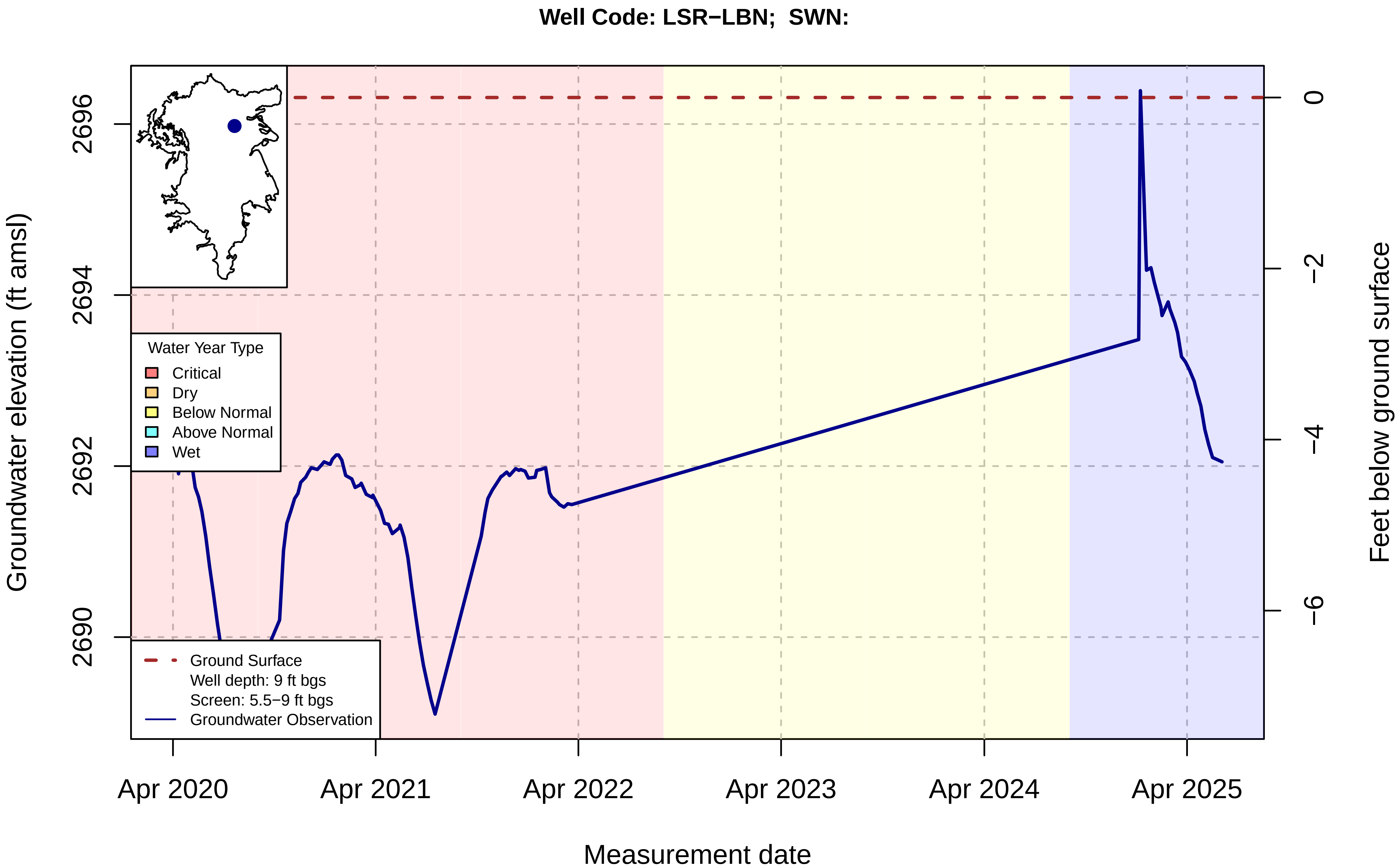

Well Code: SRD−RBF; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2465
2466
2467
2468
2469
0
−1
−2
−3
−4
−5
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 5 ft bgs
Screen: 5−11 ft bgs
Groundwater Observation

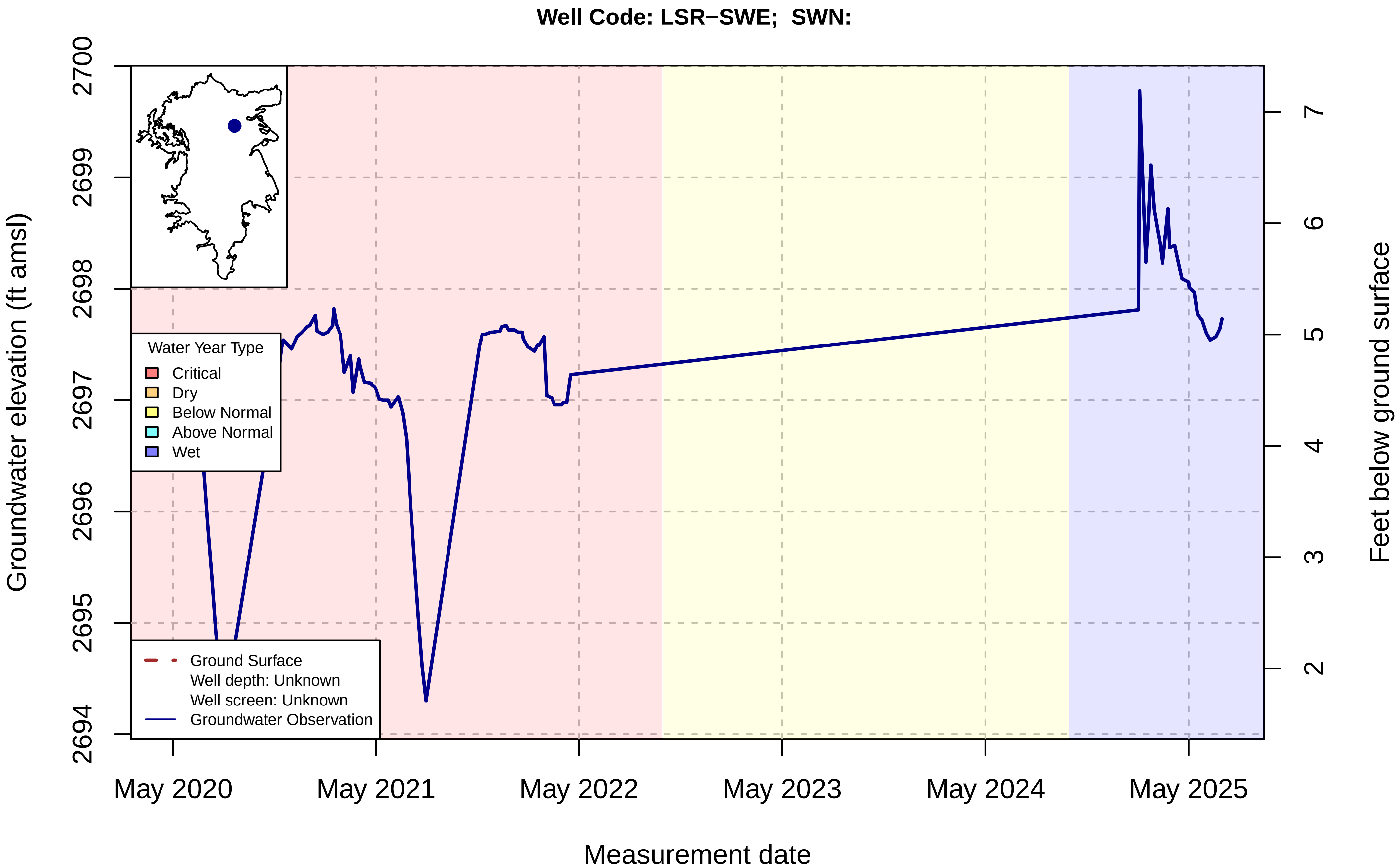


Well Code: SRD−RBN; SWN:
Groundwater elevation (ft amsl)
2465
2466
2467
2468
2469
2470
Feet below ground surface
0
−1
−2
−3
−4
−5
−6
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 4 ft bgs
Screen: 4−11 ft bgs
Groundwater Observation
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date

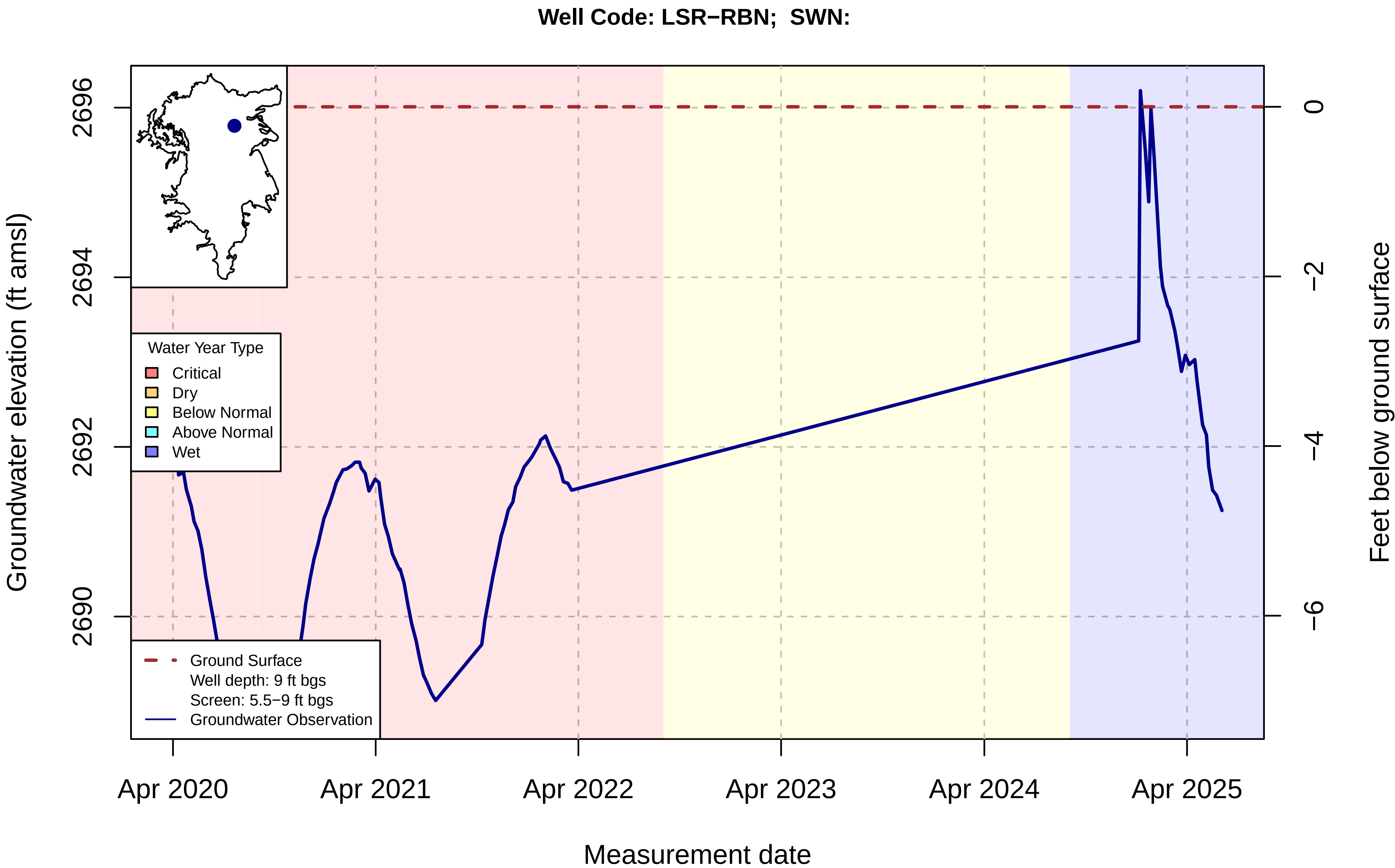

Well Code: SRD−LBN; SWN:
Groundwater elevation (ft amsl)
2461
2462
2463
2464
2465
2466
2467
Feet below ground surface
2
1
0
−1
−2
−3
−4
−5
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 3.5 ft bgs
Screen: 3.5−11 ft bgs
Groundwater Observation
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date


