

CARPINTERIA GROUNDWATER BASIN GROUNDWATER SUSTAINABILITY PLAN

WATER YEAR 2025 ANNUAL REPORT

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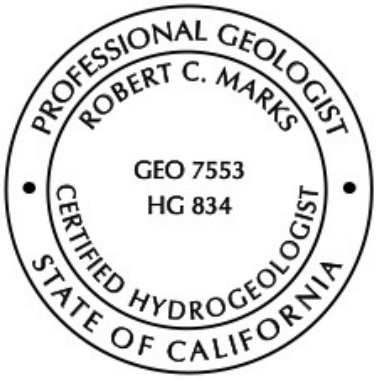
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CARPINTERIA GROUNDWATER BASIN
WATER YEAR 2025 ANNUAL REPORT

This report was prepared by Pueblo Water Resources, Inc., under the supervision of the professional whose signature appears below. The findings or professional opinion were prepared in accordance with generally accepted professional hydrogeologic practices.



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ABBREVIATIONS AND ACRONYMS

AF	acre-feet
AFY	acre-feet per year
amsl	above mean sea level
APN	Assessor Parcel Number
Basin	Carpinteria Groundwater Basin
bmsl	below mean sea level
CAPP	Carpinteria Advanced Purification Project
CGSA	Carpinteria Groundwater Sustainability Agency
CIMIS	California Irrigation Management Information System
CMWD	Casitas Municipal Water District
COC	constituent of concern
CVWD	Carpinteria Valley Water District
DWR	California Department of Water Resources
FY	fiscal year
GSP	Groundwater Sustainability Plan
IM	interim milestone
InSAR	Interferometric Synthetic Aperture Radar
mg/L	milligrams per liter
MO	measurable objective
MT	minimum threshold
MWD	Montecito Water District
RMS	representative monitoring site
SBCFCD	Santa Barbara County Flood Control District
SGMA	Sustainable Groundwater Management Act
SU-1	Storage Unit No. 1
SU-2	Storage Unit No. 2
SWI	Seawater Intrusion
SWP	State Water Project
SYID #1	Santa Ynez Improvement District No. 1
TDS	total dissolved solids
WY	water year (October 1 through September 30)

ANNUAL REPORT ELEMENTS GUIDE AND CHECKLIST

California Code of Regulations – GSP Regulation Sections	Annual Report Elements	Location in Annual Report
Article 7	Annual Reports and Periodic Evaluations by the Agency	
§ 356.2	Annual Reports	
	Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:	
	(a) General information, including an executive summary and a location map depicting the basin covered by the report.	Executive Summary (§ 356.2[a])
	(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:	Section 2.3 Monitoring Networks (§ 356.2[b])
	(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:	Section 3.1 Groundwater Elevations (§ 356.2[b][1])
	(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.	Section 3.1.1 Groundwater Elevation Contours (Spring and Fall) (§ 356.2[b][1][A])
	(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.	Section 3.1.2 Hydrographs (§ 356.2[b][1][B]) and Appendix D
	(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.	Section 3.2 Groundwater Extractions (§ 356.2[b][2])

California Code of Regulations – GSP Regulation Sections	Annual Report Elements	Location in Annual Report
Article 7	Annual Reports and Periodic Evaluations by the Agency	
§ 356.2	Annual Reports	
	(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.	Section 3.3 Surface Water Use (§ 356.2[b][3])
	(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.	Section 3.4 Total Water Use (§ 356.2[b][4])
	(5) Change in groundwater in storage shall include the following:	Section 3.5 Change in Groundwater in Storage (§ 356.2[b][5])
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.	Section 3.5.1 Annual Changes in Groundwater Elevation (§ 356.2[b][5][A])
	(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available.	Section 3.5.2 Annual and Cumulative Change in Groundwater in Storage Calculations (§ 356.2[b][5][B])
	(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.	Section 4 Progress towards Basin Sustainability (§ 356.2[c])

EXECUTIVE SUMMARY (§ 356.2[a])

INTRODUCTION

This Carpinteria Groundwater Basin (CGB) Water Year (WY) 2025 Annual Report has been prepared in accordance with the Sustainable Groundwater Management Act (SGMA) regulations for Groundwater Sustainability Plans (GSPs). Pursuant to the SGMA regulations, a GSP Annual Report must be submitted to the California Department of Water Resources (DWR) by April 1 of each year following the adoption of the GSP. These annual reports will convey monitoring and water use data to the DWR and groundwater basin stakeholders on an annual basis to gauge performance of the basin relative to the sustainability goals set forth in the GSP.

The CGB was originally designated as a low-priority basin by DWR. In 2019, DWR conducted a basin reprioritization process that reclassified the CGB as a high-priority basin, resulting in the preparation of a GSP pursuant to Section 10720, et. seq., of the State Water Code as required by SGMA. The GSP was finalized and unanimously adopted by the Carpinteria Groundwater Sustainability Agency (CGSA) Board on January 24, 2024. The adopted GSP was approved by the DWR on February 27, 2025.

BASIN CONDITIONS

Groundwater Elevations

Groundwater elevations observed in the CGB during WY 2025 declined across a majority of the basin due to below-average rainfall conditions during the winters of 2024 and 2025. Positive and negative changes in groundwater elevations from year to year are observed in various parts of the CGB, as has been observed historically. Seasonal trends of slightly higher spring groundwater elevations compared with fall levels are observed annually.

Groundwater Extractions

Total groundwater extractions in the CGB for WY 2025 are estimated to be 4,877 acre-feet (AF). These totals include municipal pumping by the Carpinteria Valley Water District (CVWD) and private pumping (irrigated agricultural water demand). **Table ES-1** below summarizes the groundwater extractions by water use sector for WYs 2021 through 2025:

Table ES-1. Estimated Groundwater Extractions

Water Year	Water Year Type	Pumping (AF)		
		CVWD	Private	Total
2021	Critical	759	5,074	5,833
2022	Below Normal	2,124	4,811	6,935
2023	Wet	998	3,331	4,329
2024	Wet	999	3,565	4,564
2025	**Critical**	**1,003**	**3,874**	**4,877**
Method of Measure:		Metered	Estimated by Land Use	--
Level of Accuracy:		High	Medium	--

Surface Water Use

The CGB currently benefits from surface water entitlements from the Cachuma Project and the State Water Project (SWP) to supplement municipal groundwater demands and irrigated agricultural demands in the basin. The CVWD participates regularly in a SWP exchange program with the Santa Ynez Improvement District No. 1 (SYID #1), located downstream of Lake Cachuma. Under this exchange program, CVWD purchases SWP water and supplies it to SYID #1 for its use. In exchange, SYID #1 supplies an equal amount of Lake Cachuma water to CVWD. The volumes of surface water sources available for delivery to the Basin are dependent on climatic conditions during any given water year. **Table ES-2** below provides a summary of total surface water use by source for WYs 2021 through 2025:

Table ES-2. Total Imported Surface Water Use by Source

Water Year	Water Year Type	Imported Surface Water by Source (AF)			
		Cachuma Project	State Water Project	SYID #1 Exchange	Total
2021	Critical	3,308	512	238	4,058
2022	Below Normal	895	1,397	93	2,385
2023	Wet	2,229	0	99	2,328
2024	Wet	2,488	0	279	2,767
2025	**Critical**	**2,982**	**0**	**330**	**3,312**

Total Water Use

Quantification of total water use was completed through reporting of metered groundwater production data from CVWD, from metered surface water use, and from methods used to estimate irrigated agricultural crop water supply requirements based on land uses and metered data (see **Section 3.2.2**). **Table ES-3** summarizes the total annual water use in the basin by source and water use sector for WYs 2021 through 2025:

Table ES-3. Total Water Use by Source and Water Use Sector

Water Year	Water Year Type	Total Water Use (AF)			
		CVWD		Private Agricultural	Total
Source:		Groundwater	Surface Water	Groundwater	
2021	Critical	759	4,058	5,074	9,891
2022	Below Normal	2,124	2,385	4,811	9,320
2023	Wet	998	2,328	3,331	6,657
2024	Wet	999	2,767	3,565	7,331
2025	**Critical**	**1,003**	**3,312**	**3,874**	**8,189**

Change in Groundwater Storage

The change of groundwater in storage in the CGB was calculated by taking the difference between groundwater elevations in successive fall monitoring events and multiplying this volume

by appropriate storage coefficient values documented in the basin. For this analysis, the fall 2025 groundwater elevations were subtracted from the fall 2024 groundwater elevations resulting in a map depicting the changes in groundwater elevations in Storage Unit No. 1 (SU-1) that occurred during WY 2025. Due to a lack of data and limited groundwater production in Storage Unit No. 2 (SU-2), the change in groundwater in storage analysis focuses on groundwater elevations and annual changes within SU-1.

The groundwater elevation change map for WY 2025 shows an overall annual decrease in fall 2024 to fall 2025 water levels in most of the basin. **Table ES-4** below presents the annual change of groundwater in storage calculated for WYs 2021 through 2025. Increases of groundwater in storage are presented as positive numbers and decreases of groundwater in storage are presented as negative numbers.

Table ES-4. Estimated Annual Changes in Groundwater Storage in SU-1

Water Year	Water Year Type	Annual Change in Groundwater Storage (AF)
2021	Critical	-7,714
2022	Below Normal	-1,179
2023	Wet	12,071
2024	Wet	5,839
2025	**Critical**	**-1,105**

PROGRESS TOWARDS MEETING BASIN SUSTAINABILITY

Summary of Sustainability Management Criteria

WY 2025 was a critical dry rainfall year. Most of the nine water-level Representative Monitoring Site (RMS) wells in the CGB groundwater monitoring network exhibited declining water levels over this period, due to increased municipal and agricultural groundwater extractions and decreased rainfall.

The following five sustainability indicators are applicable to the Basin:

- Chronic Decline of Water Levels
- Reduction of Groundwater Storage
- Seawater Intrusion
- Degradation of Water Quality
- Land Subsidence

None of the five sustainability indicators applicable to the CGB exceeded the minimum thresholds in WY 2025.

Summary of Projects and Management Actions

Several Projects and Management Actions (PMAs) are identified in the GSP to attain sustainability. These projects identify two categories of potential projects, Tier 1 and Tier 2 projects. Tier 1 projects are expected to be implemented within the first 5-year SGMA

implementation period. Tier 2 projects will be evaluated and ranked during the first 5-year period for potential future implementation.

As outlined in the GSP, the proposed Tier 1 and Tier 2 projects may include:

Tier 1 Projects

- Carpinteria Advanced Purification Project (CAPP)
- Sentinel Monitoring Well Network Expansion Project
- Local Infrastructure Water System Interties

Tier 2 Projects

- Carpinteria Seawater Intrusion Barrier Project
- Aquifer Storage and Recovery (ASR) Projects
- Recharge Enhancement Projects (Recharge Basins and Creek De-lining)
- Local Inter-Agency Water Delivery and Water Banking Agreements
- Supporting the health of groundwater-dependent ecosystems in the Basin

Significant progress was made during WY 2025 on all of the Tier 1 projects. In addition, progress was made on a Tier 2 project, with the advancement of the Smille #2 ASR project during the period.

1. INTRODUCTION

This Carpinteria Groundwater Basin (CGB) Water Year (WY) 2025 Annual Report has been prepared for the Carpinteria Groundwater Sustainability Agency (CGSA) in accordance with the Sustainable Groundwater Management Act (SGMA) regulations for Groundwater Sustainability Plans (GSPs) (§ 356.2 - Annual Reports) (see **Appendix A**). Pursuant to the SGMA regulations, a GSP Annual Report must be submitted to the California Department of Water Resources (DWR) by April 1 of each year following the adoption of the GSP. The GSP (CGSA, 2023) documented groundwater conditions through WY 2020. The first Annual Report documented updated conditions from WYs 2021 through 2023. The second Annual Report documented conditions during WY 2024. This third Annual Report conveys groundwater production, water use data, and water level data from WY 2025[1].

1.1 SETTING AND BACKGROUND

The GSP (CGSA, 2023) was prepared on behalf of and in cooperation with the CGSA. The GSP and subsequent required annual reports cover the entire CGB, identified by DWR as Basin No. 3-018 (DWR, 2004, 2023) (see **Figure 1**). The majority of the CGB consists of a low-lying alluvial plain located in the southeastern portion of Santa Barbara County, with a small portion located in the far southwest corner of Ventura County. In unincorporated areas under county jurisdiction, the County of Santa Barbara and the County of Ventura are responsible for comprehensive long-range planning, permitting, and development review. The Santa Barbara Flood Control and Water Conservation District has jurisdiction over certain flood control facilities. The City of Carpinteria has land management authority within its boundaries. Municipal and agricultural water service within the City of Carpinteria is provided by the CVWD. CVWD also serves many parcels within the unincorporated area of Santa Barbara County. Private wells supply a portion of the agricultural pumping in the CGB. The U.S. Bureau of Reclamation has jurisdiction over the Carpinteria Regulating Reservoir. Lands under state jurisdiction include Carpinteria State Beach (California Department of Parks and Recreation), the beds of tidal waters (California State Lands Commission), and the Carpinteria Salt Marsh Reserve (University of California Natural Reserve System).

On January 31, 2020, four member agencies entered into a Joint Exercise of Powers Agreement to form the CGSA for the purpose of managing groundwater in the Basin and developing the GSP and subsequent Annual Reports for the Basin. The four member agencies of the CGSA include:

- Carpinteria Valley Water District (CVWD)
- City of Carpinteria
- Santa Barbara County Water Agency

[1] The required timeframe of the annual reports, pursuant to the SGMA regulations, is by water year, which is the 12-month period October 1 to September 30 of the following year; however, because the CVWD measured water levels in October, the October 2025 measurements, for instance, are used to reflect fall conditions at the end of WY 2025.

- County of Ventura

The CVWD's service area covers all the CGB within the County of Santa Barbara, with the exception of a small area on the northeast edge of the district boundary, and the service area also extends beyond the basin boundaries to the north and includes a small portion to the southeast of the basin on the west side of Rincon Point. The CVWD has water management and supply authority within its service area. The County of Ventura portion of the CGB is located within the service area of Casitas Municipal Water District (CMWD), which has water management and supply authority within its service area.

The CGB's eastern boundary is defined by the extent of the Casitas Formation mapped at the surface near Laguna Ridge in Ventura County. The Pacific Ocean forms its southern boundary. An adjustment to the western boundary was approved by DWR in 2018, which refined the delineation of the northern boundary using more recently published geologic maps. The basin's northern boundary is delineated at the geologic contact with the Coldwater Sandstone and Sespe Formations in the foothills of the Santa Ynez Mountains. The revised boundary also follows the limits of the CVWD service area along the western boundary of the basin and the adjacent Montecito Groundwater Basin (MGB), which now includes the Toro Basin (which prior to the basin boundary modification was part of CGB).

1.2 ORGANIZATION OF REPORT

The required contents of an Annual Report are provided in the SGMA Regulations (§ 356.2), included as **Appendix A**. Organization of the report is meant to follow the regulations where possible to assist in the review of the document. The sections are briefly described as follows:

Executive Summary (§ 356.2[a]): An executive summary of the annual report and a location map depicting the basin covered by the report.

Section 1. Introduction (§ 356.2[a]): A brief background of the formation and activities of the CGSA and the development and submittal of the GSP.

Section 2. Basin Setting and Monitoring Networks: A summary of the CGB hydrogeologic setting, monitoring networks, and the ways in which data are used for groundwater management.

Section 3. Basin Conditions: An update on groundwater levels, extractions, water use and groundwater storage conditions in the CGB.

Section 3.1. Groundwater Elevations (§ 356.2[b][1]): A description of recent monitoring data with groundwater elevation contours for spring and fall monitoring events and representative hydrographs.

Section 3.2. Groundwater Extractions (§ 356.2[b][2]): A compilation of metered and estimated groundwater extractions by land use sector and location of extractions.

Section 3.3. Surface Water Use (§ 356.2[b][3]): A summary of reported surface water use.

Section 3.4. Total Water Use (§ 356.2[b][4]): A presentation of total water use by source and sector.

Section 3.5. Change in Groundwater in Storage (§ 356.2[b][5]): A description of the methodology and presentation of changes in groundwater in storage based on fall-to-fall groundwater elevation differences.

Section 4. Progress towards Basin Sustainability (§ 356.2[c]): A summary of progress on sustainable management criteria and management actions taken throughout the basin by the CGSA and individual entities towards sustainability of the CGB.

2. BASIN SETTING AND MONITORING NETWORKS

This section provides a brief description of the basin setting and the groundwater management monitoring programs described in the GSP, as well as any notable events affecting monitoring activities or the quality of monitoring results in the reported WY 2025. Much of the background information reported in this Annual Report was taken from the GSP (CGSA, 2023).

2.1 BASIN SETTING

The GSP covers the entire CGB identified by DWR as Basin No. 3-018 (DWR, 2004, 2023). This 7,801-acre (12.7 square mile) coastal basin includes portions of Santa Barbara and Ventura Counties, the incorporated City of Carpinteria, and small portions of federal and state-owned lands, as shown in **Figure 1**. Groundwater rights in the Basin have not been adjudicated.

The CGB consists of a low-lying alluvial plain that is physically bordered on the south by the Pacific Ocean and on the north and east by bedrock. The western boundary is an administrative boundary with the MGB. As shown, the CGB is approximately 7 miles long in an east-west direction and extends northward from the coastline a maximum of about 2 miles. The lowest ground surface elevations occur in El Estero, an active intertidal salt marsh west of the City of Carpinteria. From this area, the topography gradually rises northward to elevations of up to approximately 650 feet above mean sea level (amsl) along the northern and eastern boundaries of the Basin. The Santa Ynez Mountains lie north of the Basin boundary.

The CGB is located on the south flank of the Santa Ynez Mountains, one of the east-west trending ridges of the Transverse Range Geomorphic Province. The basin represents the north limb of a synclinal geologic structure, the deepest parts of which terminate against the traces of the Rincon Creek Fault. This structural depression has subsequently been filled with younger water-bearing deposits. Water-bearing deposits in the CGB include all unconsolidated and semi-consolidated sediments of the Quaternary age, with older consolidated and generally non-water-bearing rocks forming the definable boundaries of the basin.

Quaternary Age water-bearing basin deposits primarily consist of the following:

- Alluvial Deposits
- Casitas Formation
- Santa Barbara Formation

Tertiary Age formations that form the primary bedrock boundaries of the CGB include the following:

- Sisquoc Formation

- Monterey Formation
- Rincon Shale
- Vaqueros Formation
- Sespe Formation
- Coldwater Sandstone

The geologic contact between unconsolidated water-bearing deposits and bedrock formations delineates the northern and southeastern lateral boundaries and the definable bottom of the basin. The Rincon Creek Thrust Fault, a prominent east-west trending and south-dipping thrust fault, creates a barrier to subsurface groundwater movement within the Basin. The surface trace of the Rincon Creek Fault has been used to segregate the CGB into two Storage Units: Storage Unit No. 1 (SU-1) is on the north side of the fault trace, and Storage Unit No. 2 (SU-2) is to the south (**Figure 2**).

SU-1 contains all CVWD's principal municipal supply wells and the vast majority of agricultural wells and has accordingly been the primary focus of previous basin investigations and data collection programs. In the CGB, a single principal aquifer system largely occurs within unconsolidated and semi-consolidated sediments of the Pleistocene- and upper Pliocene-aged Casitas Formation, which is contained in the entire basin area north of the Rincon Creek Fault and is exposed in outcrops along the margins of the northern and eastern boundaries. The Casitas Formation is an assemblage of poorly to moderately consolidated clayey to gravelly sand with variable amounts of silt and cobbles reaching substantial thicknesses of 2,300 feet to 2,500 feet in SU-1. In the deepest portion of the basin, bedrock is as much as 4,000 feet below mean sea level (bmsl) in SU-1 and rises to approximately 500 feet amsl along the northern boundary of the basin.

Within the Casitas Formation, sandy clay is abundant, and sandy units are typically thin and lenticular and cannot be correlated over long distances. Notable exceptions to this are the major water-producing zones delineated as the A, B, C, and D Zones in the Confined Area of the basin. Outside of the Confined Area of the basin and extending to boundaries with the bedrock, the productive A through D Zones become laterally discontinuous and groundwater is generally unconfined. This area is referred to as the Recharge Area of the basin.

Underlying the Casitas Formation is the marine Santa Barbara Formation, which unconformably overlies all older consolidated rocks in the CGB. The formation is only exposed south of the Rincon Creek Fault in SU-2 where it unconformably overlies Miocene shales. The Santa Barbara Formation consists of poorly to moderately consolidated, soft, and massive, sandstone and siltstone with abundant clay shale. Although the formation represents a potential water-bearing deposit in the CGB, no water wells are known to penetrate it in SU-1 and no major aquifers have been discerned within it. In SU-2 (where there are limited geologic data available) the formation is estimated to reach a thickness of up to approximately 1,000 feet.

There are five major creeks in the CGB, each of which extends from the crest of the Santa Ynez Mountains and flows in a generally southerly direction across the basin to the Pacific Ocean (refer to **Figure 1**). Rincon Creek crosses the east end of the basin and dissects the remnant terrace deposits and older alluvial fans in this area. The Gobernador, Carpinteria, and Santa

Monica Creeks are the main drainages into the central portion of the basin. The Arroyo Paredon Creek enters the basin near the western end of the basin.

The primary sources of recharge to the CGB aquifers include infiltration of precipitation, percolation of streamflow, and percolation of irrigation return flow; however, in the Confined Area, downward percolation of water is limited due to the presence of fine-grained low-permeability materials overlying most of the area of the principal aquifer; therefore, recharge of the primary aquifer occurs primarily in the Recharge Area that occurs between the Confined Area and the boundaries of consolidated bedrock in the north and eastern portions of the basin. A map showing the Confined and Recharge Areas of the basin is presented in **Figure 3.**

The primary method of discharge from the aquifer is groundwater pumping. Groundwater within the principal aquifer of SU-1 does not discharge directly to the ocean in the southeastern portion of the basin due to the presence of overlying confining layers and the barrier created by the Rincon Creek Fault, thus creating a hydrogeologic separation from the ocean in these areas; however, northwest of the Rincon Creek Fault, basin deposits are understood to be in contact with the Pacific Ocean. Subsurface outflow from SU-1 is believed to occur in the general area from Serena Park to Sand Point (approximate distance of 10,000 feet) where there is no fault barrier between basin sediments and the Pacific Ocean. In SU-2, significant subsurface outflow is not believed to occur due to the onshore contact of unconsolidated water-bearing materials with consolidated bedrock, effectively isolating SU-2 from the Pacific Ocean.