Well Code: SRD−SWE; SWN:
Groundwater elevation (ft amsl)
2465
2466
2467
2468
2469
2470
Feet below ground surface
1
2
3
4
5
6
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Measurement date

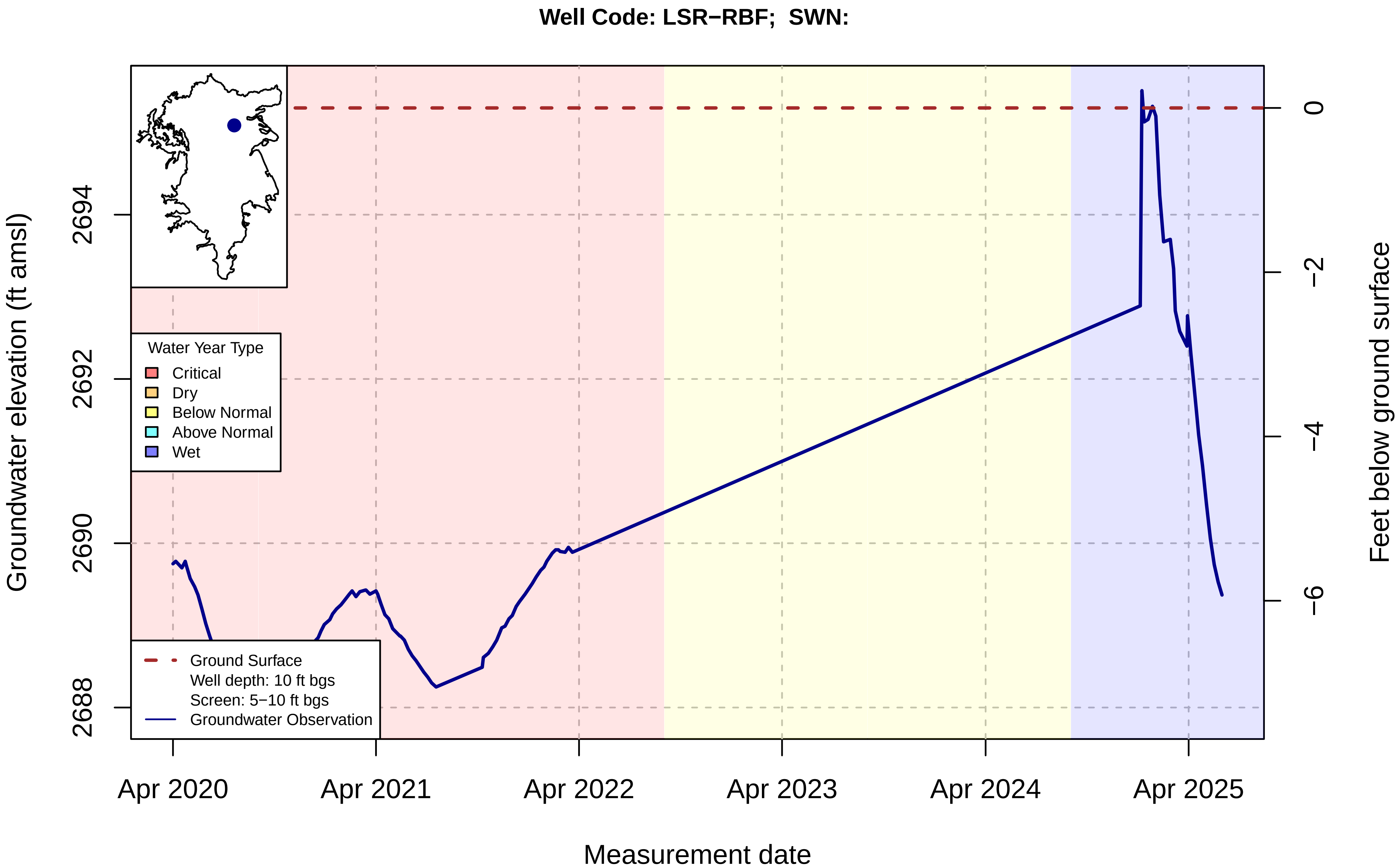

Well Code: LSR−LBN; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
2690
2692
2694
2696
0
−2
−4
−6
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 9 ft bgs
Screen: 5.5−9 ft bgs
Groundwater Observation

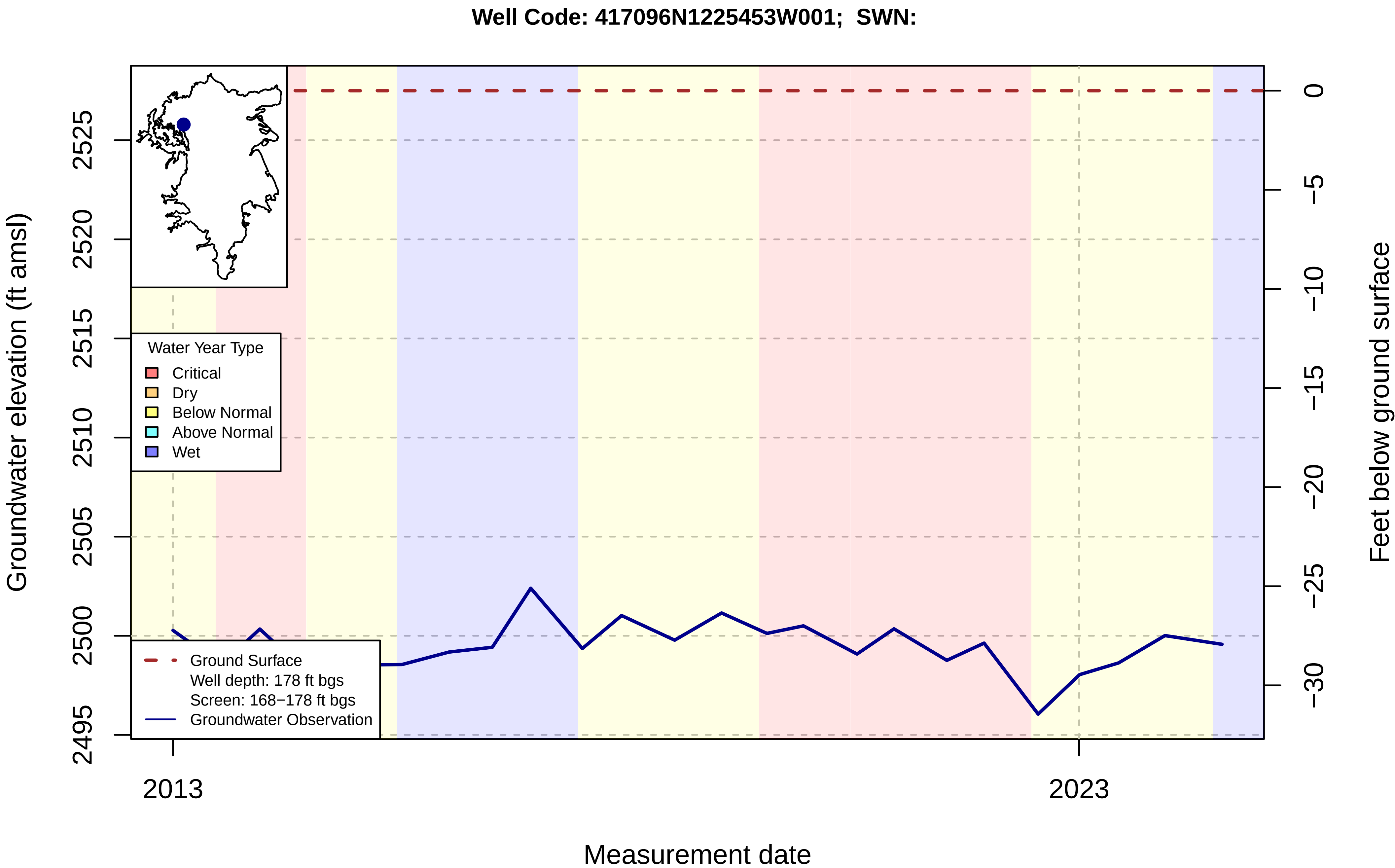


Well Code: LSR−SWE; SWN:
Groundwater elevation (ft amsl)
2694
2695
2696
2697
2698
2699
2700
Feet below ground surface
2
3
4
5
6
7
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation
May 2020
May 2021
May 2022
May 2023
May 2024
May 2025
Measurement date

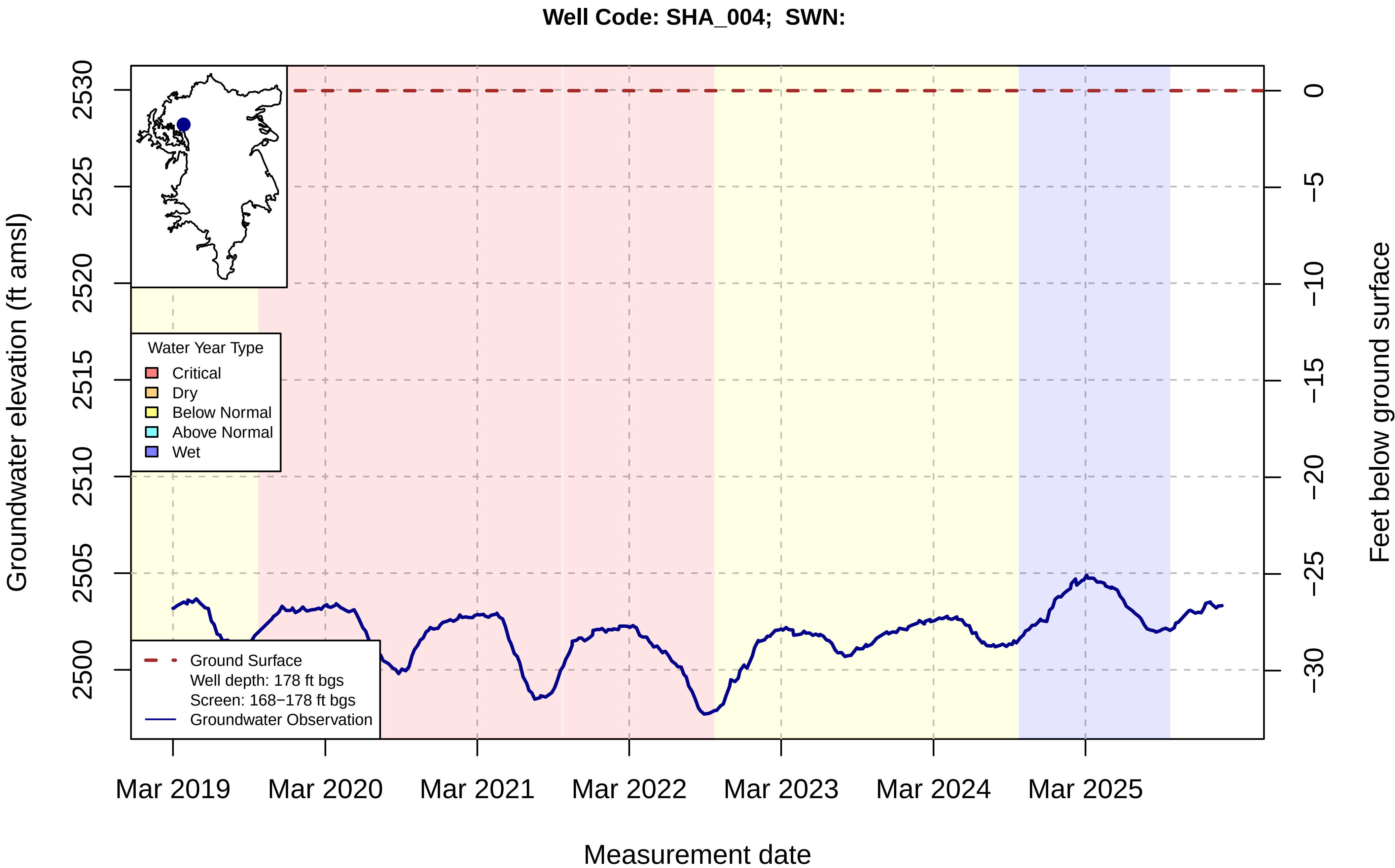


Well Code: LSR−RBN; SWN:
Groundwater elevation (ft amsl)
2696
2694
2692
2690
0
−2
−4
−6
Feet below ground surface
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 9 ft bgs
Screen: 5.5−9 ft bgs
Groundwater Observation
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Measurement date

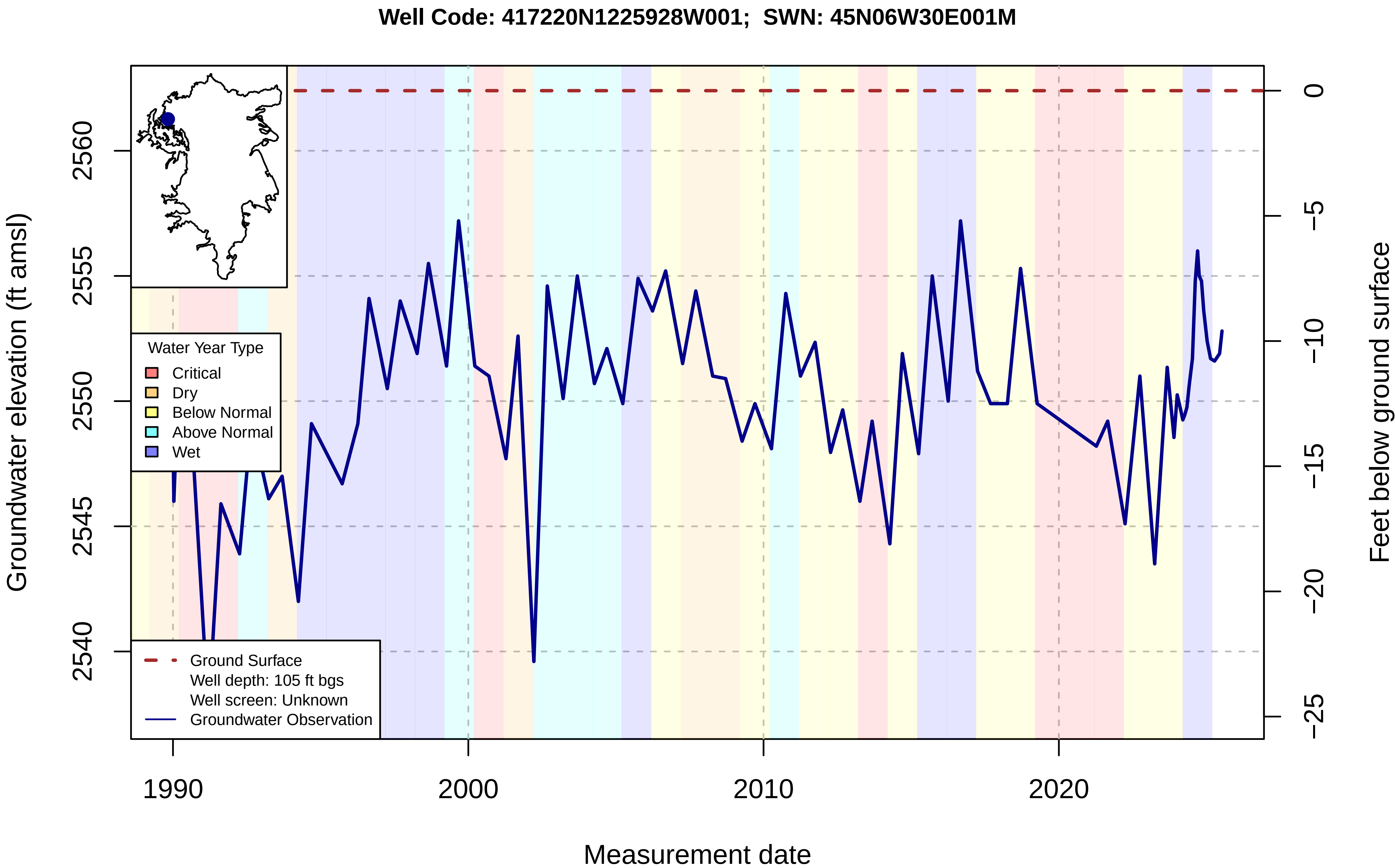

Well Code: LSR−RBF; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2688
2690
2692
2694
0
−2
−4
−6
Apr 2020
Apr 2021
Apr 2022
Apr 2023
Apr 2024
Apr 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 10 ft bgs
Screen: 5−10 ft bgs
Groundwater Observation



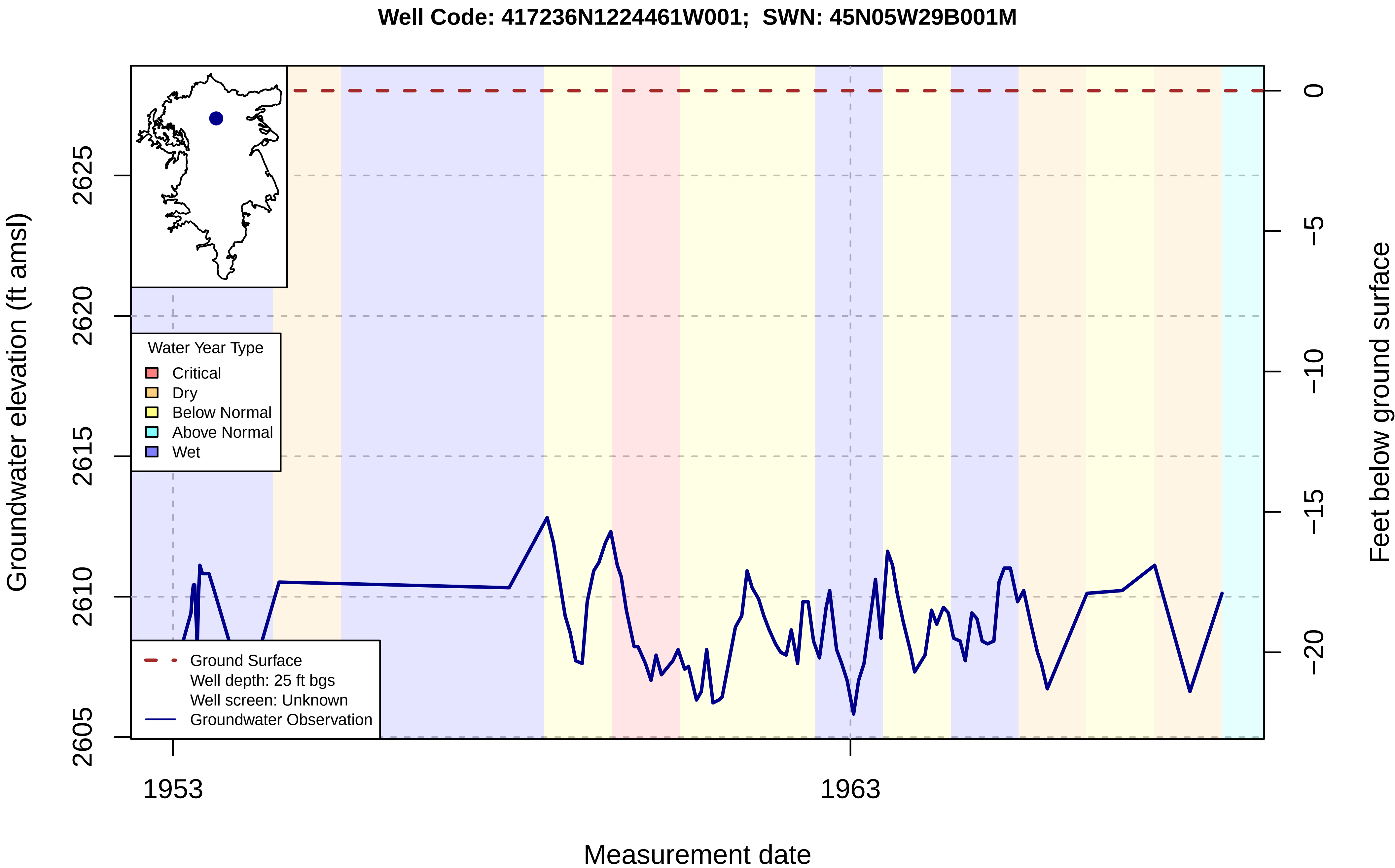
Well Code: 417096N1225453W001; SWN:
Groundwater elevation (ft amsl)
2495
2500
2505
2510
2515
2520
2525
Feet below ground surface
0
−5
−10
−15
−20
−25
−30
2013
2023
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 178 ft bgs
Screen: 168−178 ft bgs
Groundwater Observation