Existing land uses within the CGB predominantly include urban areas and agricultural areas. Urban areas are focused within the City of Carpinteria in the central portion and along the southern coastline of the basin. Agricultural land uses consisting of various irrigated crops (citrus, fruits and nuts, row crops, vineyards, and pasture) are largely located outside of the City of Carpinteria limits in the northwestern, northcentral, and eastern portions of the basin (**Figure 4**).

2.2 PRECIPITATION AND CLIMATIC PERIODS

Climate data are available from two meteorological stations in the CGB monitored by the Santa Barbara County Flood Control District (SBCFCD): Carpinteria Fire Station (Station No. 208), located in downtown Carpinteria, and Carpinteria U.S. Forest Service (Station No. 383), located at Rincon Station in the Los Padres National Forest near the U.S. Geological Survey stream gage on Carpinteria Creek. In addition, the closest California Irrigation Management Information System (CIMIS) station is the Santa Barbara station (Station No. 107) located approximately 8 miles west of the Basin at the north end of the Santa Barbara Golf Club. This station measures several climatic factors that allow a calculation of daily reference evapotranspiration for the area since 1993. The Carpinteria Fire Station (Station No. 208) precipitation data was utilized in the water budget calculations for the CGB presented in the GSP (CGSA, 2023) and is most relevant to the GSP Annual Reports.

Recent precipitation data was obtained from the SBCFCD gauge located at Carpinteria Fire Station No. 208 (SBCFCD, 2026) and the total annual precipitation recorded at the gauge for WY 2025 was 8.14 inches, representing **a critically dry year**.

The updated long-term average annual precipitation for the period of record (1949 through 2025) is 17.20 inches per water year. **Figure 5** presents a graph showing the annual water year precipitation for the period of record and a cumulative departure from the mean curve. Upward

trending portions of the cumulative departure line represent wet periods of above-average rainfall, and downward trending portions represent drought periods of below-average rainfall. Climatic trends (historical wet-dry cycles) are also shown on the graph. Climatic trends were selected in the context of longer-term multi-year climatic periods of wet, normal, and dry/critical drought conditions within the CGB. **Appendix B** provides historical precipitation records for the Carpinteria Fire Station gauge.

2.3 MONITORING NETWORKS

The monitoring networks presented in Section 4 of the GSP were developed based on existing sites monitored for decades by the CVWD (formerly the Carpinteria County Water District) prior to the passage of SGMA. Representative monitoring site (RMS) wells were selected from the existing monitoring network for each applicable sustainability indicator. The monitoring networks are used to track the CGSA's progress toward achieving sustainability by documenting short-term, seasonal, and long-term trends in groundwater conditions.

The monitoring network includes active and inactive CVWD production wells, active and inactive private agricultural wells, and dedicated monitoring wells. The monitoring network was developed to assess historical and current trends for the following sustainability indicators relevant to the CGB:

- Chronic lowering of groundwater levels
- Reduction of groundwater in storage
- Seawater intrusion
- Degraded water quality

Monitoring for the first two sustainability indicators (chronic lowering of water levels and reduction of groundwater in storage) is implemented using the RMSs, discussed in **Section 2.3.1**. Monitoring for the remaining sustainability indicators (degraded water quality and seawater intrusion) is discussed in **Section 2.3.2**. The GSP concluded that there is no Interconnected Surface Water in the CGB.

2.3.1 Groundwater Elevation Monitoring Network (§ 356.2[b])

SGMA requires that monitoring networks be developed in the groundwater basin to provide sufficient data quality, frequency, and spatial distribution to evaluate changing aquifer conditions in response to GSP implementation. The GSP identifies an existing network of 35 wells for the water level monitoring and reduction of storage sustainability indicators, nine of which are designated as RMS wells (CGSA, 2023). Groundwater levels in these RMS wells have been monitored on a bimonthly basis (at the end of every even month) for various periods of record. The RMS groundwater monitoring network developed in the GSP is intended to support efforts to do the following:

- Monitor changes in groundwater conditions and demonstrate progress towards achieving measurable objectives (MOs) and minimum thresholds (MTs) documented in the GSP.
- Monitor impacts to the beneficial uses and users of groundwater.

A summary of information for each of the RMS wells and non-RMS wells for the existing groundwater level monitoring network is included in **Appendix C**.

2.3.2 Groundwater Quality Monitoring Network (§ 356.2[b])

A total of 43 wells are monitored in the CGB for basic water quality parameters, of which 12 wells are monitored for both water levels and water quality. Water quality data were collected through the sampling of dedicated monitoring wells and at other selected wells throughout the basin, with the sampling occurring on a biannual basis, typically in spring and fall. **Appendix C** summarizes the information for the existing network wells monitored for water quality.

Evaluation of the water quality sustainability indicator is achieved through monitoring of this network of wells in the basin. The constituents of concern (COCs) identified in the GSP that have the potential to impact the suitability of water for public supply or agricultural use include salinity (as indicated by electrical conductivity), TDS, arsenic, boron, chloride, and nitrate (as N).

In addition, a cluster of three monitoring wells of discrete depths was drilled and installed in 2019 in the southwestern portion of SU-1, where the Rincon Creek Thrust Fault projects offshore and water-bearing units of the CGB are possibly susceptible to seawater intrusion. These monitoring wells are identified as the seawater intrusion "Sentinel Wells," with MW-1, MW-2, and MW-3 completed discretely in the C, B, and A producing zones, respectively. A second cluster of depth-discrete monitoring wells, again completed in the A, B, and C producing zones, was installed in El Carro Park in the summer and winter of 2023, near the central portion of the Confined Area in SU-1.

2.3.3 Additional Monitoring Networks

2.3.3.1 Seawater Intrusion. A monitoring network to assess the sustainability indicator of seawater intrusion is a current data gap that is being addressed during GSP implementation. A set of proposed RMS seawater intrusion wells to monitor groundwater salinity were presented in the GSP; negotiations with landowners to get access agreements are ongoing to add to the network near the coastline in the western portion of the CGB. Expansion of the seawater intrusion monitoring network is anticipated before this sustainability indicator can be more robustly characterized.

2.3.3.2 Subsidence. Land subsidence in the CGB is monitored using InSAR data collected using microwave satellite imagery provided by DWR. Available data to date indicate no significant subsidence in the Basin. The CGSA annually assesses subsidence using the InSAR data provided by DWR.

3. BASIN CONDITIONS

3.1 GROUNDWATER ELEVATIONS (§ 356.2[B][1])

This section provides a detailed report on groundwater elevations in the CGB measured during spring and fall seasons of WY 2025. The monitoring data are reviewed for quality and an appropriate time frame is chosen to provide the highest consistency in the wells used for the reporting period. Data quality is often difficult to ascertain when measurements are taken by other agencies, and well construction information may be incomplete or unavailable. This means that a careful review of the data is required before uploading it to DWR's SGMA Monitoring Network

Module[2] to verify whether measurements are trending consistent with trends of previous years and with the current year's hydrology and level of extractions.

As discussed in the GSP, the hydrogeologic conceptual model identifies one principal aquifer in the CGB consisting primarily of unconsolidated and semi-consolidated sediments of the Pleistocene and upper Pliocene-aged Casitas Formation. In some local alluvial valleys of basin creeks, wells penetrate and may possibly screen sediments of the younger alluvium, but available data indicate that these wells usually are also screened in the Casitas Formation, which provides most of the productive yield. The majority of groundwater production occurs from the Casitas Formation, which is contained in SU-1 in the CGB area north of the Rincon Creek Fault and is exposed in outcrops along the northern and eastern boundaries.

The assessment of groundwater elevation conditions in the CGB as described in the GSP (CGSA, 2023) is largely based on historical data from CVWD's groundwater monitoring program. Groundwater level data from wells in the water level monitoring network were used to create the spring high (April) and fall low (October) groundwater elevation contour maps for WY 2025. As implementation of the GSP progresses, it is anticipated that additional wells will be added to the monitoring network.

In accordance with the SGMA regulations, the following information is presented based on available data:

- The well locations and groundwater elevation contour maps for spring (April) and fall (September) are shown in **Figures 6 and 7**. Groundwater elevation contours in these figures are intended to represent the seasonal high (spring) and seasonal low (fall) groundwater conditions for WY 2025.
- Hydrographs for RMS water level wells are shown in **Figure 8** and all RMS and non-RMS wells in the groundwater level monitoring network are presented in **Appendix D**.

3.1.1 Groundwater Elevation Contours (Spring and Fall) (§ 356.2[b][1][A])

Spring and fall groundwater elevation data for the aquifers in SU-1 in the CGB were contoured to assess spatial variations, seasonal fluctuations, trends in groundwater conditions, groundwater flow directions, and horizontal groundwater gradients. Contour maps were prepared for the seasonal high groundwater levels, which typically occur in the spring, and the seasonal low groundwater levels, which typically occur in the fall. In general, the spring groundwater data are for April and the fall groundwater data are for September. Information identifying the owner or detailed location of private wells is not shown on the maps to preserve confidentiality.

The primary purpose of the water-level contours is to help identify general patterns in the groundwater flow regime within the groundwater basin, including those attributable to recharge sources and associated with discharge areas. The natural pre-development groundwater flow regime would generally be seaward, from areas of recharge in the north and east towards areas of discharge to the Pacific Ocean along the southern boundary of the CGB. Water level contours

[2] Since implementation of the GSP, the Groundwater Sustainability Agencies are now responsible for monitoring and reporting of groundwater elevation data to DWR's SGMA Monitoring Network Module.

shown in **Figures 6 and 7** indicate that in SU-1, groundwater generally flows in a northeast-to-southwest direction in the eastern half of the basin, and northwest-to-southeast in the western half of the basin. The directions of groundwater flow generally reflect the movement of groundwater from the primary sources of recharge in the Recharge Area to the primary sources of extraction (groundwater pumping) in the Confined Area in the central portion of the CGB, where the majority of production wells are located. It is noted that available water level data for SU-2 are very limited, and therefore, water-level contours are not depicted in SU-2.

The groundwater elevation contours depicted in **Figures 6 and 7** show the development of localized water-level depressions centered in the central portion of the CGB, with water levels as much as 50 feet below sea level in the fall of 2025. These water-level conditions result in a reversal of the natural pre-development seaward groundwater gradient, creating the potential for seawater intrusion in the western portion of the CGB where basin deposits are exposed to the Pacific Ocean. It is noted that prior to 2019, seawater intrusion had not historically been detected in existing wells in the CGB; however, prior to 2019, there were no monitoring wells located along the coast to detect seawater intrusion. The Sentinel Wells were constructed in 2019 near the coastline west of El Estero, with completions in the upper three water producing units (A-, B-, and C-zones) of the Primary Aquifer, to monitor for seawater intrusion (discussed further in **Section 4.1.3**).

Positive and negative changes in groundwater elevations from year to year are observed in various parts of the CGB, as has been observed historically. Groundwater elevations observed during WY 2025 are generally lower than during WY 2024 due to below-average rainfall conditions during WY 2025.

3.1.2 Hydrographs (§ 356.2[b][1][B])

Groundwater elevation hydrographs are used to evaluate aquifer behavior over time. Changes in groundwater elevation at a given point in a groundwater basin can result from many influencing factors, with all or some occurring at any given time. Factors can include changing climatic trends, seasonal variations in precipitation, varying groundwater pumping, changing inflows and outflows along basin boundaries, availability of recharge from surface water sources, and influence from localized pumping conditions. Climatic variation can be one of the most significant factors affecting groundwater elevations over time.

Groundwater elevation hydrographs for the nine RMS wells for water level and storage sustainability indicators are shown in **Figure 8**. **Appendix D** presents hydrographs and location inset maps for the nine RMS wells and all other water level monitoring network wells. These hydrographs also include information on groundwater elevation, as well as the MO and MT for each RMS well that were developed during the preparation of the GSP.

Many of the hydrographs illustrate conditions of lowered water levels during historical drought periods (i.e., 1950s, 1988–1992, 2015–2021); however, over the previous 2 water years, groundwater levels rebounded from the 2015-2021 drought conditions and increased in the RMS wells. During WY 2025, water levels declined at most wells compared to WY 2024 due to deficient rainfall and recharge during the period.

As described in the GSP, historical trends in groundwater levels were assessed to set the MO, interim milestone (IM), and MT for each of the nine RMS wells in the water level and storage

monitoring network. These established MO, IM, and MT values for each RMS well are shown in the hydrographs in **Figure 8**. While most RMS wells' water levels decreased during WY 2025 compared to WY 2024, water levels in all nine RMS wells have remained above their MT values.

3.2 GROUNDWATER EXTRACTIONS (§ 356.2[B][2])

This section presents the metered and estimated groundwater extractions from the CGB for WY 2025. The types of groundwater extraction in the CGB include CVWD municipal supply wells and approximately 110 to 135 private wells (agricultural supply). Each following subsection includes a description of the method of measurement and a qualitative level of accuracy for each estimate. The level of accuracy is rated on a qualitative scale of low, medium, and high. **Table 1** shows the annual groundwater extraction volumes for all water use sectors.

3.2.1 Municipal Well Metered Pumping

The municipal groundwater extractions documented in this report are metered data provided by CVWD. Metered groundwater pumping extraction data from the CVWD wells are reported as monthly total production from each of the CVWD wells. The data shown in **Table 1** reflect the CVWD metered data for groundwater production during WY 2025. The accuracy level rating of these metered data is high.

3.2.2 Private Well Estimated Pumping

Private pumping in the Basin is not metered and has been estimated on an annual basis by CVWD since 1984 using land use surveys and CVWD's water sales records. CVWD supplies imported water and/or local groundwater to numerous agricultural parcels of known acreage and crop types (e.g., avocados, cherimoyas, and open and covered nurseries). From these metered deliveries, unit use values (known by CVWD as "determining factors") for various crop types have been estimated each year since 1984. These unit use values have been combined by CVWD with land use acreage data to estimate annual private well production in the CGB. The same method was used to estimate private pumping for the GSP. Private pumping estimated for WY 2025 is shown in **Table 1**. The accuracy level rating of the private pumping extraction estimates is medium.

3.2.3 Total Groundwater Extractions Summary

Table 1 below summarized metered extraction data for CVWD wells and estimated groundwater extraction for private wells in the CGB for WY 2025, with WYs 2021 through 2024 included for reference. As shown, total groundwater extraction in the CGB for WY 2025, which was a critical dry year, was estimated to be 4,877 acre-feet (AF). The volume of groundwater extracted in WYs 2021 and 2022 were relatively higher, likely attributable to below-average precipitation in the CGB during those years, whereas groundwater extractions during WYs 2023 and 2024 were relatively lower, likely attributable to above-average precipitation during those years. The amount of groundwater pumping in the CGB during WYs 2021, 2022 and 2025 exceeded the GSP's estimated annual baseline sustainable yield of approximately 3,710 acre-feet per year (AFY) (CGSA, 2023).

Table 1. Estimated Groundwater Extractions

Water Year	Water Year Type	Pumping (AF)		
		CVWD	Private	Total
2021	Critical	759	5,074	5,833
2022	Below Normal	2,124	4,811	6,935
2023	Wet	998	3,331	4,329
2024	Wet	999	3,565	4,564
2025	**Critical**	**1,003**	**3,874**	**4,877**
Method of Measure:		Metered	Estimated by Land Use	--
Level of Accuracy:		High	Medium	--

3.3 SURFACE WATER USE (§ 356.2[B][3])

This section addresses the reporting requirement of providing surface water supplies used, or available for use, and describes the annual volume and sources for WY 2025. The CVWD imports surface water supplies from the Cachuma Project and the State Water Project (SWP) and distributes imported water to customers within its boundaries. Imported water was first made available to the CVWD in 1956 from the Cachuma Project, and water from the SWP was first made available in 1997. The CVWD's maximum local surface water allocation from the Cachuma Project is currently 2,813 AFY, while the long-term average is estimated to be approximately 1,970 AFY. Maximum allocation from the SWP is 2,200 AFY (including 200 AF of drought buffer), while the long-term average is estimated to be approximately 876 AFY (Woodard & Curran, 2021).

Additionally, CVWD participates regularly in a SWP exchange program with the Santa Ynez Improvement District No. 1 (SYID #1), located downstream of Lake Cachuma. Under this exchange program, CVWD purchases SWP water and supplies it to SYID #1 for its use. In exchange, SYID #1 supplies an equal amount of Lake Cachuma water to CVWD.

The water use sectors that apply imported surface water to meet beneficial uses in the CGB include the following:

- Urban
- Industrial
- Agricultural

CVWD maintains records of imported water supplies and deliveries in the CGB. **Table 2** below provides a summary of CVWD's total surface water use from imported surface water supplies for WYs 2021 through 2025. The accuracy level rating of these metered data is high.

Table 2. Surface Water Imports

Water Year	Water Year Type	Imported Surface Water by Source (AF)			
		Cachuma Project	State Water Project	SYID #1 Exchange	Total
2021	Critical	3,308	512	238	4,058
2022	Below Normal	895	1,397	93	2,385
2023	Wet	2,229	0	99	2,328
2024	Wet	2,488	0	279	2,767
2025	**Critical**	**2,982**	**0**	**330**	**3,312**

3.4 TOTAL WATER USE (§ 356.2[B][4])

This section summarizes the total annual groundwater and imported surface water used to meet municipal, agricultural, and rural demands within the CGB. For WY 2025, the quantification of total water use was completed from reported metered municipal water production and metered surface water delivery, and from methods used to estimate agricultural water demand based on land use data and metered CVWD water supplies. **Table 3** below summarizes the total water use in the CGB by source and water use sector for WYs 2021 through 2025.

Table 3. Total Water Use by Source and Water Use Sector

Water Year	Water Year Type	Total Water Use (AF)			
		CVWD		Private Agricultural	Total
	Source:	Groundwater	Surface Water	Groundwater	
2021	Critical	759	4,058	5,074	9,891
2022	Below Normal	2,124	2,385	4,811	9,320
2023	Wet	998	2,328	3,331	6,657
2024	Wet	999	2,767	3,565	7,331
2025	**Critical**	**1,003**	**3,312**	**3,874**	**8,189**

3.5 CHANGE IN GROUNDWATER STORAGE (§ 356.2[B][5])

3.5.1 Annual Changes in Groundwater Elevations (§ 356.2[b][5][A])

The change of groundwater in storage in a groundwater basin generally reflects changes in groundwater elevations over time. Annual change in groundwater elevation in the CGB is derived from a comparison of fall groundwater elevation contour maps from one year to the next. For this analysis, fall 2024 groundwater elevation contours were subtracted from the fall 2025 groundwater elevation contours resulting in a map depicting the changes in groundwater elevations in SU-1 that occurred during WY 2025 (see **Figure 9**).

As stated in Section 3, groundwater in the CGB is predominantly extracted from SU-1, and groundwater level data for SU-2 are insufficient to prepare annual groundwater elevation contour maps. Therefore, the change in groundwater in storage analysis is limited to SU-1 north of the Rincon Creek fault for this Annual Report. The groundwater elevation change map

presented in **Figure 9** represents the difference in groundwater elevations between two snapshots in time, made approximately one year apart from fall to fall.

Considering that groundwater elevations may fluctuate dynamically throughout each year in response to changing climatic conditions and groundwater pumping patterns, the specific patterns of 'higher' versus 'lower' water level areas shown on these figures may not necessarily be representative of basin conditions occurring throughout the entire water year.

The groundwater elevation change map for WY 2025 (**Figure 9**) shows that water levels generally declined over a majority of the CGB compared to fall of 2024, with the exception of the area in the vicinity of Carpinteria and Gobernador Creeks, where water levels increased by as much as 34 feet (22R4). Localized pumping centers in the central portion of the CGB declined, with decreases of about 7.9 and 3.7 feet at 20K4 and 28F7, respectively. The overall decreases observed across the majority of the basin are likely attributed to below average precipitation during WY 2025 and an increase in the volume of agricultural and municipal groundwater pumpage during WY 2025 compared to the previous two years.

3.5.2 Annual and Cumulative Changes in Groundwater Storage (§ 356.2[b][5][B])

The groundwater elevation change map presented above represents a volume change within SU-1 of the CGB from WY 2024 to 2025. The volume changes were calculated from the differences in groundwater elevation contours from fall to fall in any given year and represent a total volume, including the volume displaced by the aquifer material and the volume of groundwater stored within the void space of the aquifer. The portion of void space in the aquifer that can be used for groundwater storage is represented by the aquifer storage coefficient, a unitless factor, which is multiplied by the total volume change to derive the change in groundwater in storage.

Although this method differs from the method used in the GSP, which was based on the water budget for the basin (inflows – outflows = change in storage), this method is approved by DWR and the same methodology is used for the WY 2025 Annual Report, with improvements compared to the previous Annual Reports consisting of the following:

1. The entire basin area as defined by the basin boundaries is utilized, rather than a rectilinear area that only approximates the basin area.
2. Utilizing appropriate storage coefficient values for both the confined and unconfined areas of the basin, rather than utilizing specific yield values from layer 2 of the groundwater model for the entire basin.

The total difference in volume between the contoured surfaces for fall of WY 2024 and WY 2025 was determined for both the Confined and Recharge Areas of the CGB. The changes in groundwater storage for the two areas were then calculated by multiplying the total volume change by an appropriate storage coefficient value; 0.08 (dimensionless) for the unconfined Recharge Area and 0.00065 (dimensionless) for the Confined Area. This method and these storage coefficient parameters were utilized to estimate storage changes in the 2012

hydrogeologic update for the CGB[3] and were shown to closely approximate the changes as calculated by the water budget methodology; therefore, this method provides a more accurate calculation of the changes in groundwater storage compared to the previous Annual Reports.