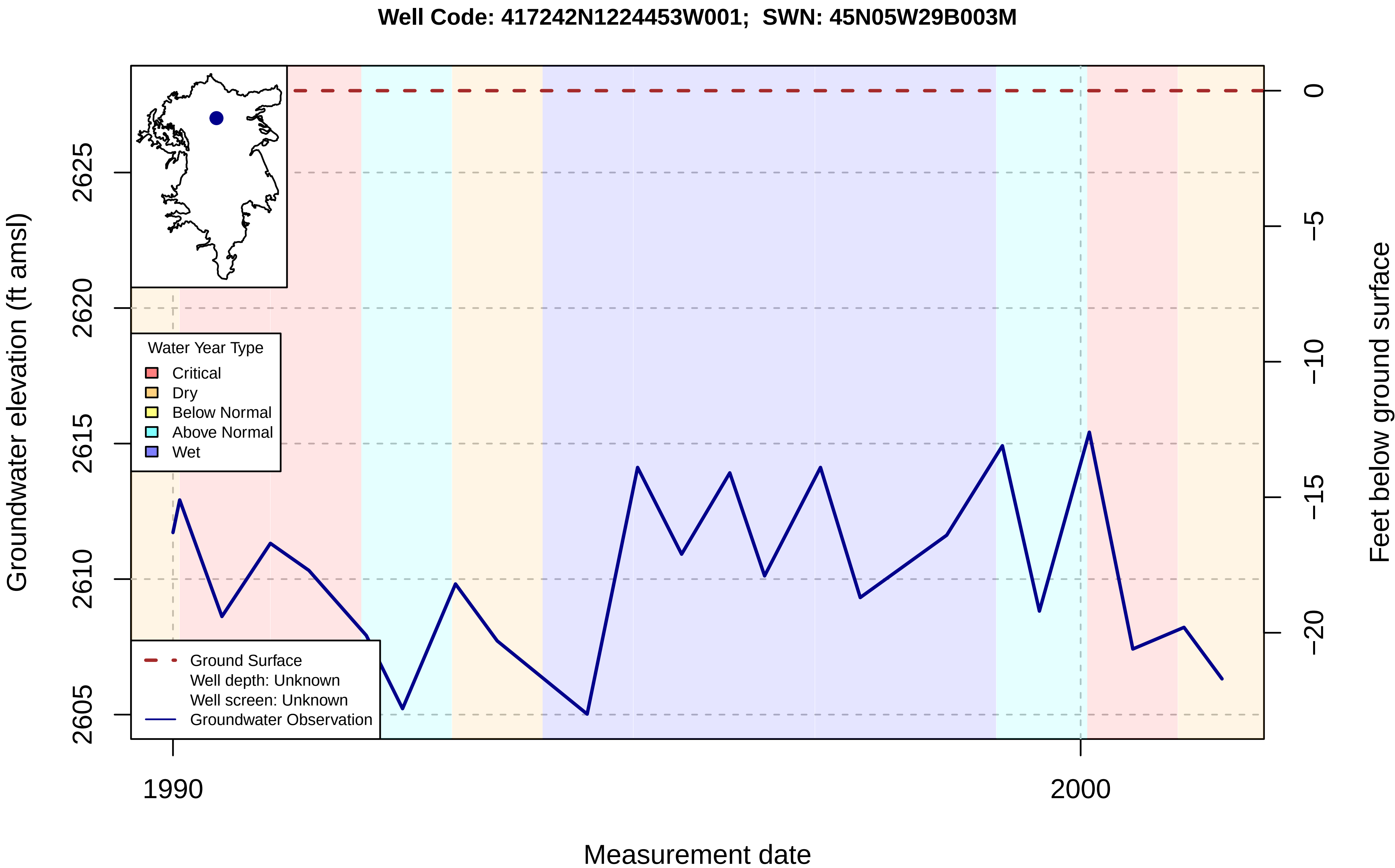
Well Code: SHA_004; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2530
2525
2520
2515
2510
2505
2500
0
−5
−10
−15
−20
−25
−30
Mar 2019
Mar 2020
Mar 2021
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 178 ft bgs
Screen: 168−178 ft bgs
Groundwater Observation



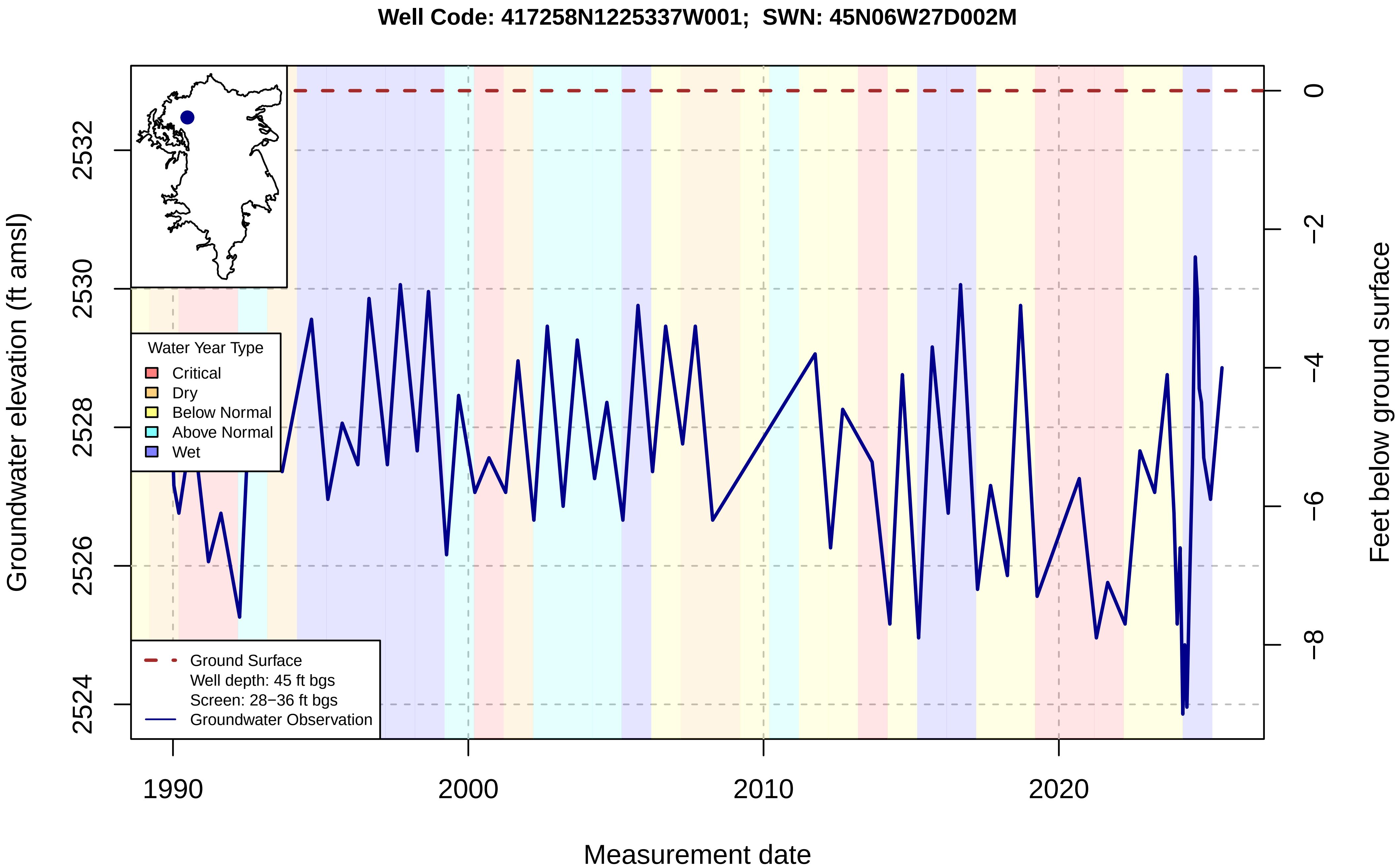
Well Code: 417220N1225928W001; SWN: 45N06W30E001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 105 ft bgs
Well screen: Unknown
Groundwater Observation
2540
2545
2550
2555
2560
0
−5
−10
−15
−20
−25
1990
2000
2010
2020



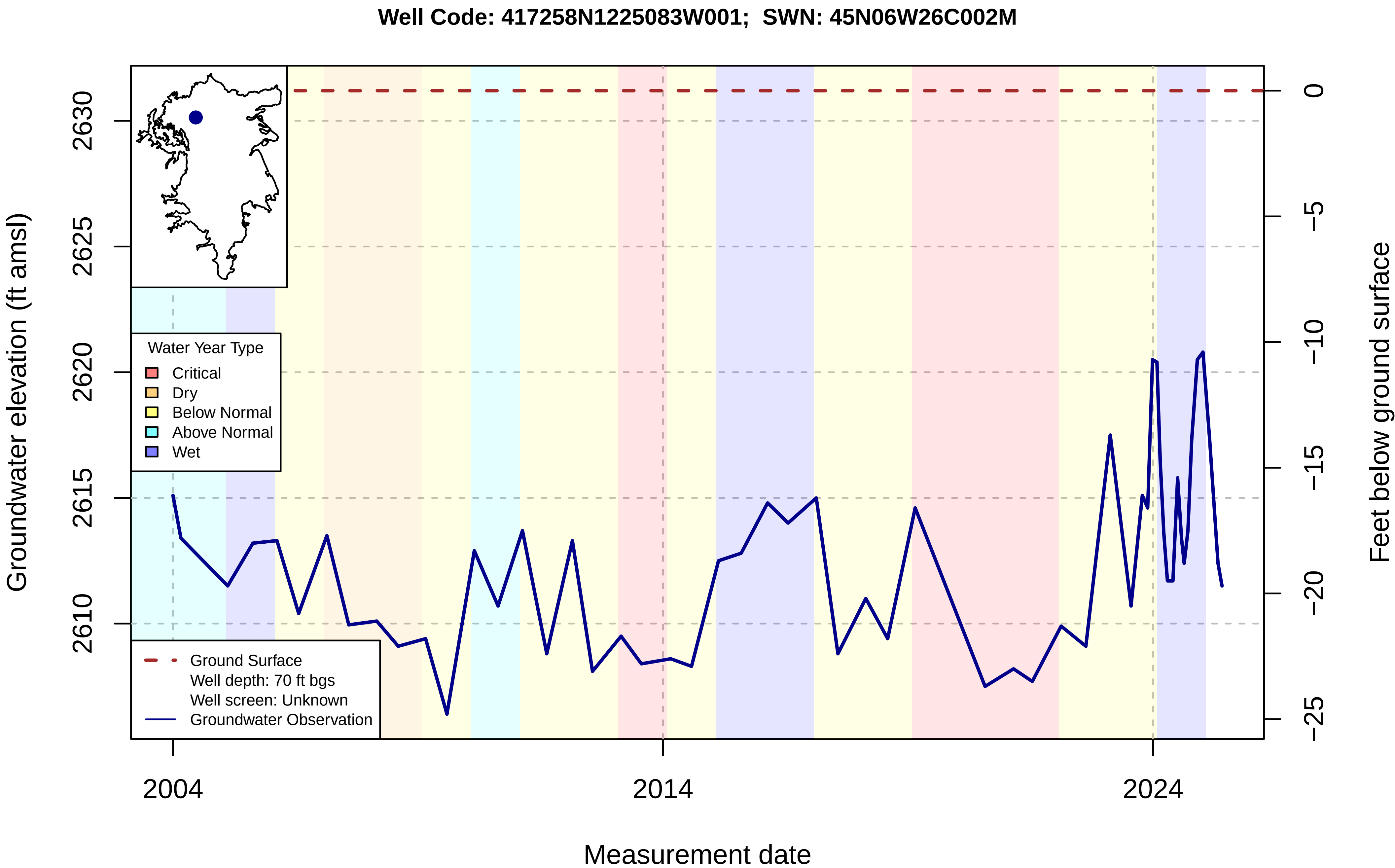
Well Code: 417236N1224461W001; SWN: 45N05W29B001M
Groundwater elevation (ft amsl)
2605
2610
2615
2620
2625
Feet below ground surface
0
−5
−10
−15
−20
1953
1963
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 25 ft bgs
Well screen: Unknown
Groundwater Observation