The estimated annual changes of groundwater in storage calculated for WYs 2021—2025 are presented in **Table 4** below:

Table 4. Estimated Annual Change in Groundwater in Storage in SU-1

Water Year	Water Year Type	Annual Change in Groundwater Storage (AF)
2021	Critical	-7,714
2022	Below Normal	-1,179
2023	Wet	12,071
2024	Wet	5,839
2025	**Critical**	**-1,105**
Cumulative (WY 2021 - 2025)		7,912

Comparison of annually tabulated precipitation, total groundwater extractions, and surface water delivery data reveals a close correlation to the annual change in groundwater in storage in the CGB. Specifically, years with well above average precipitation are typically associated with years of large increases in groundwater in storage, as documented in the GSP. Conversely, nearly all below-average precipitation years are associated with years of decline in groundwater storage. As shown in **Table 4**, groundwater storage declined by an estimated 1,105 AF during WY 2025, consistent with the below-average precipitation and greater extractions as compared to the previous two water years. The cumulative change in storage over the past five years is estimated at 7,912 AF of storage accumulation.

While the values used in the groundwater elevation change method use the best readily available information, it is necessary to acknowledge that the storage coefficient values in the Primary Aquifer are spatially and vertically variable across the CGB (as indicated in the GSP groundwater model). This, coupled with interpolation of groundwater elevation contouring through data gap areas in the groundwater level monitoring network (see Section 2.4.1) contributes to a moderate amount of method uncertainty.

4. PROGRESS TOWARDS SUSTAINABILITY (§ 356.2[C])

This section documents progress toward sustainability of the CGB as reflected in the sustainable management criteria for each applicable sustainability indicator, and the status of projects and management actions presented in the GSP.

[3] Pueblo Water Resources, Inc. (2012), *Carpinteria Groundwater Basin Hydrogeologic Update and Groundwater Model Project*, prepared for Carpinteria Valley Water District.

4.1 SUSTAINABLE MANAGEMENT CRITERIA

This section presents the status of sustainable management criteria for each GSP sustainability indicator applicable to the CGB.

4.1.1 Chronic Lowering of Groundwater Levels

The status of groundwater levels in the CGB is discussed in detail in **Section 3.1** of this Annual Report. The hydrographs presented in **Figure 8** and **Appendix D** present groundwater elevations with minimum thresholds (MTs) and measurable objectives (MOs) on the graphs. No water levels in any of the RMS wells were below the established MT for those wells.

4.1.2 Reduction of Groundwater Storage

This sustainability indicator uses water levels as a proxy to define the MTs and MOs for reduction of groundwater in storage. The RMS network and associated MTs and MOs established in the GSP for reduction of groundwater storage are identical to those established for chronic reduction of groundwater levels and no MTs for this criterion were exceeded in WY 2025.

4.1.3 Seawater Intrusion

Chloride Concentrations. As documented in the GSP, the CGB is at risk for seawater intrusion because pumping in the basin creates cones of depression that create landward groundwater flow direction along the coast.

The GSP established that undesirable results may occur in the CGB if:

"Seawater moving inland to the point where groundwater produced from currently active wells exhibits increased concentrations of chloride above the established secondary maximum contaminant level (SMCL) for drinking water of 250 parts per million (ppm)."

Figure 10 presents the 8 RMS wells for the Seawater Intrusion (SWI) sustainability indicator. A line connecting these wells represents the location of the chloride 250 mg/L isocontour as the SMC for seawater intrusion in the GSP. Five of the wells that were initially identified in the GSP as proposed SWI RMS wells that have since been denied access by the well owners are indicated in **Figure 10** with red Xs. The remaining three active wells are indicated with the range of chloride concentrations during WY 2025. As of publication of the GSP (December 2023), seawater intrusion is not known to have impacted any active wells in the CGB, and as shown in **Figure 10** chloride concentrations at the monitored SWI RMS wells during WY 2025 remained less than the MT concentration of 250 mg/L.

The CGSA will continue to conduct groundwater monitoring along the coast in the western portion of the CGB to monitor for and manage the potential for seawater intrusion in the basin and will assess chloride concentrations to the sustainability indicator in subsequent annual reports. The CGSA is continuing negotiations with landowners to gain access to wells that will be useful for defining a chloride isocontour as indicated in **Figure 10**. Additional seawater intrusion monitoring points are also planned to be added to the seawater intrusion monitoring network in the future, during implementation of the GSP.

Sentinel Monitoring Wells. In 2019, the CVWD constructed a set of three nested monitoring wells screening the A, B, and C zones of the Principal Aquifer in the Confined Area for the purpose of characterizing groundwater salinity and the potential occurrence of seawater

intrusion along the coast. These wells are referred to collectively as the Sentinel Wells. Data collected from the Sentinel Monitoring Wells are presented in **Figures 11, 12, and 13**.

Figure 11 displays conductivity, chloride, and groundwater elevation data for Sentinel Monitoring Well MW-1 (C Zone). Initial data collected upon well installation in 2019 indicated chloride concentrations below 250 milligrams per liter (mg/L). Since 2019, conductivity readings and chloride concentrations have trended upward. During WY 2025 chloride concentrations ranged from 3,800 to 4,400 mg/L and continued the increasing trend.

Figure 12 displays conductivity, chloride, and groundwater elevation data for Sentinel Monitoring Well MW-2 (B Zone). Chloride concentrations in this well have varied significantly, with no discernible trends evident. During periods of pumping at the CVWD Headquarters and El Carro wells in 2021–2022, chloride concentrations were well below 250 mg/L. Starting in February 2023, chloride concentrations exceeded 1,400 mg/L, while the sample collected in August 2023 showed a significant decrease to below 250 mg/L. Data from 2024 indicated elevated chloride levels of approximately 1,400 mg/L in February, followed by a decline to below 250 mg/L in August. Similarly, data from 2025 indicated elevated chloride levels of approximately 1,400 mg/L in January followed by a decline to 52 mg/L in August. The CGSA will continue monitoring this parameter to track future trends.

Figure 13 displays conductivity, chloride, and groundwater elevation data for Sentinel Monitoring Well MW-3 (A Zone). Chloride concentrations have consistently been stable and below 50 mg/L since the construction of this well in 2019, which continued through WY 2025.

Figure 14 displays the results of geophysical induction logs that have been performed at MW-1 on a quarterly basis since its installation in 2019. These results are consistent with the laboratory data discussed above, with A Zone induction results remaining relatively stable, B Zone results displaying variability but with indications of increasing trends over time, and C Zone results displaying consistently increasing conductivity over time.

It is noted that, while the MW-1 and MW-2 Sentinel Monitoring Wells data, which are screened in the C and B Zones, respectively, indicate recent evidence of seawater intrusion in these zones of CGB, the data are confined to that single location near the shoreline in the western portion of SU-1. As will be discussed in later section of this report, one of main purposes of the Sentinel Monitoring Well Expansion Project is to expand the geographic coverage of seawater intrusion monitoring in the CGB beyond the single location of the existing Sentinel Monitoring Wells.

4.1.4 Degradation of Groundwater Quality

Although groundwater quality is not a primary focus of SGMA, actions or projects undertaken by GSAs to achieve sustainability may not degrade water quality to the extent that they would cause undesirable results. Implementation of sustainability projects and/or management actions, as presented in the GSP, in this WY 2025 Annual Report, or in the future are not anticipated to result in degraded groundwater quality in the CGB. Siting of new wells within the CGB should consider potential impacts to groundwater quality by avoiding pumping-induced conditions that may cause migration of known existing contaminant plumes. Any notable changes in groundwater quality will be documented and discussed in future annual reports and GSP updates.

Groundwater quality in the CGB is generally suitable for both drinking water and agricultural purposes, with some localized water quality impairments from elevated nitrate and TDS concentrations. Five COCs were identified and discussed in the GSP (CGSA, 2023) that have the potential to be impacted by groundwater management activities, including arsenic, boron, chloride, nitrate, and salinity (as indicated by TDS). As provided in **Table 5** below, the CGSA developed MTs for each COC to provide a sustainability indicator for water quality degradation. The GSP states that for the water quality sustainability indicator, an undesirable result may occur if:

> *"…for any 5-year period during SGMA implementation, an increase in groundwater quality minimum threshold exceedances is observed at 33-percent or more of the representative monitoring sites in the Basin, in relation to 2015 basin conditions."*

Table 5. Minimum Thresholds for Water Quality Degradation Sustainability Indicator

Constituent	MT	Rationale
Arsenic	10 ug/L	MT set at Drinking Water MCL
Nitrate (as N)	10 mg/L	MT set at Drinking Water MCL
TDS	1,000 mg/L	MT set at Drinking Water SMCL
Chloride	145 mg/L	MT set at the Basin Plan's "no problem" agricultural threshold
Boron	0.75 mg/L	MT set at Basin Plan agricultural threshold for other coastal basins

Notes:

MT = Minimum Threshold

ug/L = micrograms per liter

mg/L = milligrams per liter

MCL = maximum contaminant level

SMCL = secondary maximum contaminant level

N = nitrogen

TDS = total dissolved solids

For this WY 2025 Annual Report, trends of concentrations for the COCs were analyzed through WY 2025 using water quality data provided by CGSA; however, water quality data for arsenic in the CGB are limited and, therefore, historical or current trends for arsenic could not be assessed at this time.

Figure 15 presents chemographs of boron, chloride, nitrate, and TDS concentrations in RMS water quality network wells (three other RMS wells in the network are the El Carro Park monitoring wells [28D5/D6/D7] that were constructed in 2023 and data are currently unavailable). Chemographs for all wells within the groundwater quality monitoring network are included in **Appendix E**. The chemographs illustrate concentrations of these COCs in the wells over time and also include the defined MT for each COC for the water quality degradation sustainability indicator.

The chemographs show that boron, chloride, nitrate and TDS concentrations have historically and recently been below their respective MTs in the RMS water quality network wells, with some exceptions:

- **28J3** exceeded the MT for nitrate of 10 mg/L (NO3 as N) for the fall 2025 sample, with a concentration of 10.5 mg/L; however, as shown nitrate concentrations at this well have historically been elevated and near the MT, ranging between approximately 6 and 14 mg/L; therefore, while the MT was exceeded during WY 2025, there does not appear to be an increasing trend. It is also important to note that elevated nitrate concentrations have been documented in the central portion and eastern portion of the CGB where legacy land use is predominantly agricultural.
- **35B5** continues to exceed the MT for TDS of 1,000 mg/L, with a concentration of 1,170 mg/L in the single sample collected during WY 2025; however, this well has historically exceeded the MT concentration, with values ranging between approximately 800 and 1,300 mg/L; therefore, while the MT was exceeded during WY 2025, there does not appear to be an increasing trend.
- **29D8** (CVWD Headquarters Well) exceeded the MT for chloride of 145 mg/L with a concentration of 243 mg/L for the Spring 2025 sample, declining to a concentration just below the MT of 143 mg/L for the Fall 2025 sample. Chloride and TDS concentrations have shown increasing trends since 2015 in this well, located in the western portion of the CGB near Highway 101, and this increasing trend continued in WY 2025. Continual monitoring of chloride and TDS will be important to monitor for seawater intrusion.

It is also noted that previous GSP Annual Reports misreported nitrate concentrations as NO3 as N that were actually NO3 as NO3 concentrations (i.e., they were reported as being 4.42 times greater than actual values). The chemograph plots presented on **Figure 15** have been corrected accordingly.

Implementation of sustainability projects and/or management actions, as presented in the GSP, in this WY 2025 Annual Report, or in future reports or GSP updates, are not anticipated to result in degraded groundwater quality in the CGB. Any potential changes in groundwater quality will be documented in future annual reports and GSP updates.

4.1.5 Subsidence

Land subsidence is the gradual (or sudden) lowering of the land surface. Several human-induced and natural causes of subsidence may exist, but the only processes applicable to SGMA are those due to permanently lowered ground surface elevations caused by groundwater extraction. Subsidence has not historically been observed in the CGB. Subsidence can be estimated using data derived from InSAR data provided by DWR. InSAR measures ground elevation using microwave satellite imagery data. According to Towill, Inc. (2023) there is a potential error of +/- 18 millimeters, or 0.059 feet associated with the InSAR measurement and reporting methods. Therefore, an InSAR-measured land surface change of fewer than 0.059 feet is within the noise of the data and is equivalent to no evidence of subsidence.

The GSP established MTs for InSAR measured land subsidence as:

"…No more than 0.1 foot in any single year and a cumulative 0.5 foot in any five-year period," as measured using InSAR data between June of one year and June of the subsequent year." (CGSA, 2023)

Although minor land subsidence was documented during the 5-year period of June 2016 to July 2022, neither of these results indicate an undesirable result as specified by the land subsidence MTs. A review of recent InSAR data from the DWR SGMA Data Viewer indicates that no measurable subsidence (less than 0.1 foot) has occurred in the CGB on an annual basis between October 2024 and October 2025[4]. The CGSA will continue to monitor InSAR data and document results in future Annual Reports.

4.2 UPDATE ON IMPLEMENTATION OF PROJECTS AND MANAGEMENT ACTIONS

The CGSA has developed a portfolio of potential Projects and Management Actions (PMAs) that are being assessed for implementation in the CGB to attain sustainability. These PMAs include capital projects and non-structural basin management policies intended to reduce or optimize local groundwater use. Some of these projects were described in concept in the GSP and are categorized as Tier 1 and Tier 2 projects. Tier 1 projects are priority projects expected to be implemented within the first 5-year SGMA implementation period. Tier 2 projects are non-priority and will be evaluated and ranked during the first 5-year period for potential future implementation.

As outlined in the GSP, the proposed Tier 1 and Tier 2 projects may include:

Tier 1 Projects

- Carpinteria Advanced Purification Project (CAPP)
- Sentinel Monitoring Well Network Expansion Project
- Local Infrastructure Water System Interties

Tier 2 Projects

- Carpinteria Seawater Intrusion Barrier Project
- Aquifer Storage and Recovery Projects
- Recharge Enhancement Projects (Recharge Basins and Creek De-lining)
- Local Inter-Agency Water Delivery and Water Banking Agreements
- Supporting the health of groundwater-dependent ecosystems in the Basin

Based on the results of the analysis performed in conjunction with the development of GSP, the CGSA concludes that the sustainability goals described in the GSP and required under the provisions of SGMA can be achieved through the implementation, as needed, of the Tier 1 projects, and some combination of management actions. The CGSA does not plan at this time to implement any of the Tier 2 projects.

[4] At the time of report preparation, the InSAR data for October 2024 to October 2025 were viewable on the SGMA portal but the raster data were unavailable for download; therefore, no figure could be prepared for this report.

Management actions will be evaluated on an individual basis after GSP adoption and implemented accordingly under the direction of the CGSA. The management actions described in the GSP and outlined below will be evaluated for cost and efficacy early in the initial 5-year SGMA implementation period, and implemented as determined appropriate by the CGSA:

- Administrative Approach and Implementation Timing
- Permitting of Wells
- Annual Reporting
- Five-Year Plan Evaluation and Update
- Management Action Implementation
- CGSA Annual Budget Estimates
- Funding Sources

Since the submittal of the GSP in January 2024, there has not been sufficient time to achieve significant progress on many of the proposed projects and management actions. Actions are underway to collect data, improve the monitoring and data collection networks, and coordinate with affected agencies and private landowners throughout the CGB to develop solutions that address the shared mutual interest in the basin's overall sustainability goal. The following actions represent progress on PMAs during WY 2025.

4.2.1 CAPP

The purpose of the CAPP is to create a new drought-resistant and reliable supply of local water, produce water suitable for groundwater recharge and potable reuse, and reduce CVWD's reliance on imported surface water from the Cachuma and State Water Projects. CAPP involves the construction and operation of a new Advanced Water Purification Facility (AWPF) at the CSD Wastewater Treatment Plant (WWTP), two (2) new injection wells, pipelines to convey advanced treated water to the injection wells, and three (3) monitoring wells to monitor potential changes in groundwater levels and quality. Recycled water will be produced on-site at the with the new AWPF, conveyed through a Purified Water Pipeline, and then injected into the CGB using injection wells. Injected water will be monitored in the CGB aquifer system with monitoring wells.

The CAPP would initially produce approximately 1,100 acre-feet per year (afy) (equivalent to 1.0 million gallons per day [mgd]) of purified water from the CSD WWTP for injection into the CGB, where it ultimately would be used for CVWD potable water supply. The existing CVWD Headquarters and El Carro #2 municipal production wells would be used to recover treated water from the groundwater basin. The ultimate project assumes an expansion from 1.0 mgd to 1.2 mgd based on projected future increases in WWTP flows.

Progress on CAPP during WY 2025 included the following accomplishments:

- Finalization of the designs and preparation of three separate bid packages for the following project components:
    1. AWPF and Injection Well Equipping
    2. Conveyance System
    3. Injection and Monitoring Wells

- Bidding for the AWPF and Injection Well Equipping was initiated in September 2025 (bids due in November 2025 of WY 2026).
- Preparation of Draft Title 22 Engineering Report in August 2025.
- Approval of the Conditional Use Permit and Coastal Development Permit by the City of Carpinteria Planning Commission in September 2025.

4.2.2 Sentinel Monitoring Well Expansion Project

The purpose of the Sentinel Monitoring Well Expansion Project is to gain greater detail in the characterization of the geologic structure and hydrogeologic parameters and provide additional early warning monitoring locations along the coastline where the risk of seawater intrusion in the CGB is the greatest. A total of 4 additional Sentinel Monitoring Well clusters (3 individual wells per cluster, similar to the existing Sentinel Wells) have been envisioned at various locations along the coastline from the area of the Carpinteria Salt Marsh west towards the basin boundary with the Montecito Groundwater Basin.

During WY 2025 the CGSA developed a plan to implement the project tasks in 2 phases, as outlined below:

Phase 1 – Site Planning, Design and Bid Documents

1. Well Siting Study
2. Site Acquisition and Permitting
3. Basis-of-Design
4. Plans, Specifications and Bid Documents

Phase 2 – Bidding, Well Construction, Data Analysis and Reporting

1. Bidding/Contracting
2. Drilling, Construction and Sampling
3. Data Analysis and Reporting

Phase 1 of the project is intended to define the monitoring well locations, allow for site acquisition and permitting, design of the monitoring wells based on the selected sites, and preparation of bid documents. Completion of these tasks will provide the documentation needed to support future grant application(s) for a “shovel ready” project, which should improve the competitiveness of the project for future grant opportunities. Pending a successful grant application and funding award for the Sentinel Monitoring Well Expansion project, Phase 2 of the project would be implemented, consisting of project bidding, well drilling and construction, well sampling, data analysis and reporting.

The Phase 1 Well Siting Study was initiated in September 2025 and is planned to be completed in the first quarter of 2026.

4.2.3 Local Infrastructure Water System Interties Project

The Local Infrastructure Water System Interties Project (also known as the Ventura – Santa Barbara Counties Intertie Project) will be a bidirectional high-capacity pipeline allowing

water to be delivered between Santa Barbara County and Ventura County. The Intertie Project will construct an interconnection between CVWD's pipeline network, including transmission lines connected to the State Water Project, and the network of the neighboring Casitas Mutual Water District (Casitas) located to the east of the CGB in Ventura County. The project includes ~1.5 miles of 16-inch-diameter pipeline, two booster pump stations and water treatment facilities for chlorination/chloramination.

Construction of the Intertie Project is expected to occur during the initial 5-year SGMA implementation period. CVWD pipeline infrastructure is already connected to the Montecito Water District through a regional transmission pipeline called the South Coast Conduit-part of the Cachuma Project. It is anticipated that installation of this pipeline infrastructure will allow for greater flexibility in basin management, including exchanges of water between agencies and potential water banking arrangements. Grant funding was obtained to fund implementation of this project, which will expand flexibility of regional water management in the area.

The Project is being led by Casitas in coordination with CVWD. During WY 2025, progress on this project included the following:

- Final design of the project was completed.
- The project was released for construction bids in September 2025.
- In December 2025, just after WY 2025, Casitas awarded a construction contract and construction is expected to begin in 2026.

4.2.4 Smille No. 2 ASR Project

The CVWD's Smilie #1 well was drilled in 1974. The production of sand by the Smilie well has been problematic since it was drilled and is considered to likely be the result of a mismatch between the gravel pack gradation and formation materials, where the gravel pack is too coarse for the formation materials, thereby allowing formation sand to enter the well at higher pumping rates. In addition, recent drought-related declines in water levels in the Carpinteria Groundwater Basin (CGB) and reductions in the well's specific capacity have further limited its pumping capacity. For all of these reasons, the Smilie #1 well is considered to be near the end of its useful service life and the CVWD intends to replace the well with a replacement well (Smille #2) of modern design and construction features at the Smille well site.

The CVWD is also investigating ASR as part of its water-supply augmentation strategy. ASR is a method of "banking" water in an aquifer during times when excess surface water is available (typically wet periods), and subsequent recovery of the water from the aquifer when needed (typically dry periods). As applied to the CVWD, an ASR program would inject surplus water and recharge the CGB to maintain groundwater levels and help to ensure adequate groundwater supplies are available in times of drought. Injected surface water would be treated at the City of Santa Barbara's Cater Water Treatment Plant and conveyed to ASR wells in the CGB (such as the Smille replacement well) via the South Coast Conduit and the CVWD municipal water distribution system. Potential surplus surface water supplies for injection may include water from CVWD's Cachuma Project allocation or the State Water Project, both of which are treated at the Cater Water Treatment Plant prior to distribution. The Smille #2 well has been identified by the CVWD as a candidate for ASR in the CGB.

Work on the project completed to date includes:

- Basis-of-Design Technical Memorandum (September 2022)
- ASR Pilot Test Work Plan (September 2024)
- Draft Bid Documents and Technical Specifications (October 2024)
- ASR Injection Capacity Analysis (June 2025)

The above documents were utilized by the CVWD to demonstrate the Smille #2 ASR project as a "shovel ready" project in an application for a WaterSmart grant from the United States Bureau of Reclamation (USBR). In June 2025, the USBR informed the CVWD that the application was among those receiving the highest ratings and being considered for award of a financial assistance agreement. The application included a request for approximately $2.9M and the USBR anticipates awarding Federal funds in that amount for the project. Work on the project will continue through WY 2026 with well drilling anticipated to begin in January 2027.

4.2.5 Private Well Metering Ordinance

The CGSA developed a Well Registration and Metering Policy (Policy), which was adopted in August 2025. The Policy requires that all groundwater wells in the CGB must be registered with the CGSA and that all private existing active wells must install approved AMI-compatible flowmeters and register their flowmeters with the CGSA prior to March 31, 2026. CGSA staff will install CGSA-owned and maintained data transmitter/endpoints at active wells that meet these Policy deadlines prior to May 1, 2026. The Policy will allow for private well owners to be accurately charged for their metered groundwater extraction quantities in the near future and will also allow for more precise monitoring of the CGB. More accurate extraction data will be beneficial as the CGSA works to fulfil the requirements set forth in the GSP to manage the CGB. This data will help ensure that the CGSA can achieve sustainable management of the basin.

4.2.6 Summary of Impacts of Projects and Management Actions

Additional time will be necessary to judge the effectiveness and quantitative impacts of the PMAs either now underway or in the planning and implementation stage; however, it is clear that the actions in place and as described in this Annual Report prove significant in reaching the sustainability goals laid out in the GSP. It is too soon to judge the observed changes in basin conditions against the interim goals outlined in the GSP, but the anticipated effects of the projects and management actions now underway are expected to significantly improve the ability of the CGB to reach the necessary sustainability goals.

4.3 UPDATE ON DWR RECOMMENDED CORRECTIVE ACTIONS (RCAS)

The GSP was finalized and unanimously adopted by the CGSA in January 2024. The adopted GSP was submitted to DWR for review. On February 27, 2025, the CGSA was informed that the DWR had approved the GSP. The DWR determination letter included discussion of five Recommended Corrective Actions (RCAs). These RCAs are discussed in detail in the determination letter and address the following five topics:

1. Undesirable Results. The DWR recommends additional details be provided with respect to the definition of undesirable results in the GSP.

2. Provide additional details and discussion regarding undesirable results for seawater intrusion.
3. Revise the sustainable management criteria for the Degradation of Water Quality sustainability indicator.
4. Revise the sustainable management criteria for the subsidence sustainability indicator.
5. Establish a physical monitoring network for land subsidence that directly measures land elevation change.

CGSA staff and consultants scheduled a meeting with DWR staff for October 29, 2025 (WY 2026) to discuss the RCAs and the potential ways in which the CGSA can address them prior to the upcoming GSP Periodic Evaluation, which is due by February 2029. Progress made by the CGSA on addressing the RCAs will be discussed in future Annual Reports.

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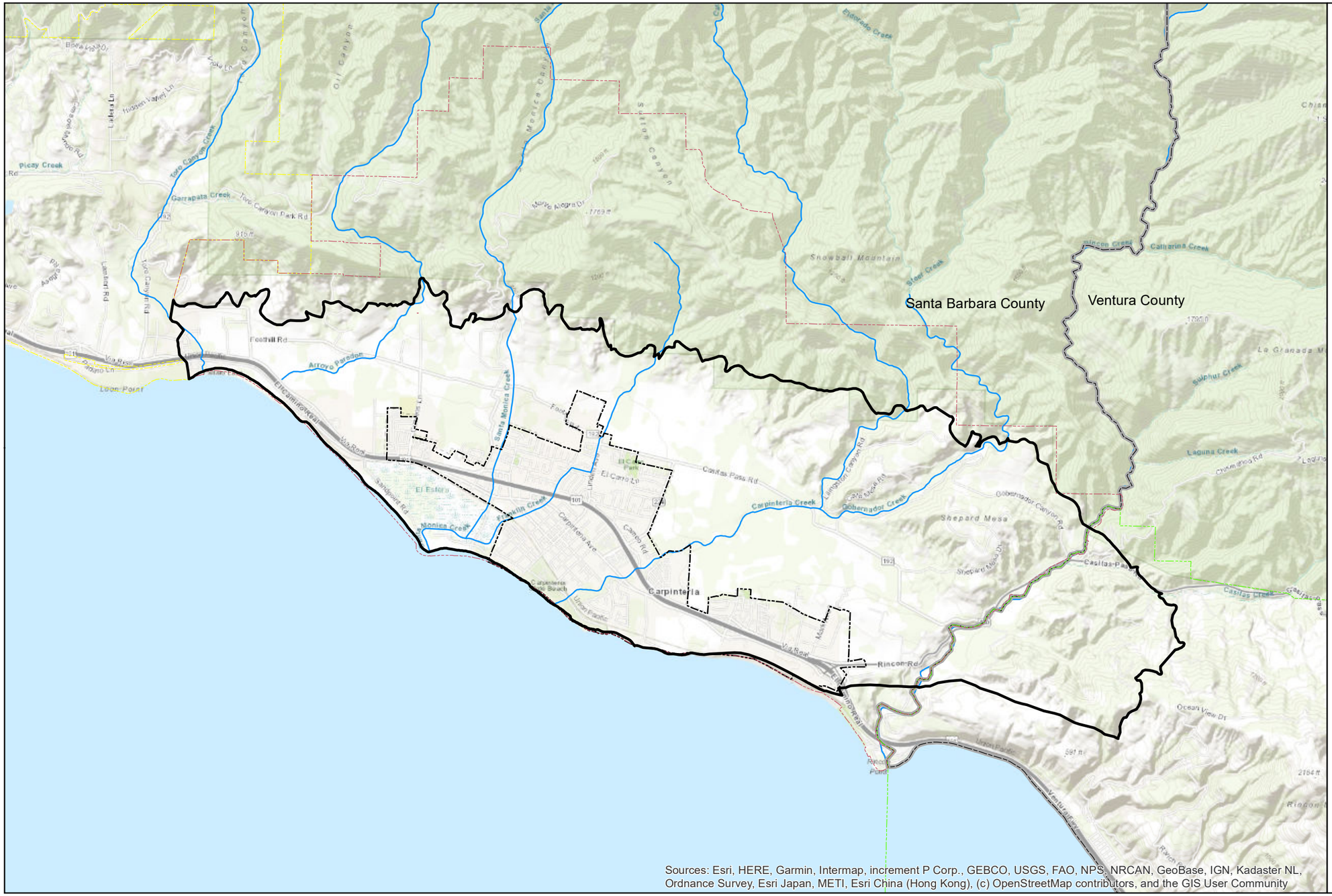
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FIGURES

March 2026
Project No. 25-0061



LEGEND

- CGB Basin Boundary
- CVWD Boundary
- CMWD Boundary
- MWD Boundary
- City of Carpinteria Boundary
- County Boundary
- Creek

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1 inch = 4,000 feet

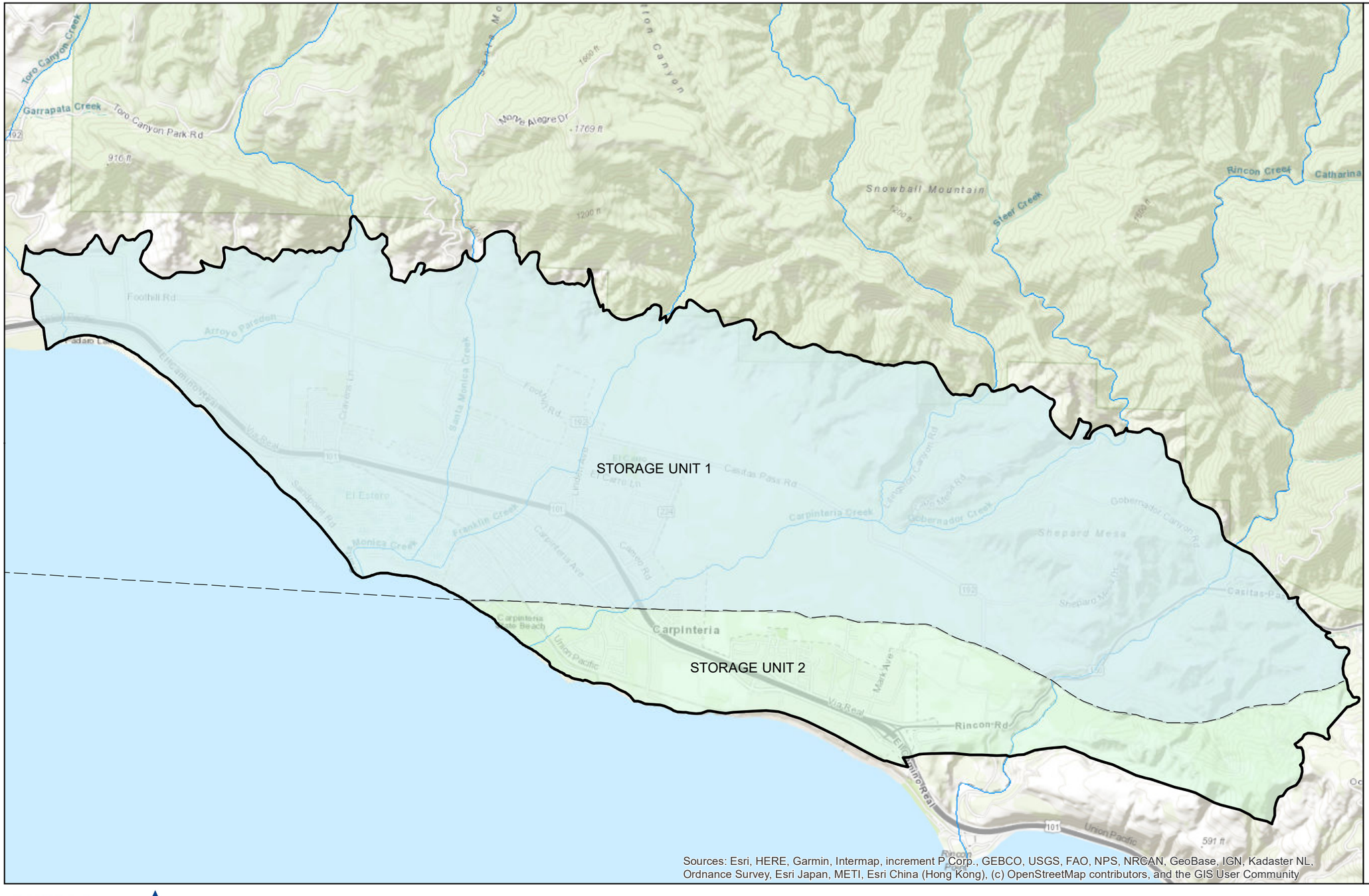
0 4,000 8,000 Feet

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CARPINTERIA GSA
GROUNDWATER SUSTAINABILITY AGENCY

FIGURE 1. CARPINTERIA GROUNDWATER BASIN AND JUSRISDICTIONAL BOUNDARIES
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
Project No. 25-0061



LEGEND

- CGB Basin Boundary
- Rincon Creek Fault
- Storage Unit 1
- Storage Unit 2
- Creek

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1 inch = 3,000 feet

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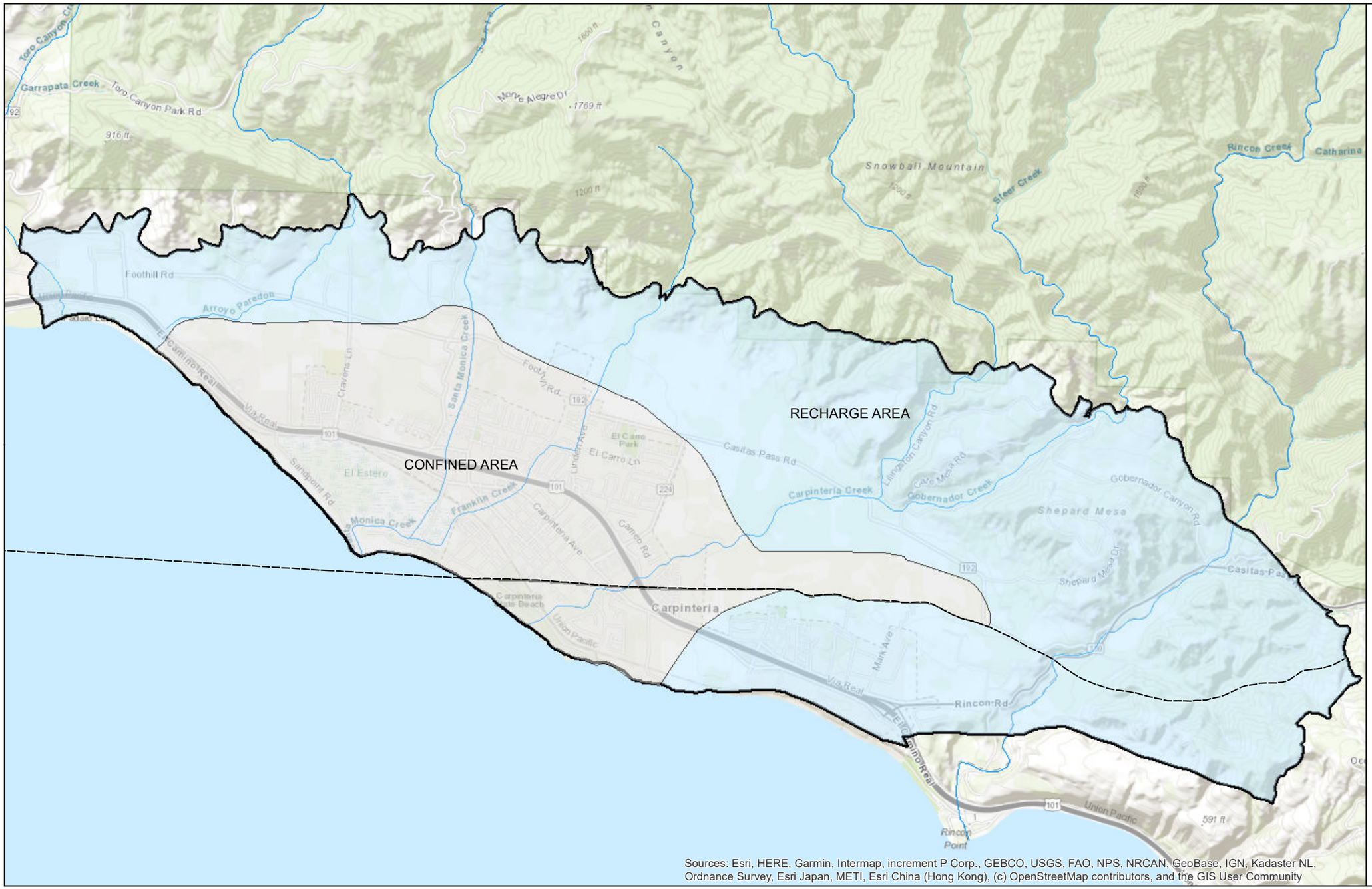
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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GROUNDWATER SUSTAINABILITY AGENCY

FIGURE 2. STORAGE UNITS 1 AND 2 MAP
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
Project No. 25-0061



LEGEND

- CGB Basin Boundary
- Creek
- Rincon Creek Fault
- Confined Area
- Recharge Area

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1 inch = 3,000 feet

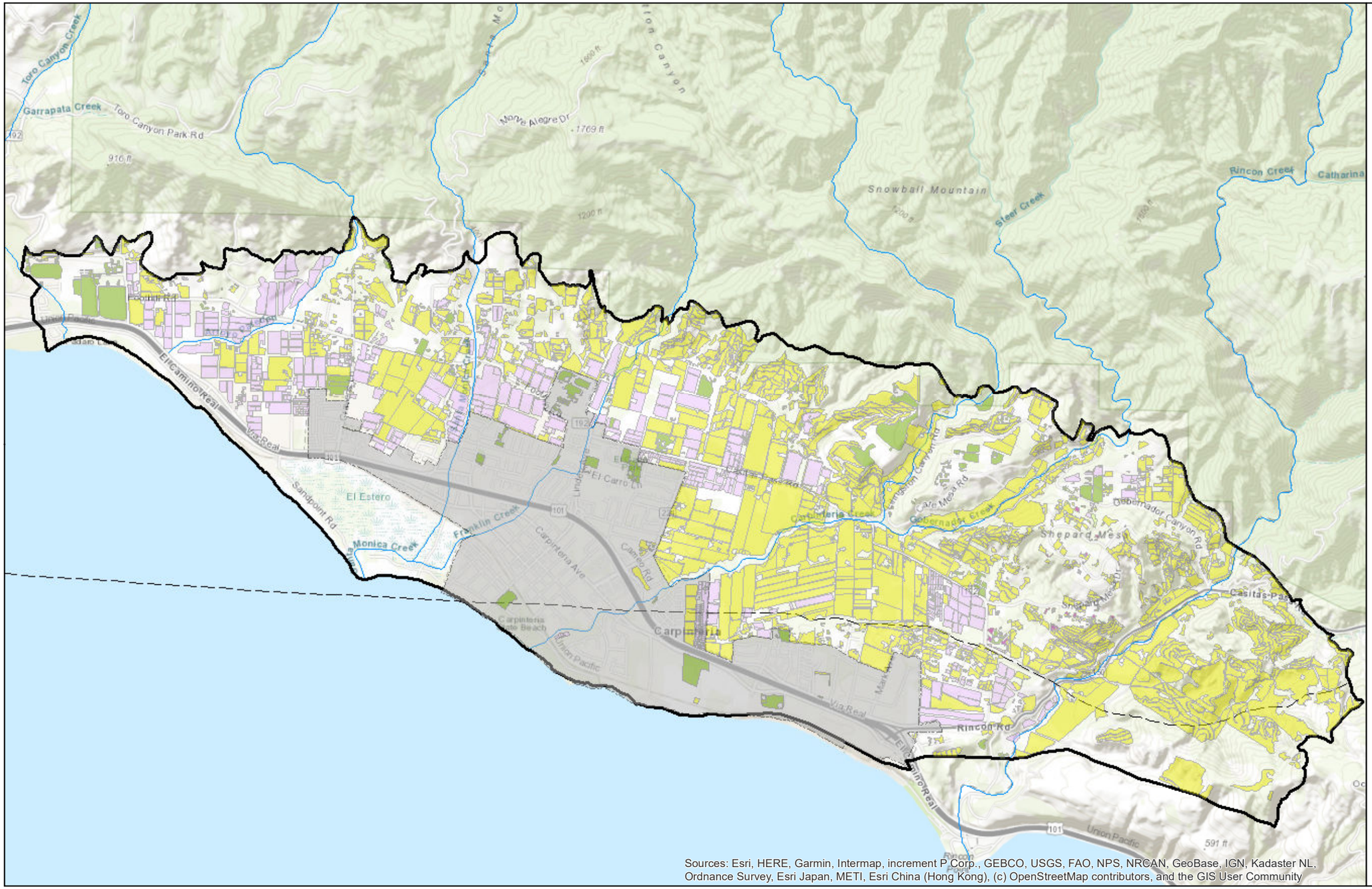
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PUEBLO water resources

CARPINTERIA GSA
GROUNDWATER SUSTAINABILITY AGENCY

FIGURE 3. CONFINED AND RECHARGE AREAS MAP
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
Project No. 25-0061



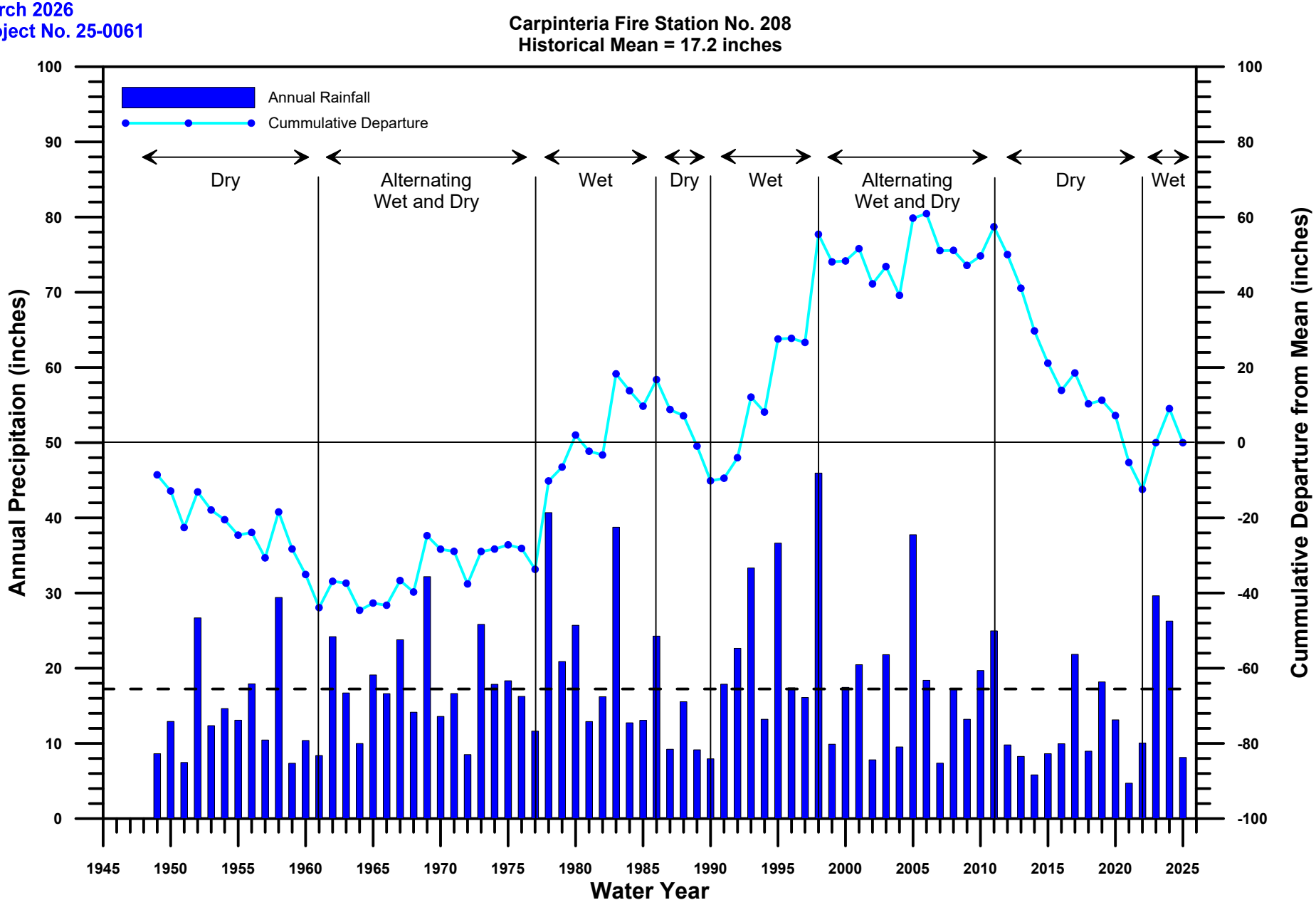
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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FIGURE 4. EXISTING LAND USE DESIGNATIONS MAP
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