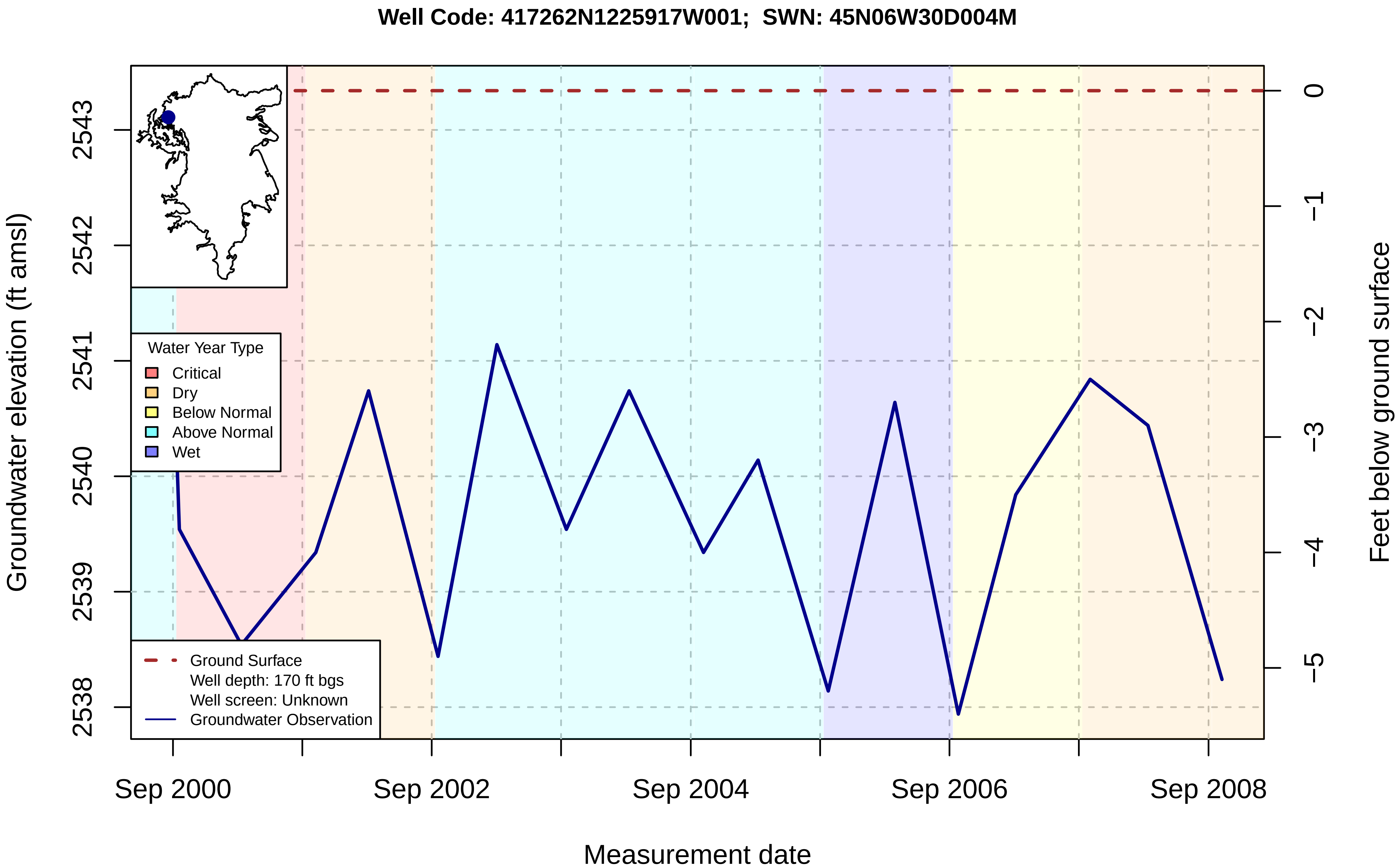
Well Code: 417242N1224453W001; SWN: 45N05W29B003M
Groundwater elevation (ft amsl)
2605
2610
2615
2620
2625
Feet below ground surface
0
−5
−10
−15
−20
1990
2000
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation

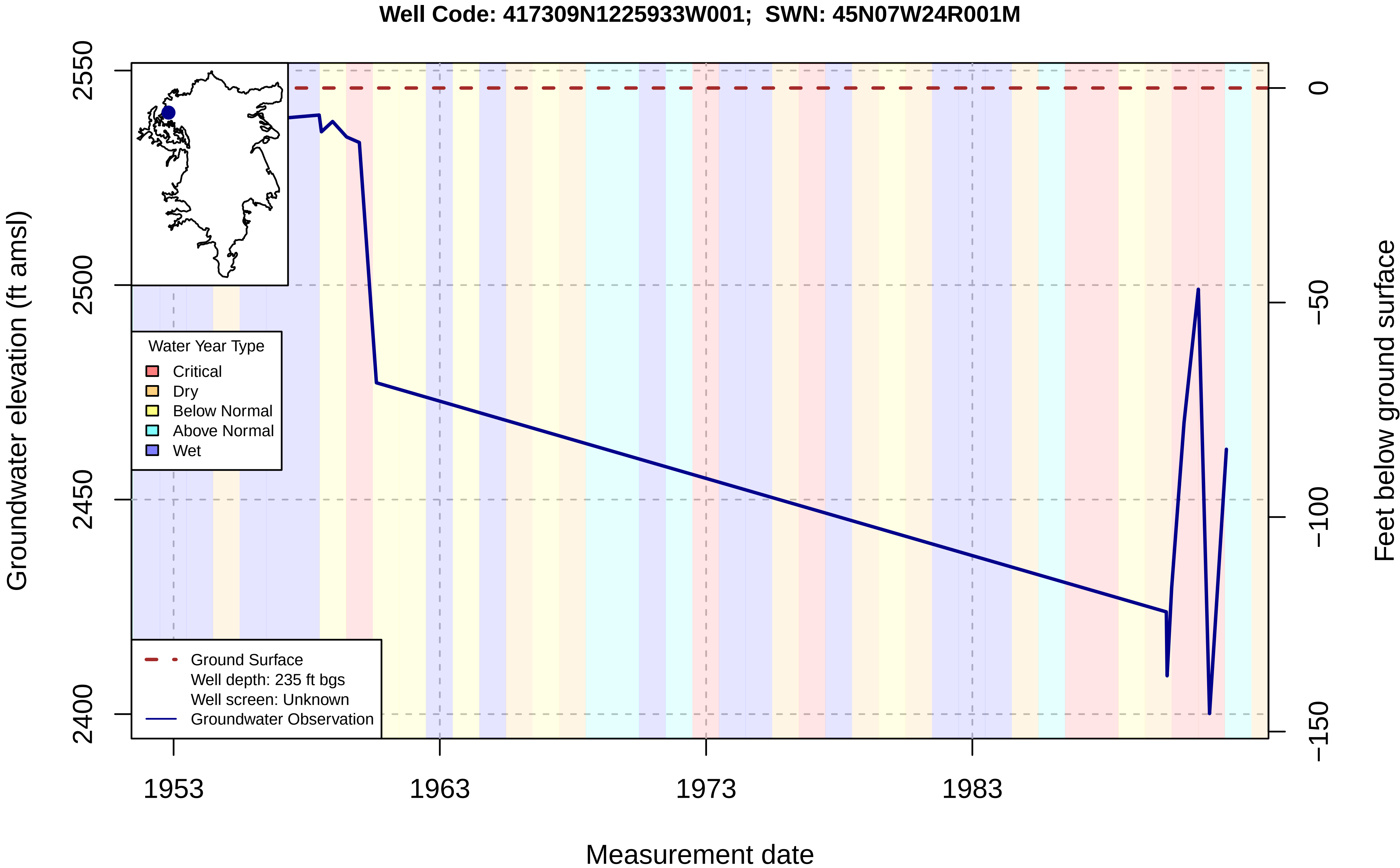


Well Code: 417258N1225337W001; SWN: 45N06W27D002M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
1990
2000
2010
2020
2524
2526
2528
2530
2532
0
−2
−4
−6
−8
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 45 ft bgs
Screen: 28−36 ft bgs
Groundwater Observation