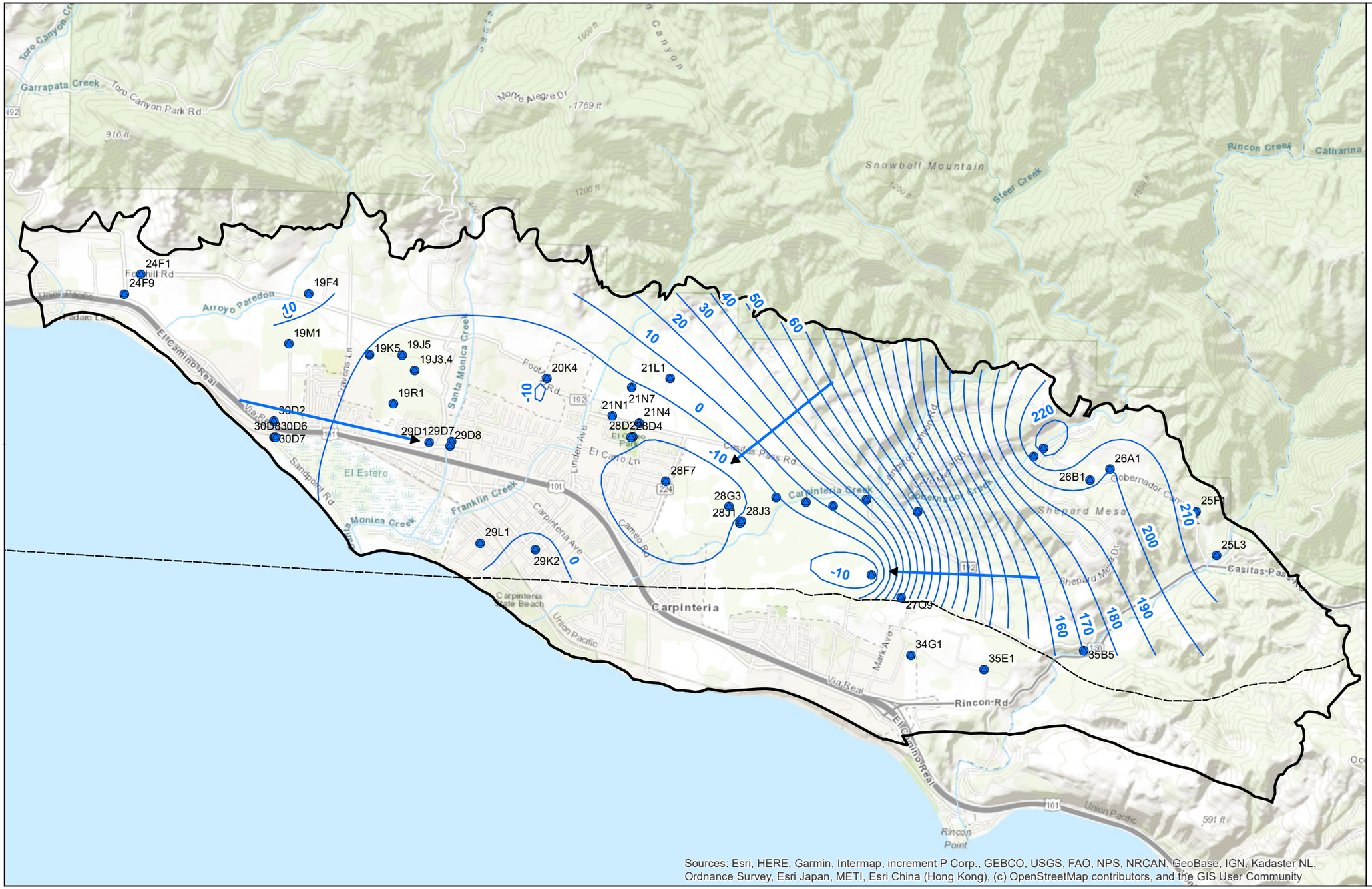
March 2026
Project No. 25-0061



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FIGURE 5. HISTORICAL ANNUAL PRECIPITATION AND CLIMATIC PERIODS (WY 1949 - 2025)
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

LEGEND

- CGB Basin Boundary
- GSA Monitoring Well
- Creek
- Rincon Creek Fault
- Level Contour (NAVD88)
- Groundwater Flow Direction

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1 inch = 3,000 feet

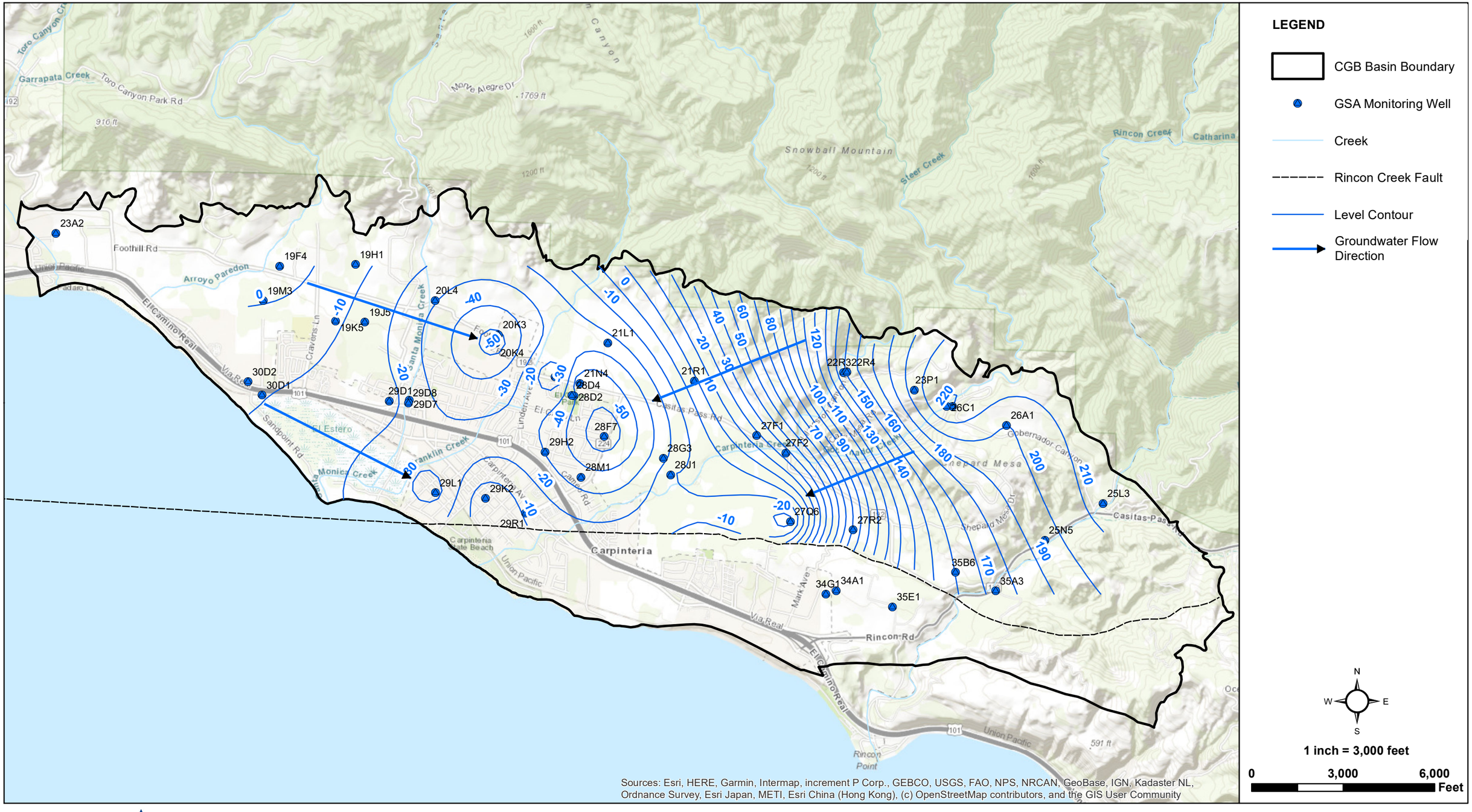
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FIGURE 6. GROUNDWATER ELEVATION CONTOURS - SPRING 2025
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
Project No. 25-0061

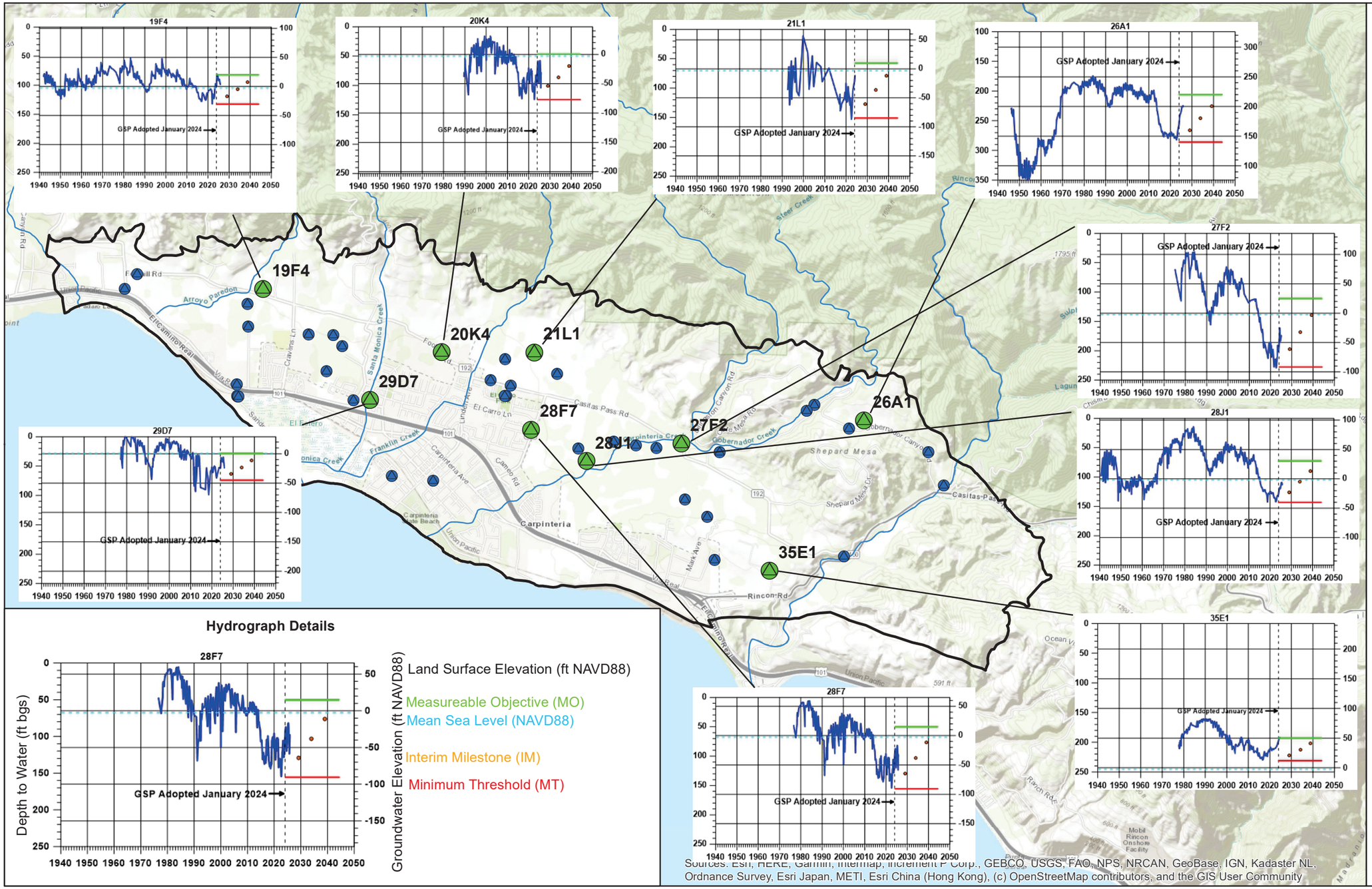


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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GROUNDWATER SUSTAINABILITY AGENCY

FIGURE 7. GROUNDWATER ELEVATION CONTOURS - FALL 2025
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

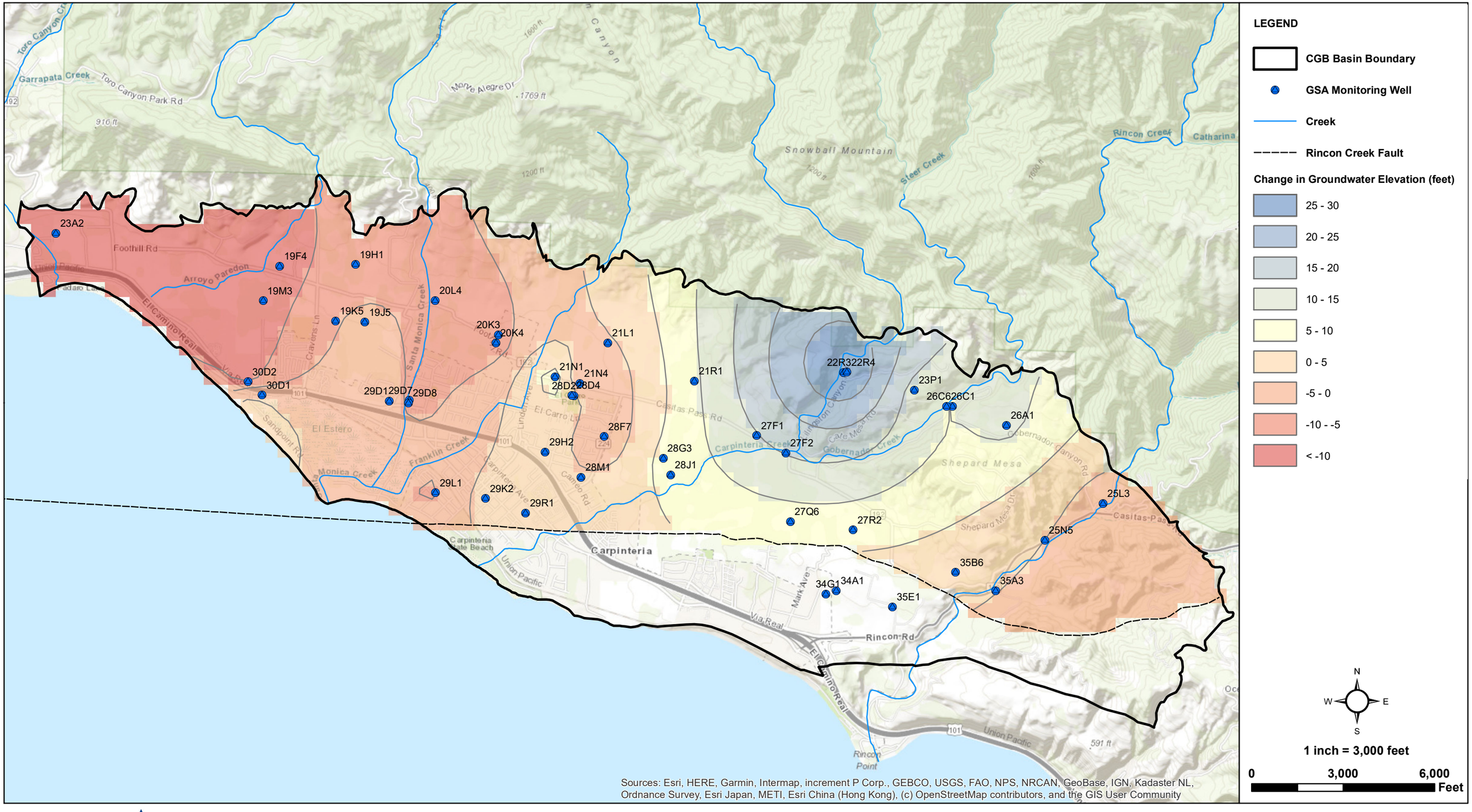


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FIGURE 8. HYDROGRAPHS FOR GROUNDWATER LEVEL AND STORAGE MONITORING NETWORK
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
Project No. 25-0061

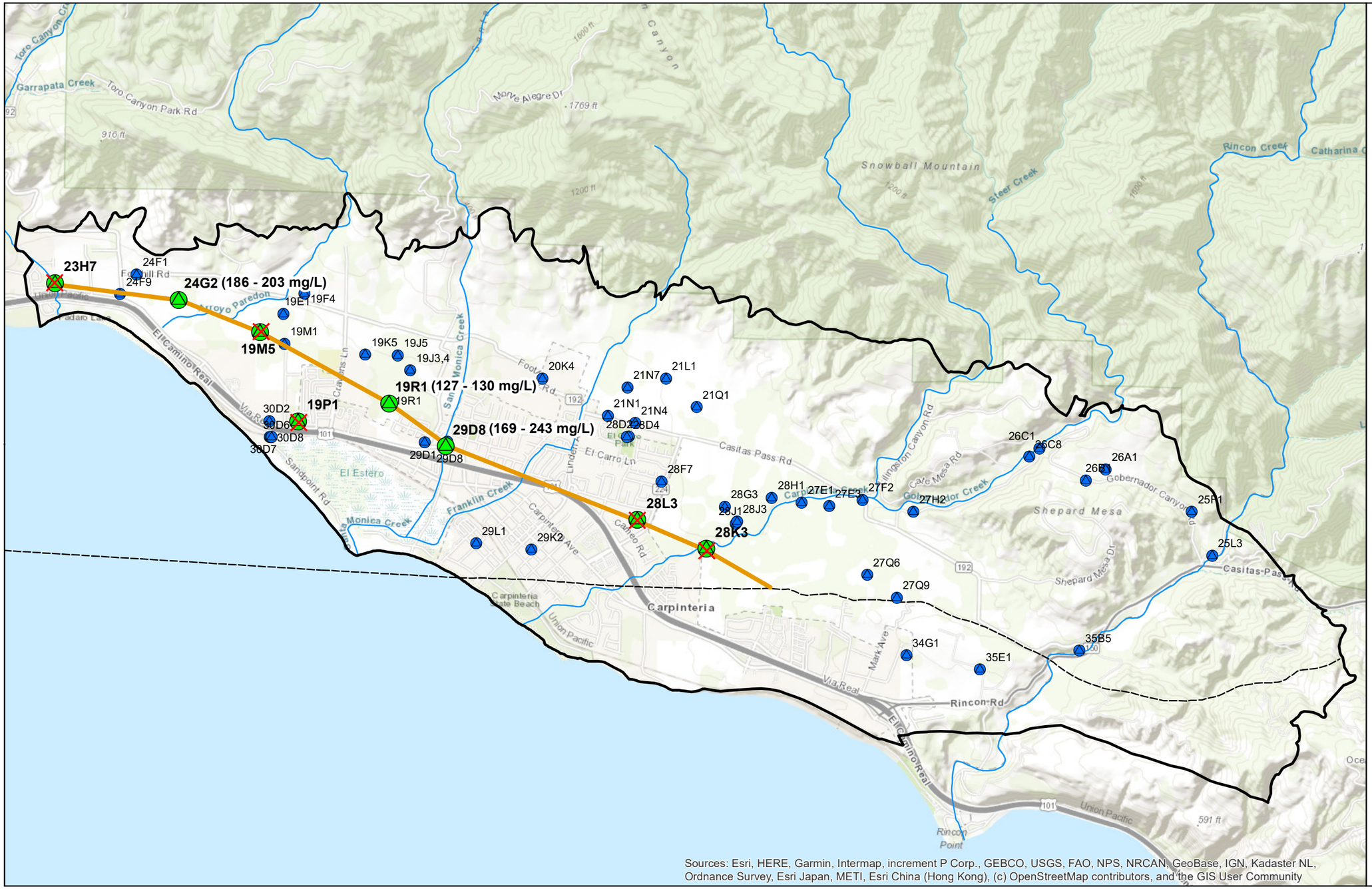


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GROUNDWATER SUSTAINABILITY AGENCY

FIGURE 9. CHANGE IN GROUNDWATER ELEVATION FROM FALL 2024 TO FALL 2025
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
Project No. 25-0061



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

LEGEND

- CGB Basin Boundary
- RMS Seawater Intrusion Well
- MT Chloride 250 mg/L Isocontour
- GSA Monitoring Well
- Rincon Creek Fault
- Creek

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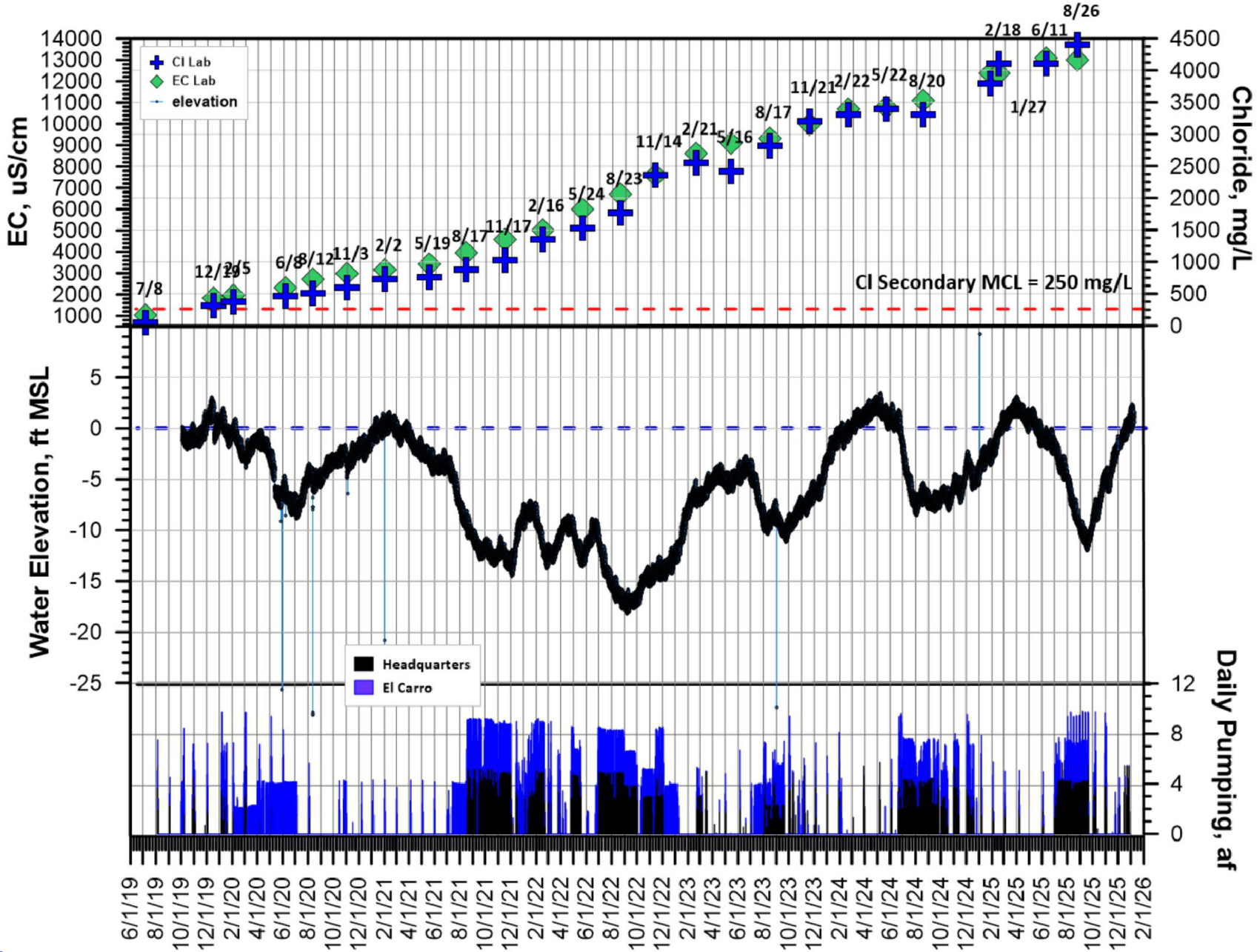
1 inch = 3,000 feet

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GROUNDWATER SUSTAINABILITY AGENCY

FIGURE 10. SEAWATER INTRUSION ISOCONTOUR SUSTAINABLE MANAGEMENT CRITERIA
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency



PUEBLO water resources

FIGURE 11. SENTINEL WELL MW-1 (C ZONE)
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

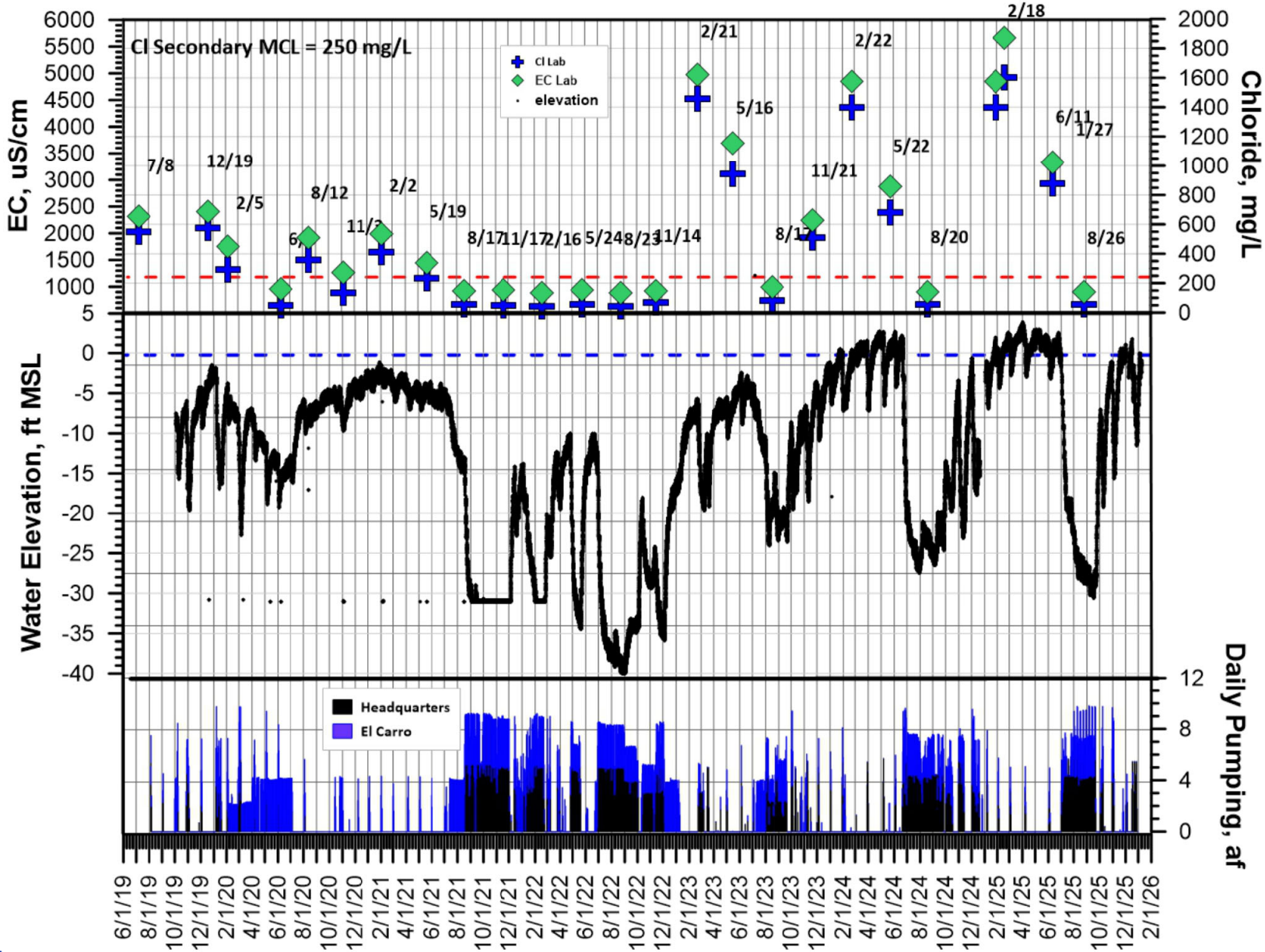
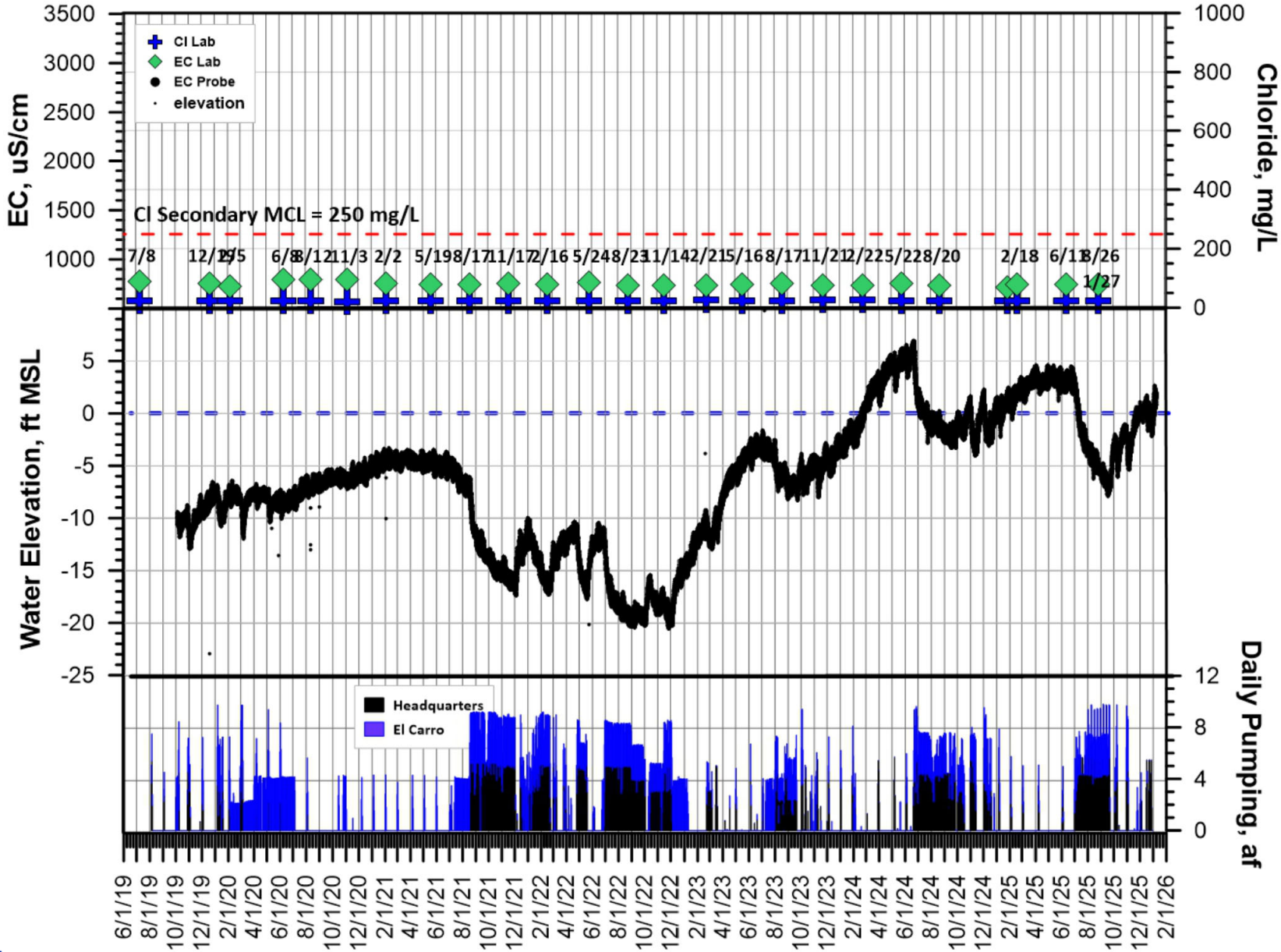
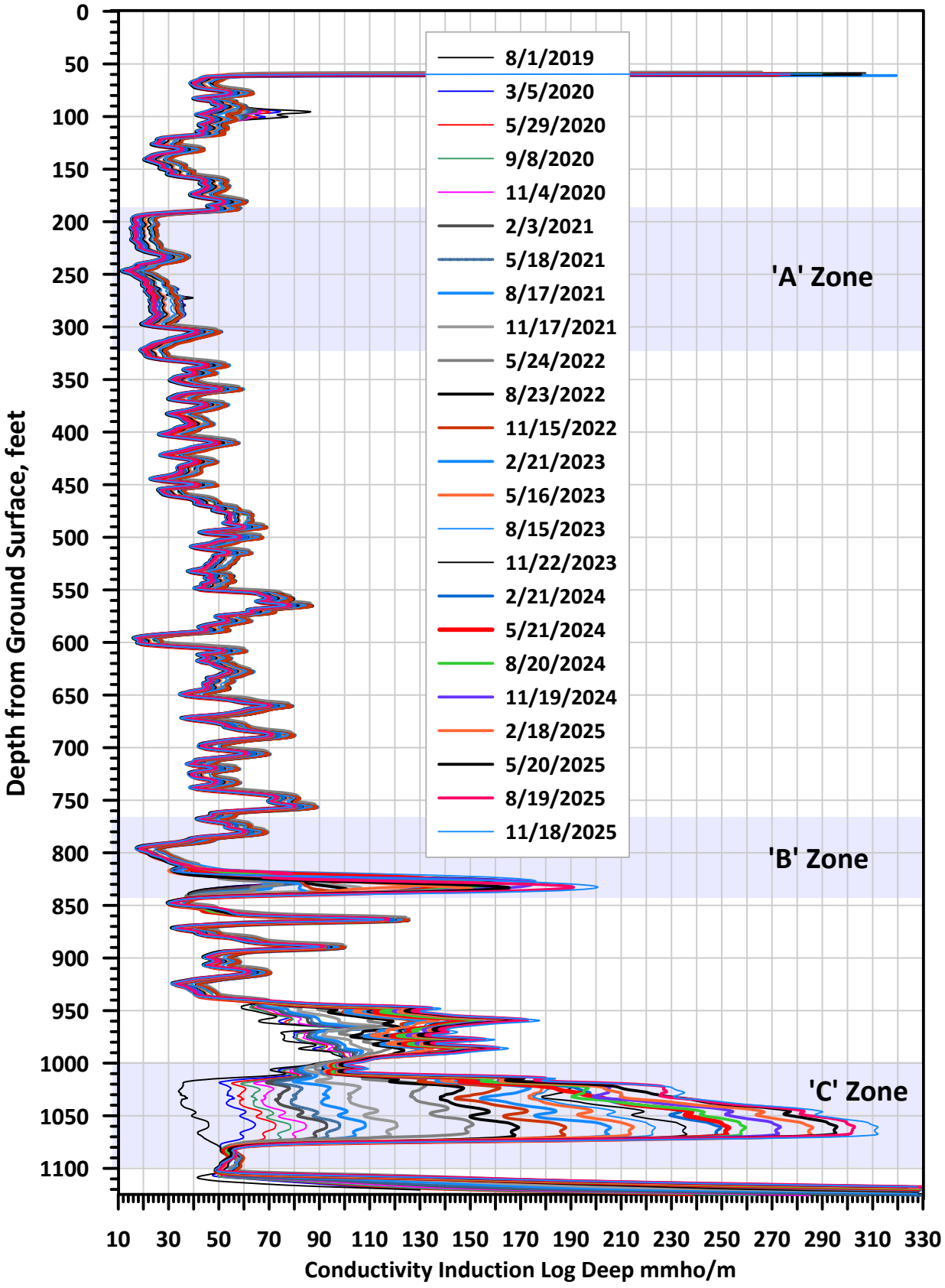


FIGURE 12. SENTINEL WELL MW-2 (B ZONE)
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency



PUEBLO water resources

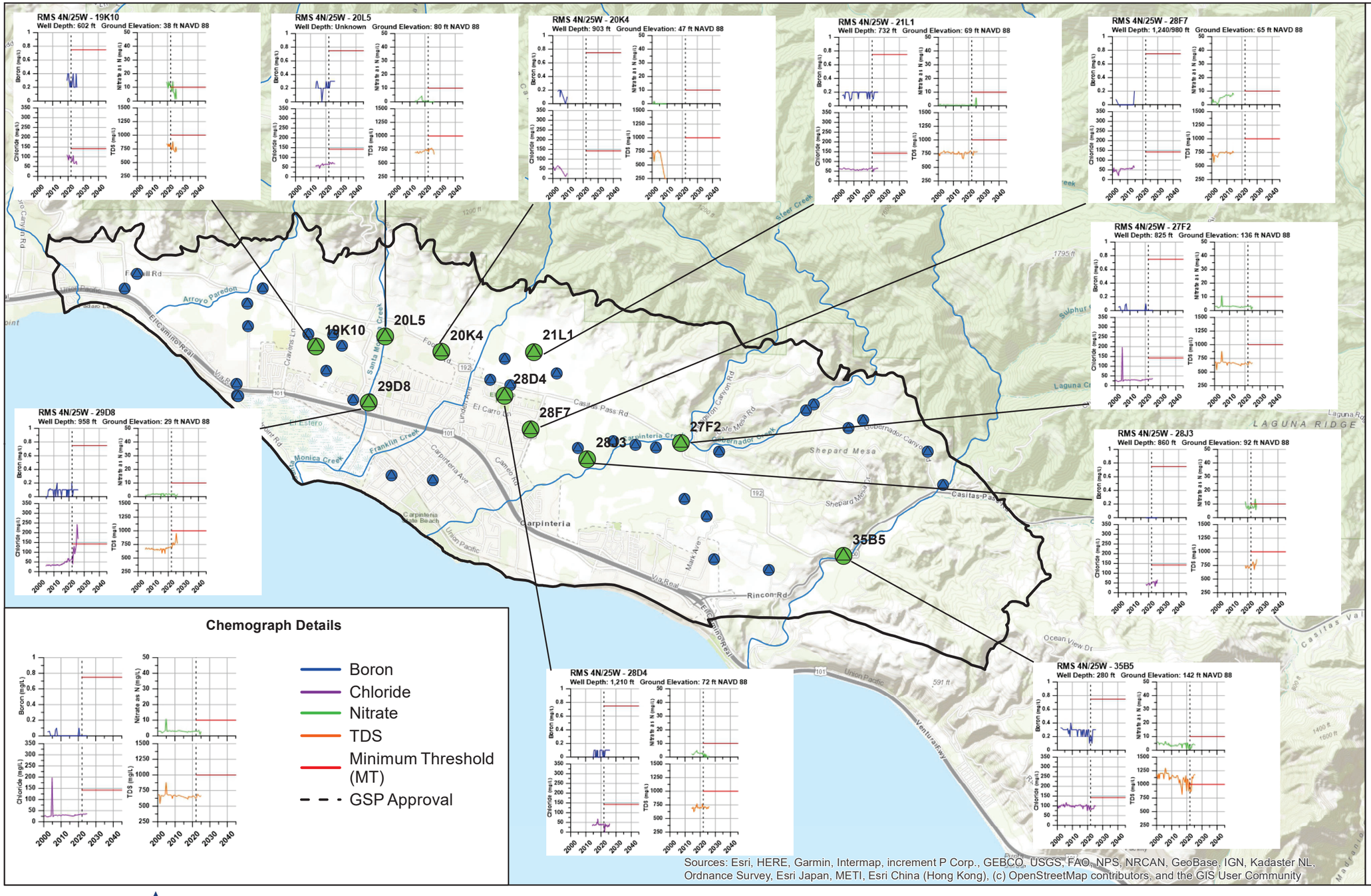
FIGURE 13. SENTINEL WELL MW-3 (A ZONE)
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency



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FIGURE 14. SENTINEL WELL INDUCTION LOGS
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

March 2026
Project No. 25-0061



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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CARPINTERIA GSA
GROUNDWATER SUSTAINABILITY AGENCY

FIGURE 15. CHEMOGRAPHS FOR GROUNDWATER QUALITY MONITORING NETWORK
CGB GSP Annual Report - WY 2025
Carpinteria Groundwater Sustainability Agency

APPENDIX A – SGMA GROUNDWATER SUSTAINABILITY PLAN REGULATIONS FOR ANNUAL REPORTS

§ 356.2. Annual Reports

Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:

(a) General information, including an executive summary and a location map depicting the basin covered by the report.

(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:

(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:

(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.

(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.

(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.

(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

(5) Change in groundwater in storage shall include the following:

(A) Change in groundwater in storage maps for each principal aquifer in the basin.

(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10728, and 10733.2, Water Code.

APPENDIX B – HISTORICAL ANNUAL PRECIPITATION DATA
CARPINTERIA FIRE STATION

Santa Barbara County - Flood Control District

130 East Victoria Street, Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Average Recurrence Intervals)

Station: 208 **Station Type: Alert, Data Logger w/TB** **Latitude: 342349 Longitude: 1193104**