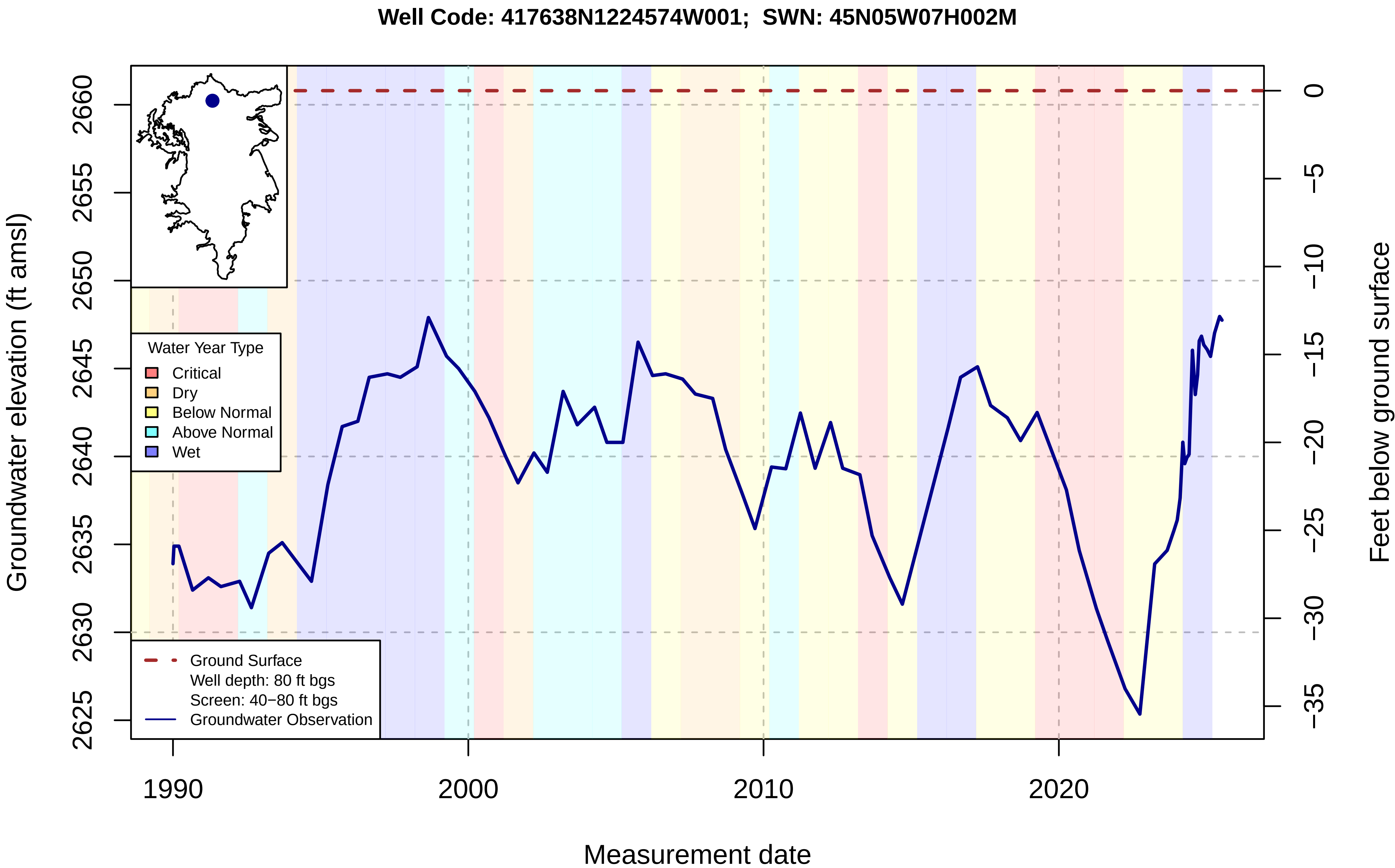


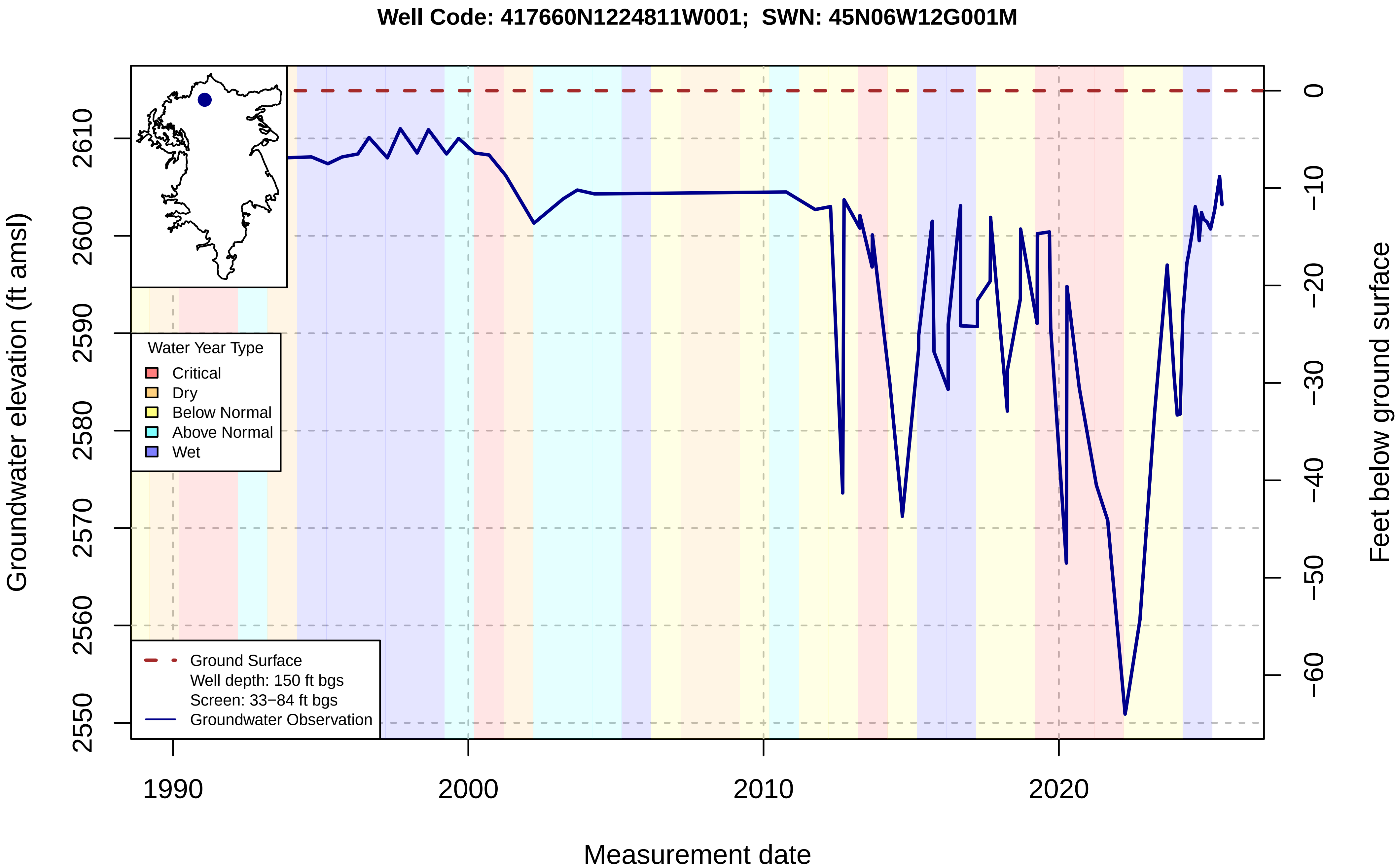
Well Code: 417258N1225083W001; SWN: 45N06W26C002M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2610
2615
2620
2625
2630
0
−5
−10
−15
−20
−25
2004
2014
2024
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 70 ft bgs
Well screen: Unknown
Groundwater Observation


Well Code: 417262N1225917W001; SWN: 45N06W30D004M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
Sep 2000
Sep 2002
Sep 2004
Sep 2006
Sep 2008
2538
2539
2540
2541
2542
2543
0
−1
−2
−3
−4
−5
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 170 ft bgs
Well screen: Unknown
Groundwater Observation

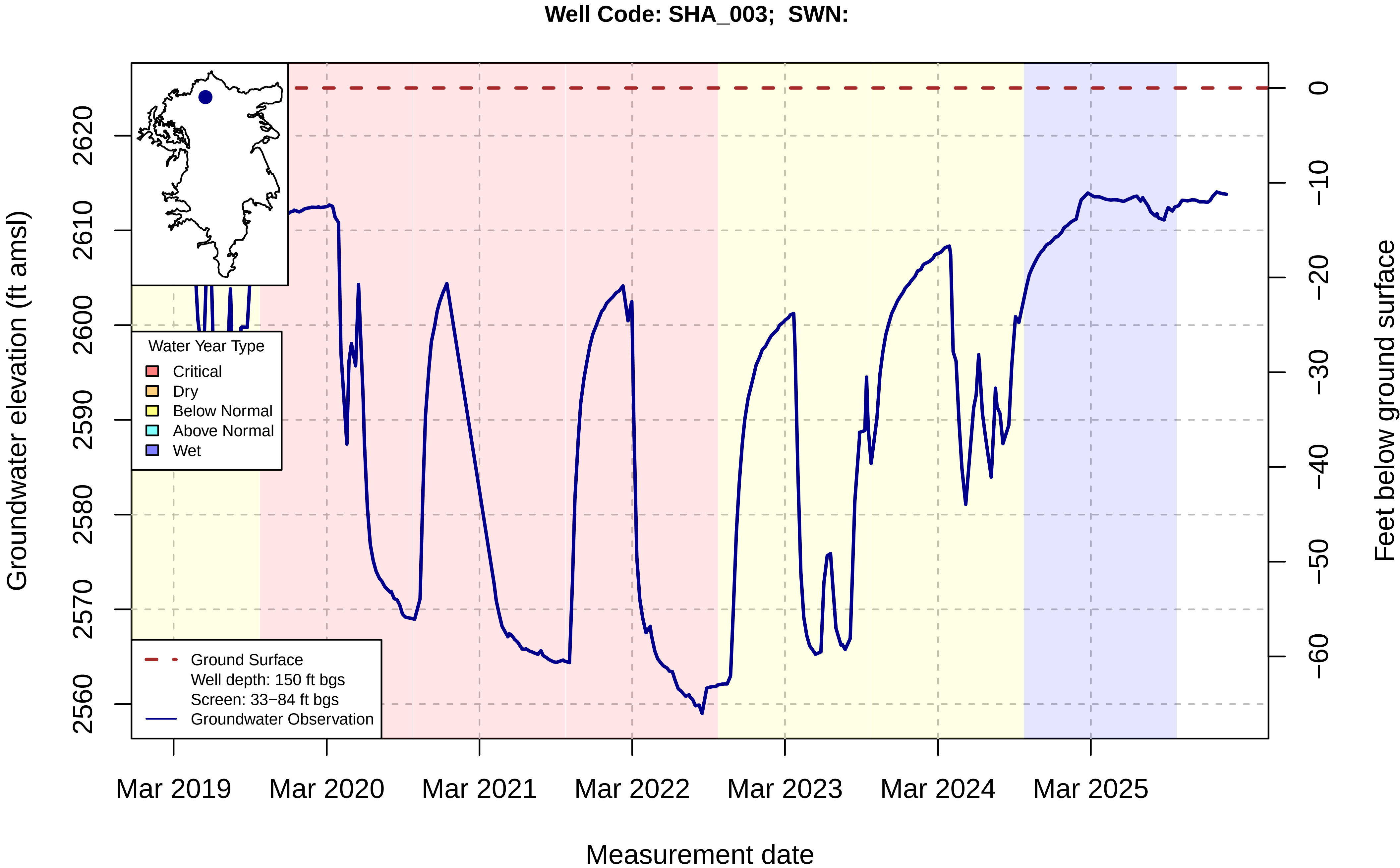


Well Code: 417309N1225933W001; SWN: 45N07W24R001M
Groundwater elevation (ft amsl)
2550
2500
2450
2400
Feet below ground surface
0
−50
−100
−150
1953
1963
1973
1983
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 235 ft bgs
Well screen: Unknown
Groundwater Observation