Station Name: Carpinteria Fire Station **Elevation (ft): 30** **Rainfall (in.)**

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1948-49	0.00	0.00	0.00	2.63	1.43	1.12	1.89	0.18	1.29	0.09	0.00	0.00	8.63
1949-50	0.00	0.00	2.42	3.12	2.24	2.73	1.18	0.38	0.00	0.13	0.09	0.00	12.29
1950-51	0.63	0.61	1.30	0.29	1.89	1.27	0.56	1.46	0.00	0.00	0.00	0.09	8.10
1951-52	0.00	0.80	1.82	4.87	10.75	0.04	6.40	2.02	0.00	0.00	0.00	0.00	26.70
1952-53	0.00	0.00	3.56	4.63	1.51	0.00	1.13	1.53	0.00	0.00	0.00	0.00	12.36
1953-54	0.00	0.00	2.32	0.13	5.57	2.39	3.88	0.34	0.00	0.00	0.00	0.00	14.63
1954-55	0.00	0.00	1.56	1.56	4.41	2.00	0.31	2.71	0.54	0.00	0.00	0.00	13.09
1955-56	0.00	0.00	1.47	5.27	6.94	0.73	0.00	2.52	1.00	0.00	0.00	0.00	17.93
1956-57	0.00	0.07	0.00	0.27	4.10	3.08	0.44	1.57	0.92	0.00	0.00	0.00	10.45
1957-58	0.00	1.52	0.71	4.45	2.75	7.80	5.79	5.05	0.28	0.00	0.00	0.00	28.35
1958-59	1.06	0.00	0.00	0.07	1.96	4.15	0.00	1.18	0.00	0.00	0.00	0.00	8.42
1959-60	0.00	0.00	0.00	0.81	3.21	3.32	1.12	1.94	0.00	0.00	0.00	0.00	10.40
1960-61	0.00	0.05	6.35	0.00	1.16	0.04	0.62	0.00	0.00	0.00	0.00	0.00	8.22
1961-62	0.18	0.00	2.61	1.00	2.33	16.99	1.27	0.00	0.00	0.00	0.00	0.00	24.38
1962-63	0.00	0.49	0.00	0.00	0.89	5.93	3.68	2.57	0.27	1.02	0.00	0.00	14.85
1963-64	1.87	1.02	3.29	0.00	1.51	0.00	1.78	2.29	0.09	0.00	0.00	0.00	11.85
1964-65	0.00	0.78	2.14	4.57	1.02	0.59	2.18	7.44	0.14	0.06	0.00	0.00	18.92
1965-66	0.19	0.00	9.81	3.72	1.76	1.02	0.10	0.00	0.21	0.00	0.00	0.00	16.81
1966-67	0.00	0.00	3.30	6.69	6.00	0.43	2.74	4.27	0.00	0.00	0.00	0.00	23.43
1967-68	0.36	0.00	4.80	1.07	1.79	1.51	3.92	0.93	0.00	0.00	0.00	0.13	14.51
1968-69	0.00	1.21	0.67	2.02	16.30	9.45	0.49	1.81	0.16	0.08	0.00	0.00	32.19
1969-70	0.00	0.00	2.27	0.22	3.02	2.29	5.79	0.00	0.00	0.00	0.00	0.00	13.59
1970-71	0.00	0.05	4.72	5.09	1.17	2.10	0.86	0.56	2.09	0.00	0.00	0.00	16.64
1971-72	0.00	0.13	0.55	6.95	0.63	0.00	0.00	0.16	0.00	0.10	0.00	0.00	8.52
1972-73	0.00	0.22	4.65	0.88	6.17	10.47	3.04	0.05	0.20	0.04	0.00	0.12	25.84
1973-74	0.00	0.57	2.79	1.19	8.70	0.14	4.22	0.25	0.00	0.00	0.00	0.00	17.86
1974-75	0.00	0.89	0.13	7.72	0.00	4.11	4.18	1.15	0.00	0.00	0.00	0.00	18.18
1975-76	0.15	0.18	0.09	0.28	0.00	6.59	2.31	0.90	0.03	0.23	0.00	0.00	10.76
1976-77	5.65	0.00	0.46	0.73	3.87	0.23	1.70	0.00	3.92	0.11	0.00	0.61	17.28
1977-78	0.00	0.00	0.27	6.58	8.83	9.63	11.39	2.44	0.00	0.09	0.00	0.08	39.31
1978-79	1.39	0.09	1.80	2.15	3.23	5.06	7.61	0.00	0.08	0.00	0.00	0.16	21.57
1979-80	0.71	0.65	0.65	1.23	6.78	11.71	3.68	0.76	0.19	0.00	0.04	0.00	26.40
1980-81	0.03	0.00	0.00	1.08	2.84	1.99	5.69	0.81	0.00	0.00	0.00	0.00	12.44
1981-82	0.50	0.00	1.85	0.89	3.10	0.55	5.54	2.70	0.15	0.11	0.00	0.00	15.39
1982-83	1.32	0.58	5.54	3.11	8.89	6.28	7.52	3.73	0.31	0.18	0.00	1.65	39.11
1983-84	0.97	3.93	3.51	3.29	0.04	0.00	0.35	0.24	0.25	0.00	0.00	0.58	13.16
1984-85	0.55	0.45	2.54	5.05	1.49	1.86	1.50	0.12	0.00	0.00	0.00	0.00	13.56
1985-86	0.07	0.65	4.47	0.88	2.07	7.66	5.52	1.60	0.00	0.00	0.00	0.00	22.92
1986-87	1.43	0.00	1.25	0.36	2.08	2.25	3.16	0.13	0.00	0.00	0.00	0.00	10.66
1987-88	0.00	1.36	1.71	3.50	2.58	2.42	0.54	3.35	0.00	0.00	0.00	0.00	15.46
1988-89	0.09	0.00	1.05	2.93	0.44	3.19	0.54	0.71	0.22	0.00	0.00	0.00	9.17
1989-90	0.07	0.96	0.42	0.00	2.79	2.71	0.15	0.09	0.78	0.00	0.00	0.00	7.97
1990-91	0.06	0.00	0.29	0.05	1.60	2.27	13.30	0.04	0.00	0.27	0.02	0.04	17.94
1991-92	0.00	0.55	0.19	5.02	2.76	9.33	3.99	0.00	0.31	0.09	0.42	0.00	22.66
1992-93	0.00	1.74	0.00	5.50	12.35	7.39	5.42	0.00	0.09	0.77	0.07	0.00	33.33
1993-94	0.00	0.09	1.38	1.47	0.98	5.79	2.07	0.65	0.37	0.00	0.00	0.00	12.80
1994-95	0.42	0.40	1.59	1.14	19.08	1.72	10.87	0.35	0.88	0.61	0.00	0.00	37.06
1995-96	0.00	0.00	0.21	3.11	2.03	8.48	2.05	1.14	0.37	0.00	0.00	0.00	17.39
1996-97	0.00	2.70	0.00	6.25	6.97	0.09	0.00	0.00	0.00	0.09	0.00	0.00	16.10
1997-98	0.00	0.08	2.86	7.69	4.42	20.97	3.71	2.13	3.83	0.14	0.00	0.00	45.83
1998-99	0.12	0.00	0.75	0.95	2.26	0.86	3.16	1.87	0.00	0.02	0.00	0.00	9.99
1999-00	0.02	0.00	0.72	0.00	1.43	8.66	2.74	3.90	0.00	0.00	0.00	0.00	17.47
2000-01	0.00	2.18	0.00	0.08	6.30	5.24	4.73	1.67	0.18	0.02	0.03	0.00	20.43
2001-02	0.04	0.49	3.75	1.78	0.59	0.31	0.37	0.11	0.14	0.01	0.05	0.02	7.66
2002-03	0.20	0.01	5.88	4.59	0.09	2.91	4.46	1.90	1.72	0.19	0.02	0.00	21.97
2003-04	0.04	0.09	1.31	1.89	0.42	5.18	0.57	0.01	0.02	0.01	0.03	0.00	9.57
2004-05	0.00	4.46	0.10	8.62	11.20	7.41	3.96	0.74	1.01	0.02	0.00	0.04	37.56
2005-06	0.20	1.08	0.82	0.72	2.82	2.88	3.26	5.88	0.90	0.00	0.00	0.02	18.58
2006-07	0.01	0.09	0.26	0.72	3.24	1.86	0.18	0.70	0.00	0.02	0.01	0.02	7.11
2007-08	0.28	0.28	0.02	3.06	12.00	1.75	0.00	0.08	0.04	0.00	0.00	0.00	17.51

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Monthly and Yearly Rainfall Record

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Station: 208 **Station Type: Alert, Data Logger w/TB** **Latitude: 342349** **Longitude: 1193104**

Station Name: Carpinteria Fire Station **Elevation (ft): 30** **Rainfall (in.)**

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
2008-09	0.03	0.06	2.71	2.55	0.63	6.18	0.78	0.15	0.03	0.07	0.00	0.00	13.19
2009-10	0.06	3.61	0.01	2.86	6.14	3.86	0.56	2.45	0.15	0.03	0.02	0.00	19.75
2010-11	0.01	2.45	1.00	9.66	0.59	4.06	6.20	0.05	0.48	0.36	0.00	0.03	24.89
2011-12	0.09	1.06	1.35	0.32	1.59	0.06	2.32	2.93	0.06	0.02	0.02	0.01	9.83
2012-13	0.06	0.04	2.27	3.05	1.32	0.18	0.75	0.26	0.29	0.09	0.02	0.00	8.33
2013-14	0.01	0.02	0.62	0.30	0.00	2.54	1.68	0.48	0.09	0.04	0.00	0.05	5.83
2014-15	0.00	0.00	0.78	3.62	1.69	0.47	0.45	0.24	0.16	0.75	0.32	0.00	8.48
2015-16	0.16	0.48	0.10	0.30	4.60	1.14	3.02	0.26	0.02	0.03	0.00	0.00	10.11
2016-17	0.00	0.87	0.87	3.05	7.21	8.60	0.62	0.31	0.17	0.05	0.00	0.00	21.75
2017-18	0.10	0.00	0.06	0.00	2.47	0.11	6.13	0.05	0.11	0.01	0.00	0.00	9.04
2018-19	0.03	0.23	2.02	0.35	5.06	5.88	2.77	0.18	1.43	0.19	0.01	0.04	18.19
2019-20	0.02	0.01	1.45	4.55	0.42	0.04	3.94	2.30	0.26	0.13	0.01	0.01	13.14
2020-21	0.01	0.00	0.24	1.59	1.65	0.01	1.02	0.02	0.07	0.01	0.03	0.06	4.71
2021-22	0.03	0.99	0.03	7.31	0.02	0.00	1.30	0.24	0.10	0.00	0.01	0.01	10.04
2022-23	0.31	0.09	0.83	3.72	9.72	3.80	8.81	0.03	1.07	0.38	0.00	0.87	29.63
2023-24	0.03	0.03	0.21	6.73	1.77	10.60	4.98	1.64	0.15	0.11	0.01	0.02	26.28
2024-25	0.08	0.08	0.43	0.05	0.18	4.25	2.50	0.47	0.04	0.02	0.04	0.00	8.14
Mean	**0.26**	**0.54**	**1.61**	**2.65**	**3.69**	**3.78**	**2.95**	**1.21**	**0.36**	**0.09**	**0.02**	**0.06**	**17.20**
Max	5.65	4.46	9.81	9.66	19.08	20.97	13.30	7.44	3.92	1.02	0.42	1.65	45.83
StdDev	0.72	0.91	1.83	2.47	3.81	4.02	2.80	1.48	0.71	0.19	0.06	0.23	8.82
Yrs of Rcd	77	77	77	77	77	77	77	77	77	77	77	77	77
Average Recurrence Intervals (in Years)													
2	0.00	0.35	1.23	2.29	2.86	3.10	2.49	0.85	0.12	0.00	0.00	0.00	15.84
5	0.43	0.98	2.79	4.34	5.94	6.58	4.88	2.10	0.67	0.17	0.03	0.08	22.88
10	0.97	1.45	3.83	5.63	8.10	8.78	6.40	2.98	1.16	0.37	0.07	0.27	27.35
25	1.79	2.05	5.14	7.19	10.85	11.48	8.25	4.14	1.85	0.67	0.15	0.59	32.79
50	2.48	2.51	6.09	8.30	12.91	13.46	9.61	4.98	2.39	0.92	0.22	0.88	36.81
100	3.20	2.95	7.03	9.37	14.93	15.32	10.89	5.83	2.94	1.18	0.30	1.19	40.59
200	3.95	3.40	7.96	10.41	16.92	17.16	12.15	6.68	3.50	1.45	0.37	1.51	44.30
500	5.46	4.16	9.42	11.93	20.21	19.85	14.00	8.07	4.47	1.99	0.53	2.20	49.75

APPENDIX C – GROUNDWATER LEVEL/STORAGE AND GROUNDWATER QUALITY MONITORING NETWORK

Table C-1. Existing Groundwater Monitoring Network Well Information Summary

Well Number[1]	Short Name	Owner	Use[2]	GSE Elev.[3] (feet amsl)	RP Elev.[4] (feet amsl)	Water Level Monitor	Water Quality Monitor	Year Drilled	Casing Depth (feet)	Screen Interval (feet)	Water Level Data Start
4N/25W-19K5	19K5	Private	A	40.5	42.7	✓	✓	1921	98	–	1946
4N/25W-21L1	21L1	Private	A	68.5	69.7	✓	✓	1991	732	365 - 732	1992
4N/25W-21N4	21N4	Private	A	52.9	54.2	✓	✓	1947	406	60 - 406	1949
4N/25W-22R4	22R4	Private	A	218.8	219.4	✓	✓	1946	504	–	1949
4N/25W-25L3	25L3	Private	C	224.2	226.4	✓	✓	–	190	–	1996
4N/25W-27F2	27F2	CVWD	A	136.2	138.0	✓	✓	1975	825	455 - 801	1975
4N/25W-28D4	28D4	CVWD	A	72.3	74.1	✓	✓	2010	1210	285 - 915	2010
4N/25W-28G3	28G3	Private	A	87.8	88.6	✓	✓	1994	300	200 - 300	1995
4N/25W-28J1	28J1	Private	I	103.3	103.8	✓	✓	1919	175	59 - 175	1940
4N/25W-29D8	29D8	CVWD	A	29.0	30.6	✓	✓	2002	958	317 - 938	2005
4N/25W-29K2	29K2	CVWD	M	22.0	20.8	✓	✓	1989	320	210 - 240	1992
4N/25W-29L1	29L1	Private	M	14.1	18.7	✓	✓	–	110	–	1946
4N/26W-13R1	13R1	Private	A	378.8	DU		✓	1990	294	–	–
4N/25W-19E1	19E1	Private	A	78.0	78.0		✓	1992	400	120 - 400	–
4N/25W-19H2	19H2	Private	A	125.7	–		✓	2007	560	–	–
4N/25W-19J4	19J4	Private	A	58.0	–		✓	–	–	–	–
4N/25W-19K10	19K10	Private	A	38.1	–		✓	2017	602	242 - 602	–
4N/25W-19K9	19K9	Private	A	31.3	–		✓	–	–	–	–
4N/25W-19M1	19M1	Private	A	58.0	–		✓	–	204	–	–
4N/25W-19R1	19R1	Private	A	30.4	–		✓	–	146	–	–
4N/25W-20C1	20C1	Private	A	411.6	–		✓	2006	710	–	–
4N/25W-20J2	20J2	Private	A	55.0	–		✓	1984	377	–	–
4N/25W-20L2	20L2	Private	A	92.7	–		✓	–	–	–	–
4N/25W-20L3	20L3	Private	A	72.1	–		✓	1940	403	–	–
4N/25W-20L5	20L5	Private	A	80.3	–		✓	2008	860	380 - 840	–
4N/25W-20R4	20R4	Private	A	42.7	–		✓	1984	403	–	–
4N/25W-21F1	21F1	Private	I	118.1	–		✓	1991	450	–	–
4N/25W-21N7	21N7	Private	A	58.0	58.0		✓	2008	875	335 - 855	–
4N/25W-21Q1	21Q1	Private	A	78.0	78.0		✓	1991	740	240 - 740	–
4N/26W-24F1	24F1	Private	A	54.0	–		✓	1922	146	–	–
4N/25W-26B1	26B1	Private	A	457.4	457.4		✓	1944	552	240 - 552	–
4N/25W-26C4	26C4	Private	A	280.4	280.7		✓	1947	586	–	–
4N/25W-26C8	26C8	Private	A	268.9	268.9		✓	1947	360	144 - 360	–
4N/25W-26P2	26P2	Private	A	256.2	–		✓	1990	350	–	–
4N/25W-27D1	27D1	Private	A	128.0	–		✓	1990	870	–	–
4N/25W-27E1	27E1	Private	A	108.0	–		✓	1930	280	–	–
4N/25W-27E3	27E3	Private	A	119.5	–		✓	2016	805	245 - 805	–
4N/25W-27H2	27H2	Private	A	175.0	–		✓	2016	515	265 - 505	–
4N/25W-27Q9	27Q9	Private	A	138.6	–		✓	2003	800	340 - 800	–
4N/25W-27R2	27R2	Private	A	134.1	–		✓	–	421	–	–
4N/25W-28A1	28A1	Private	A	100.0	–		✓	1990	580	–	–
4N/25W-28A2	28A2	Private	A	91.0	–		✓	2017	800	220 - 780	–
4N/25W-28H1	28H1	Private	A	109.1	–		✓	1992	500	200 - 500	–
4N/25W-28J3	28J3	Private	A	92.2	92.2		✓	2016	860	140 - 840	–
4N/25W-34A1	34A1	Private	A	240.6	–		✓	–	250	–	–
4N/25W-35B5	35B5	Private	A	142.0	–		✓	1990	280	90 - 280	–
4N/25W-35E4	35E4	Private	A	249.2	–		✓	2002	460	290 - 450	–
4N/25W-19F4	19F4	Private	M	102.1	102.1	✓		1929	250	–	1941
4N/25W-19J5	19J5	Private	M	56.7	58.0	✓		1939	100	–	1941
4N/25W-20K4	20K4	CVWD	I	47.4	49.1	✓	✓	1989	903	355 - 885	1989
4N/25W-21N1	21N1	Private	I	43.5	44.1	✓		1936	405	–	1938
4N/25W-23P1	23P1	Private	I	452.5	453.3	✓		1945	465	–	1948
4N/26W-24F9	24F9	Private	A	41.3	38.1	✓		1990	440	190 - 430	2022
4N/25W-26A1	26A1	Private	M	425.6	426.3	✓		1941	480	228 - 480	1946
4N/25W-26C1	26C1	Private	M	287.3	287.9	✓		–	250	–	1949
4N/25W-27Q6	27Q6	Private	M	136.7	137.0	✓		–	580	100 - 580	1989
4N/25W-28F7	28F7	CVWD	I	64.8	66.6	✓	✓	1976	1100	–	1976
4N/25W-28M1	28M1	Private	M	53.6	54.5	✓		–	152	–	1941
4N/25W-29D1	29D1	Private	M	19.5	18.8	✓		–	147	–	1938
4N/25W-29D7	29D7	CVWD	DM	28.4	31.0	✓	✓	1972	982	215 - 950	1977
4N/25W-29H2	29H2	Private	M	42.8	44.0	✓		1912	98	–	1941
4N/25W-30D2	30D2	Private	M	16.8	16.8	✓		1947	232	–	2015
4N/25W-34G1	34G1	Private	M	192.3	191.1	✓		1990	278	25 - 278	1991
4N/25W-35E1	35E1	Private	M	242.9	243.6	✓		1939	385	–	1949
4N/25W-28D5	28D5	CGSA	DM	45.9	–	✓	✓	2023	1040	–	2023
4N/25W-28D6	28D6	CGSA	DM	42.9	–	✓	✓	2023	925	–	2023
4N/25W-28D7	28D7	CGSA	DM	41.7	–	✓	✓	2023	360	–	2023
4N/25W-30D6	30D6	CGSA	DM	9.5	9.3	✓		2019	1130	1020 - 1120	2019
4N/25W-30D7	30D7	CGSA	DM	10.0	9.8	✓		2019	870	780 - 860	2019
4N/25W-30D8	30D8	CGSA	DM	10.0	9.8	✓		2019	340	190 - 330	2019

Notes

[1] Representative Monitoring Site (RMS) wells are in **bold**.

[2] Use categories: A - Active production well; I - Inactive production well; M - Monitoring well; DM - Dedicated monitoring well

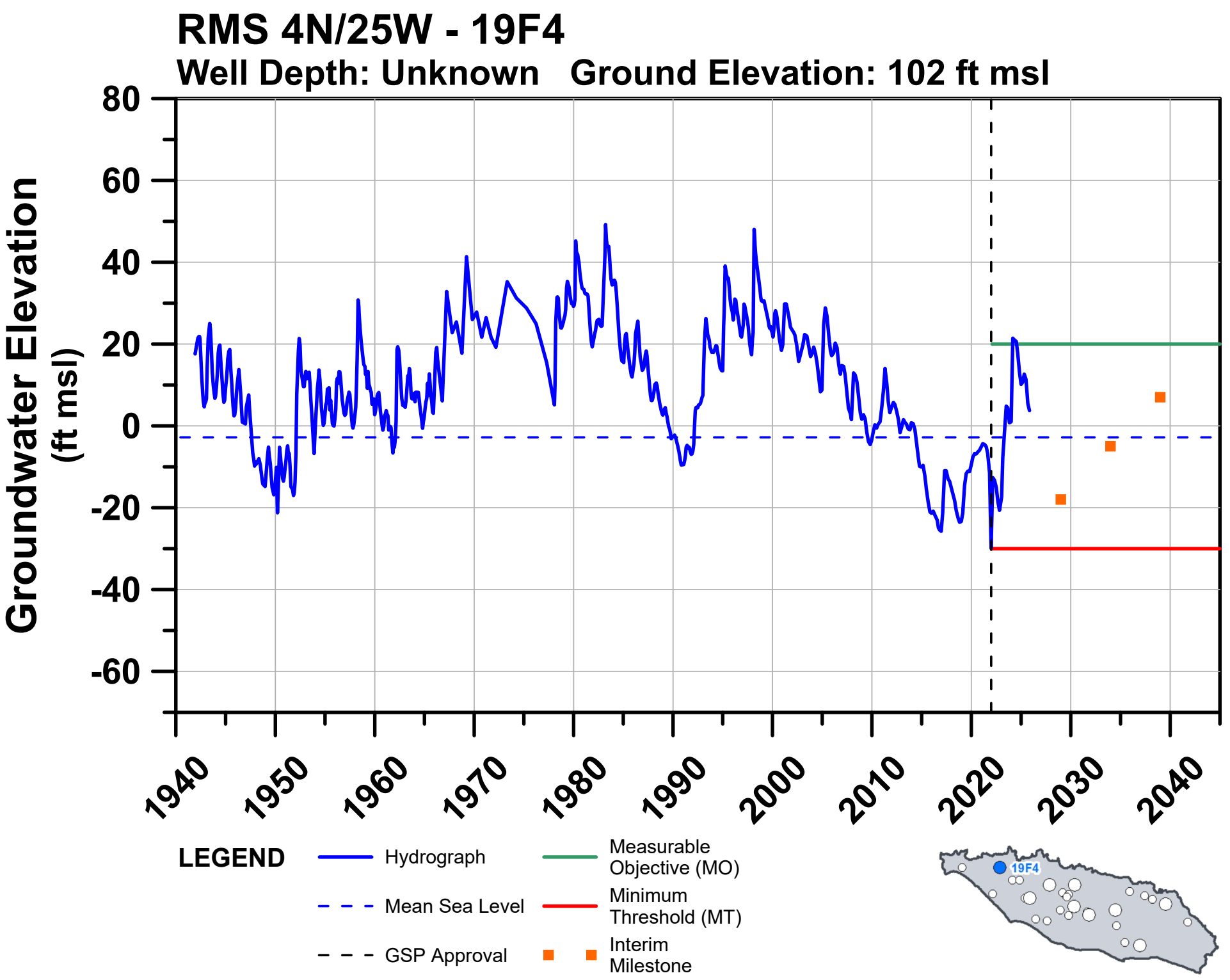
[3] Ground surface elevation as interpolated from a Digital Elevation Model (DEM)

[4] Reference point elevations from various sources with variable accuracy

– = unknown; not applicable

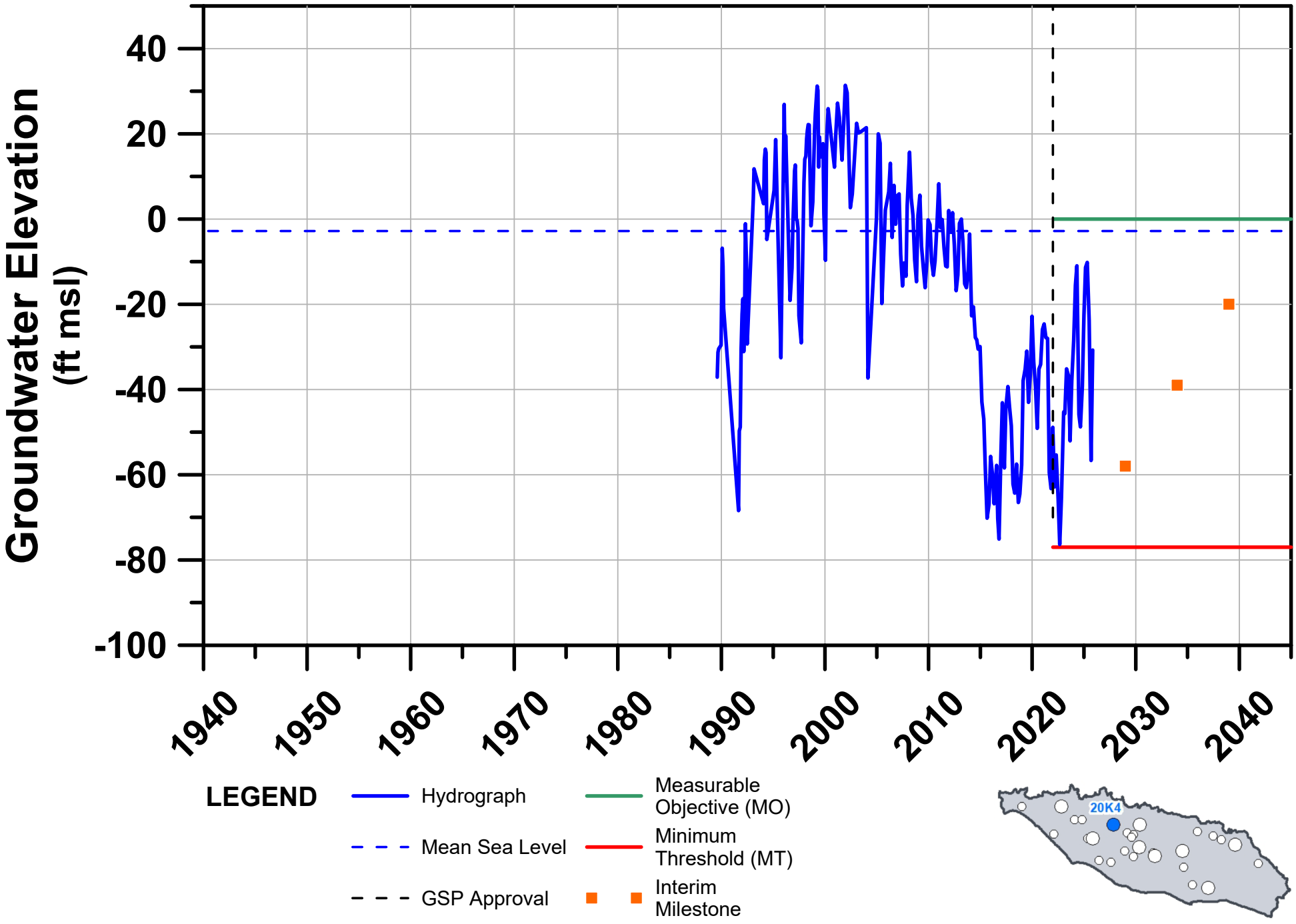
Source: GSI Water Solutions, Inc.