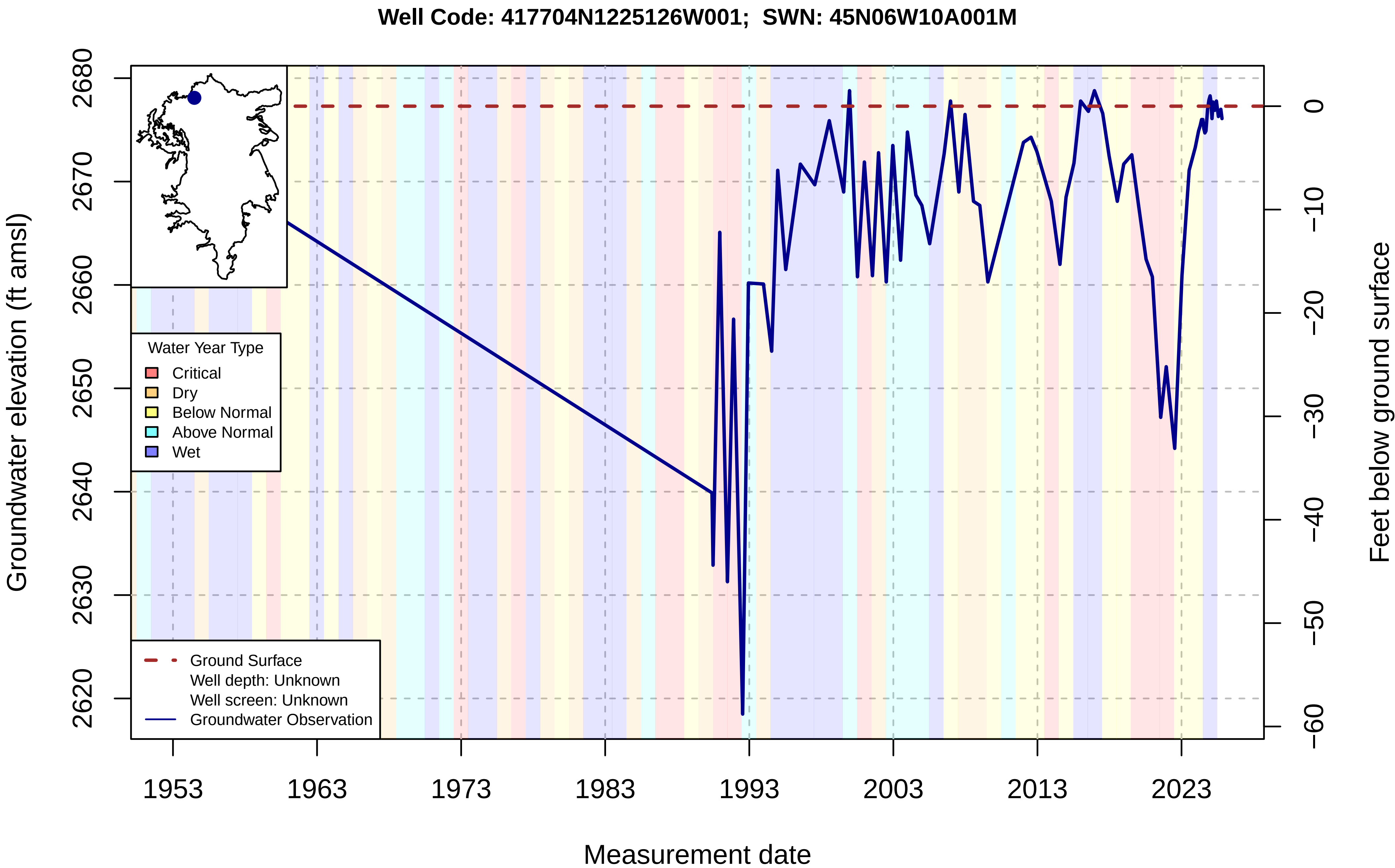

Well Code: 417638N1224574W001; SWN: 45N05W07H002M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 80 ft bgs
Screen: 40−80 ft bgs
Groundwater Observation
2625
2630
2635
2640
2645
2650
2655
2660
0
−5
−10
−15
−20
−25
−30
−35
1990
2000
2010
2020



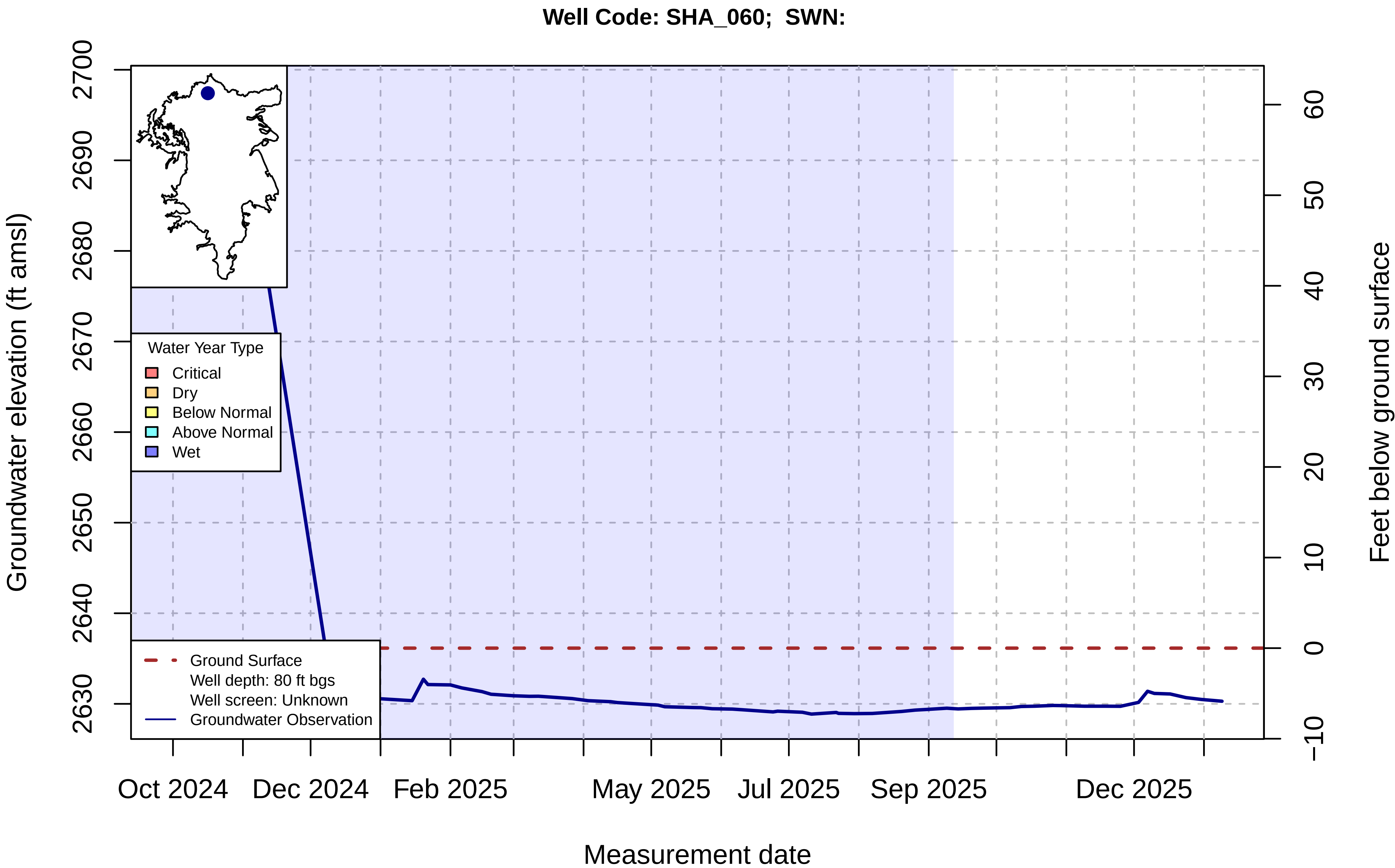
Well Code: 417660N1224811W001; SWN: 45N06W12G001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
1990
2000
2010
2020
2550
2560
2570
2580
2590
2600
2610
0
−10
−20
−30
−40
−50
−60
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 150 ft bgs
Screen: 33−84 ft bgs
Groundwater Observation



Well Code: SHA_003; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2560
2570
2580
2590
2600
2610
2620
0
−10
−20
−30
−40
−50
−60
Mar 2019
Mar 2020
Mar 2021
Mar 2022
Mar 2023
Mar 2024
Mar 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 150 ft bgs
Screen: 33−84 ft bgs
Groundwater Observation

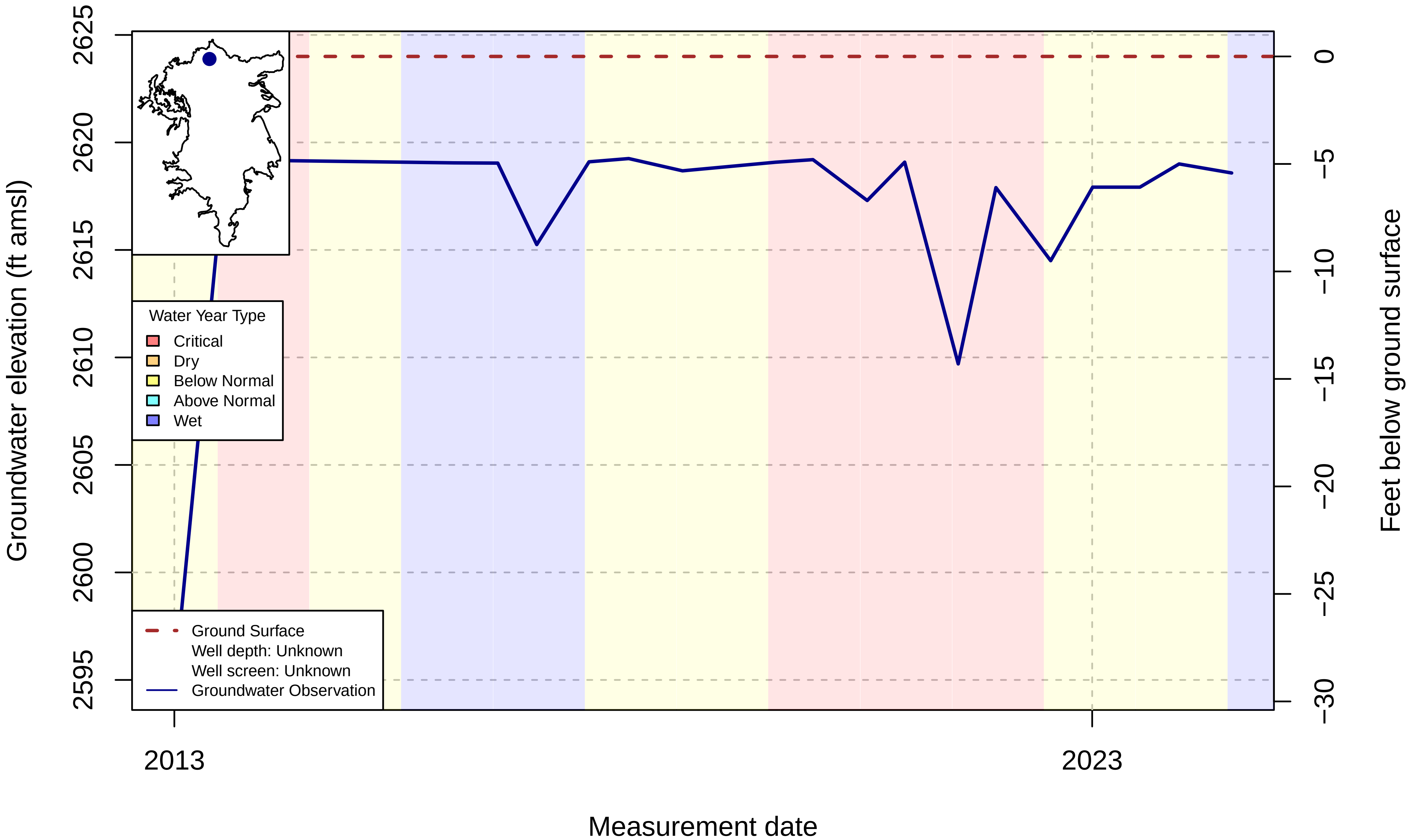


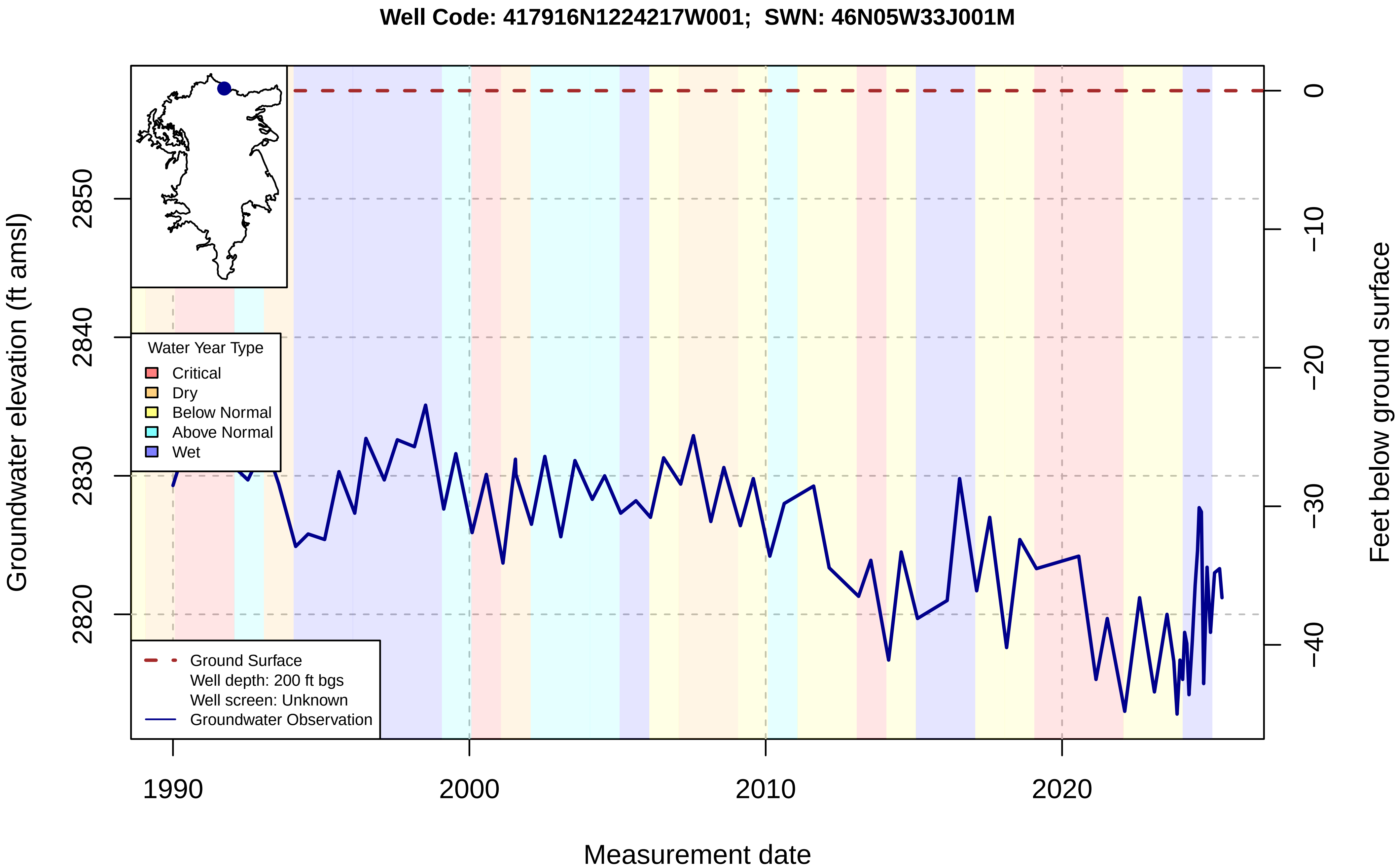
Well Code: 417704N1225126W001; SWN: 45N06W10A001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2620
2630
2640
2650
2660
2670
2680
0
−10
−20
−30
−40
−50
−60
1953
1963
1973
1983
1993
2003
2013
2023
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: Unknown
Well screen: Unknown
Groundwater Observation



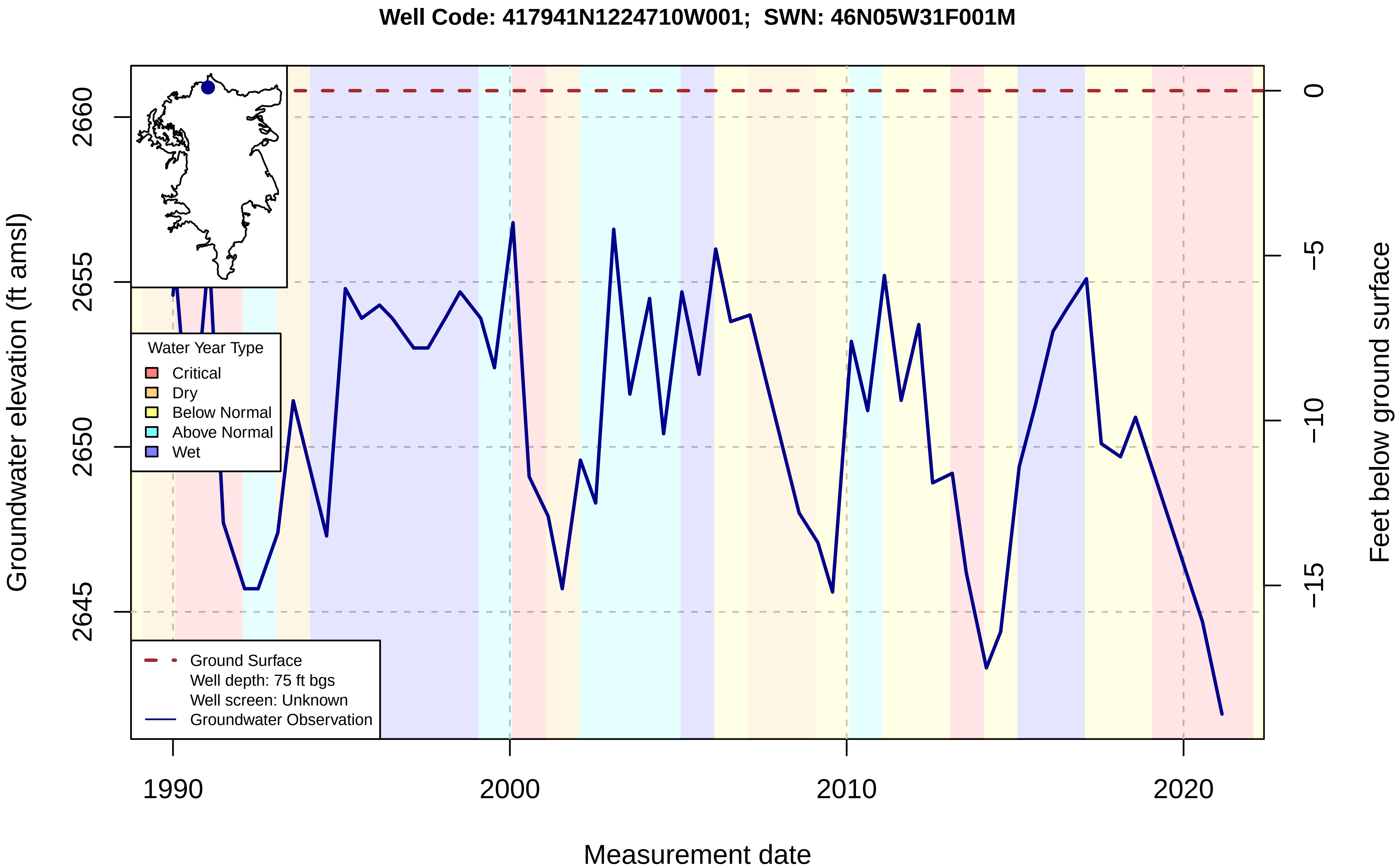
Well Code: SHA_060; SWN:
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2630
2640
2650
2660
2670
2680
2690
2700
−10
0
10
20
30
40
50
60
Oct 2024
Dec 2024
Feb 2025
May 2025
Jul 2025
Sep 2025
Dec 2025
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 80 ft bgs
Well screen: Unknown
Groundwater Observation

Well Code: 414686N1222830W001; SWN:





Well Code: 417916N1224217W001; SWN: 46N05W33J001M
Groundwater elevation (ft amsl)
2820
2830
2840
2850
Feet below ground surface
0
−10
−20
−30
−40
1990
2000
2010
2020
Measurement date
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 200 ft bgs
Well screen: Unknown
Groundwater Observation



Well Code: 417941N1224710W001; SWN: 46N05W31F001M
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
2645
2650
2655
2660
0
−5
−10
−15
1990
2000
2010
2020
Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet
Ground Surface
Well depth: 75 ft bgs
Well screen: Unknown
Groundwater Observation

References

MRLC. 2019. “2019 National Land Cover Database.” Multi-Resolution Land Characteristics (MRLC) Consortium. https://www.mrlc.gov/viewer/.