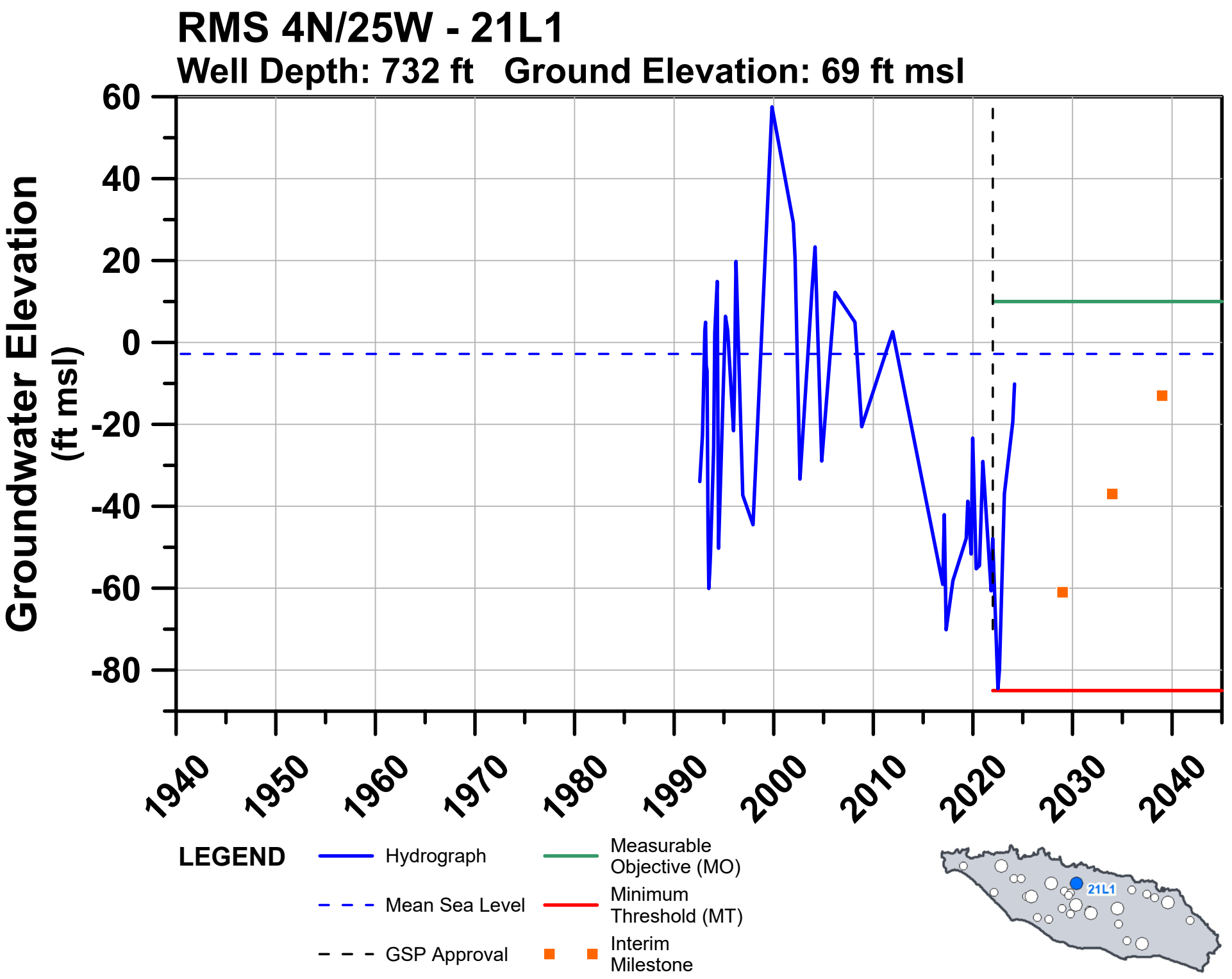
APPENDIX D – HYDROGRAPHS FOR GROUNDWATER LEVEL MONITORING NETWORK


RMS 4N/25W - 19F4
Well Depth: Unknown Ground Elevation: 102 ft msl
Groundwater Elevation (ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Hydrograph
Mean Sea Level
GSP Approval
Measurable Objective (MO)
Minimum Threshold (MT)
Interim Milestone
19F4

RMS 4N/25W - 20K4

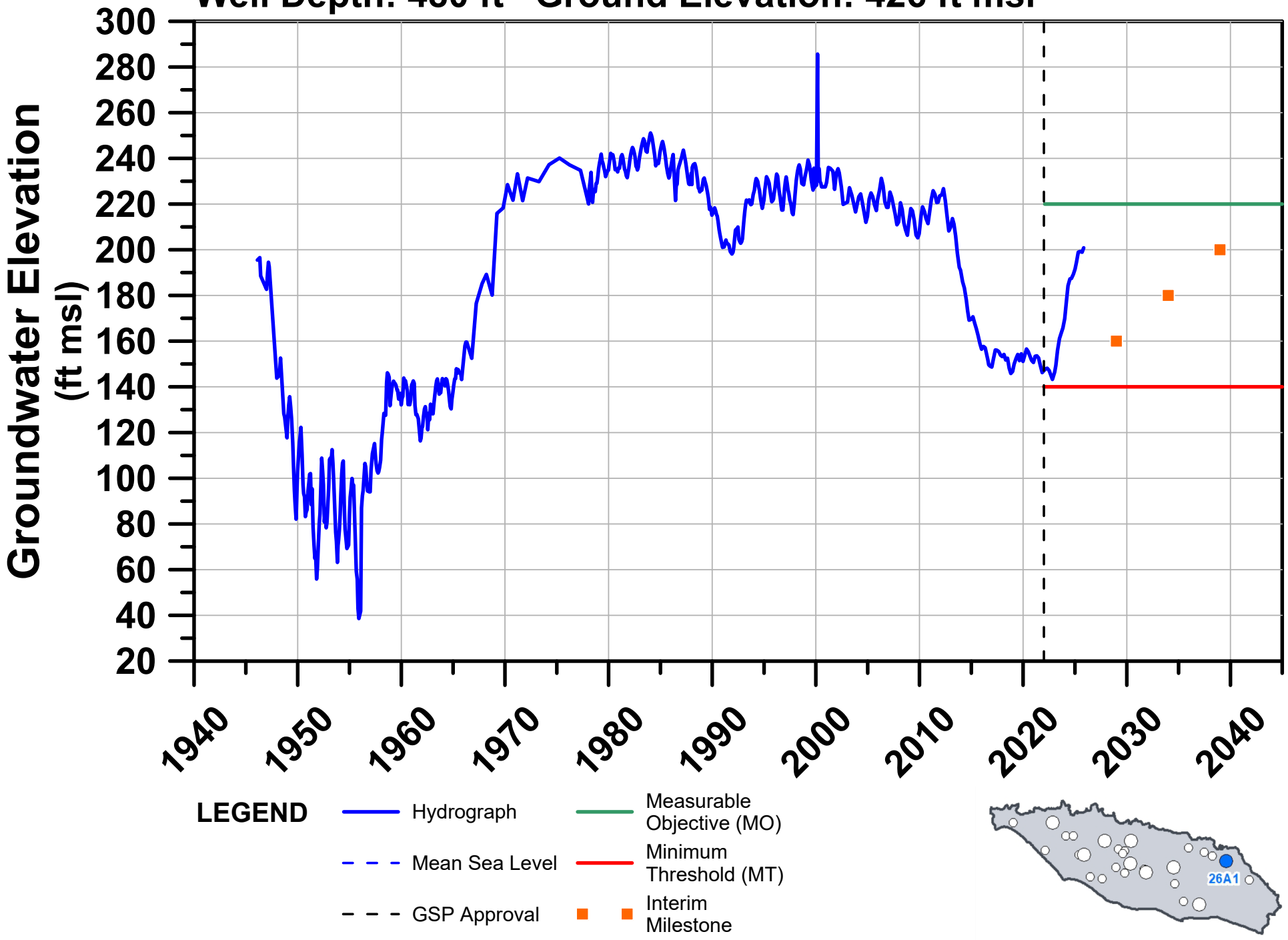
Well Depth: 903 ft Ground Elevation: 47 ft msl

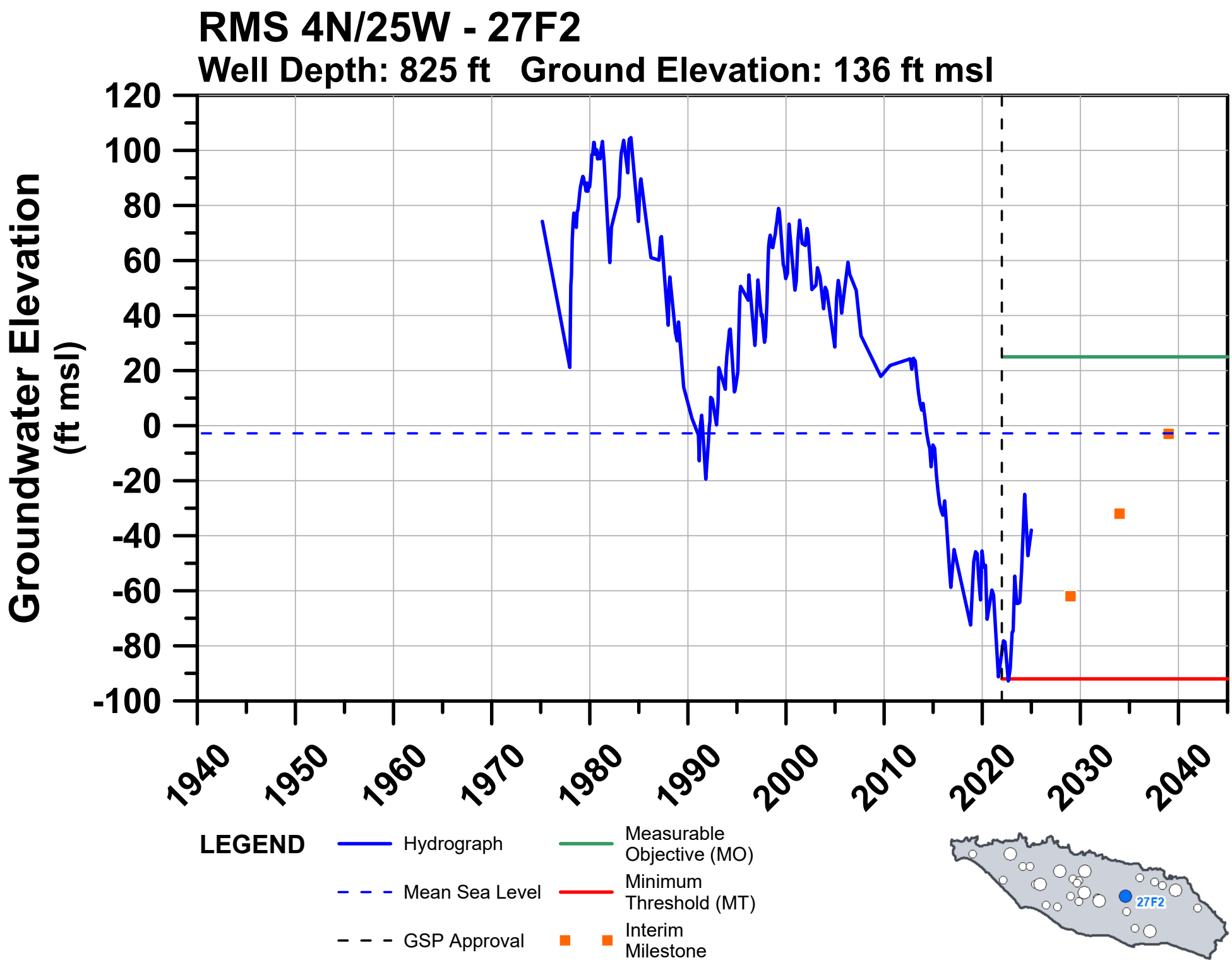


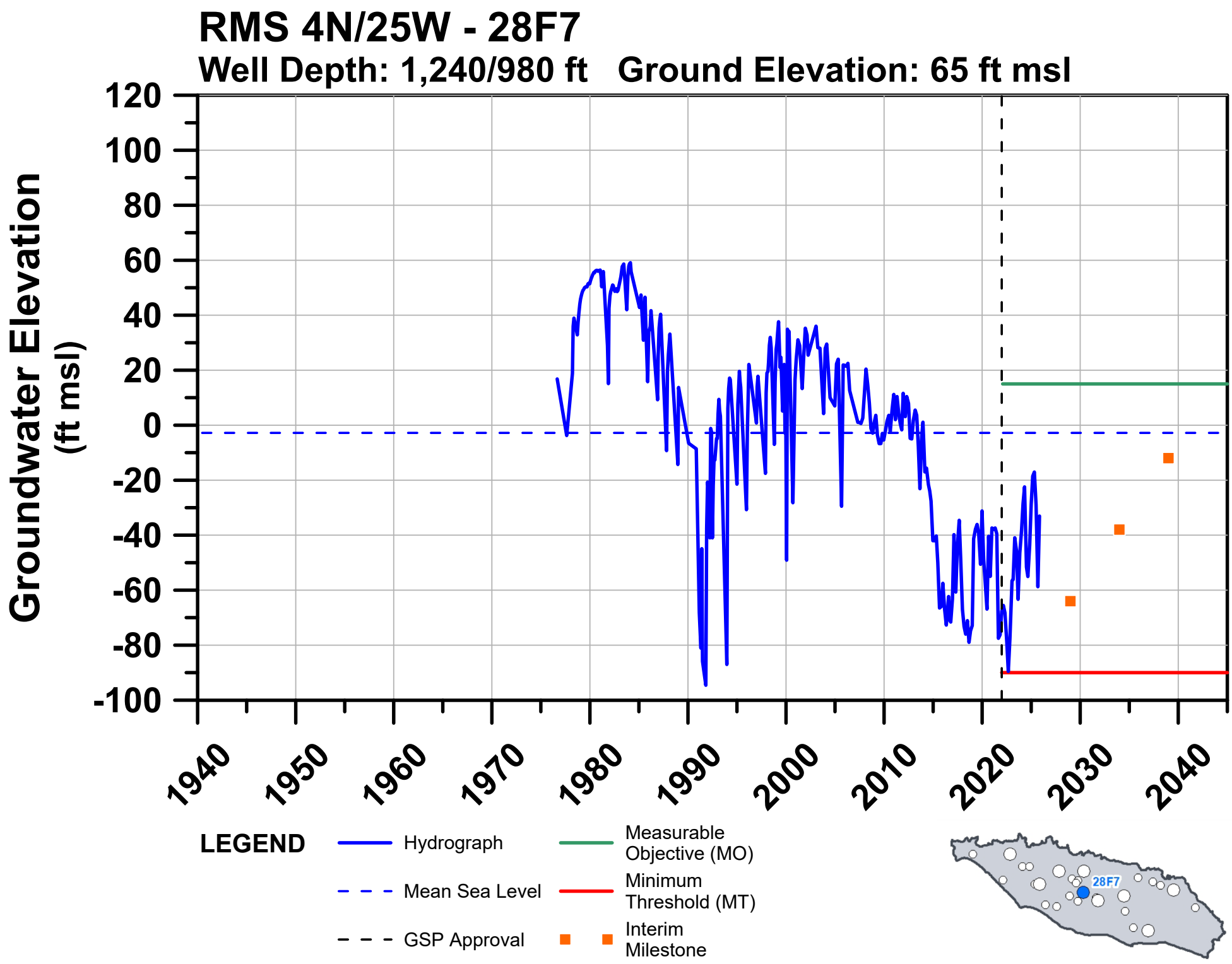

RMS 4N/25W - 21L1
Well Depth: 732 ft Ground Elevation: 69 ft msl
Groundwater Elevation
(ft msl)
60
40
20
0
-20
-40
-60
-80
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Hydrograph
Mean Sea Level
GSP Approval
Measurable Objective (MO)
Minimum Threshold (MT)
Interim Milestone
21L1

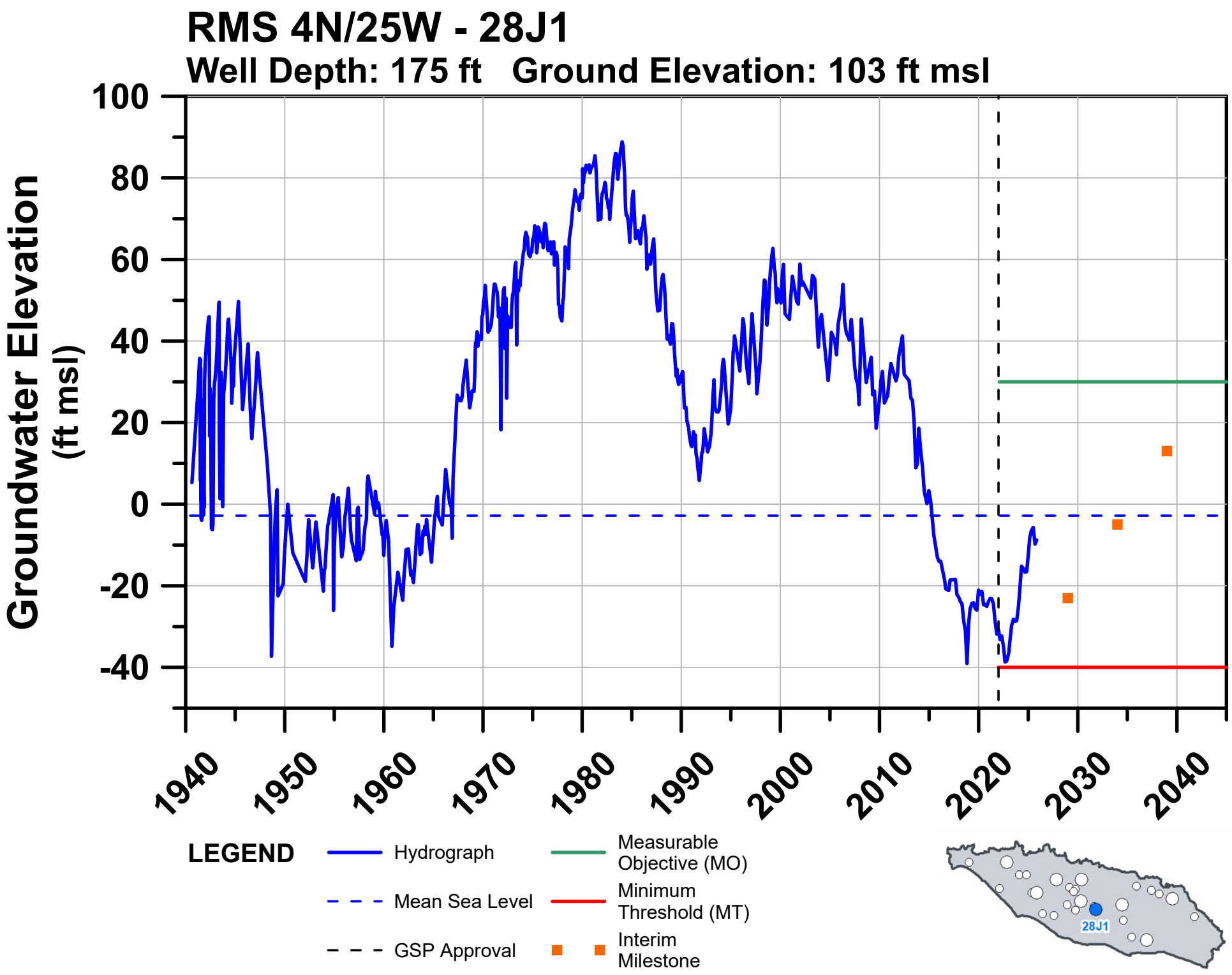
RMS 4N/25W - 26A1

Well Depth: 480 ft Ground Elevation: 426 ft msl



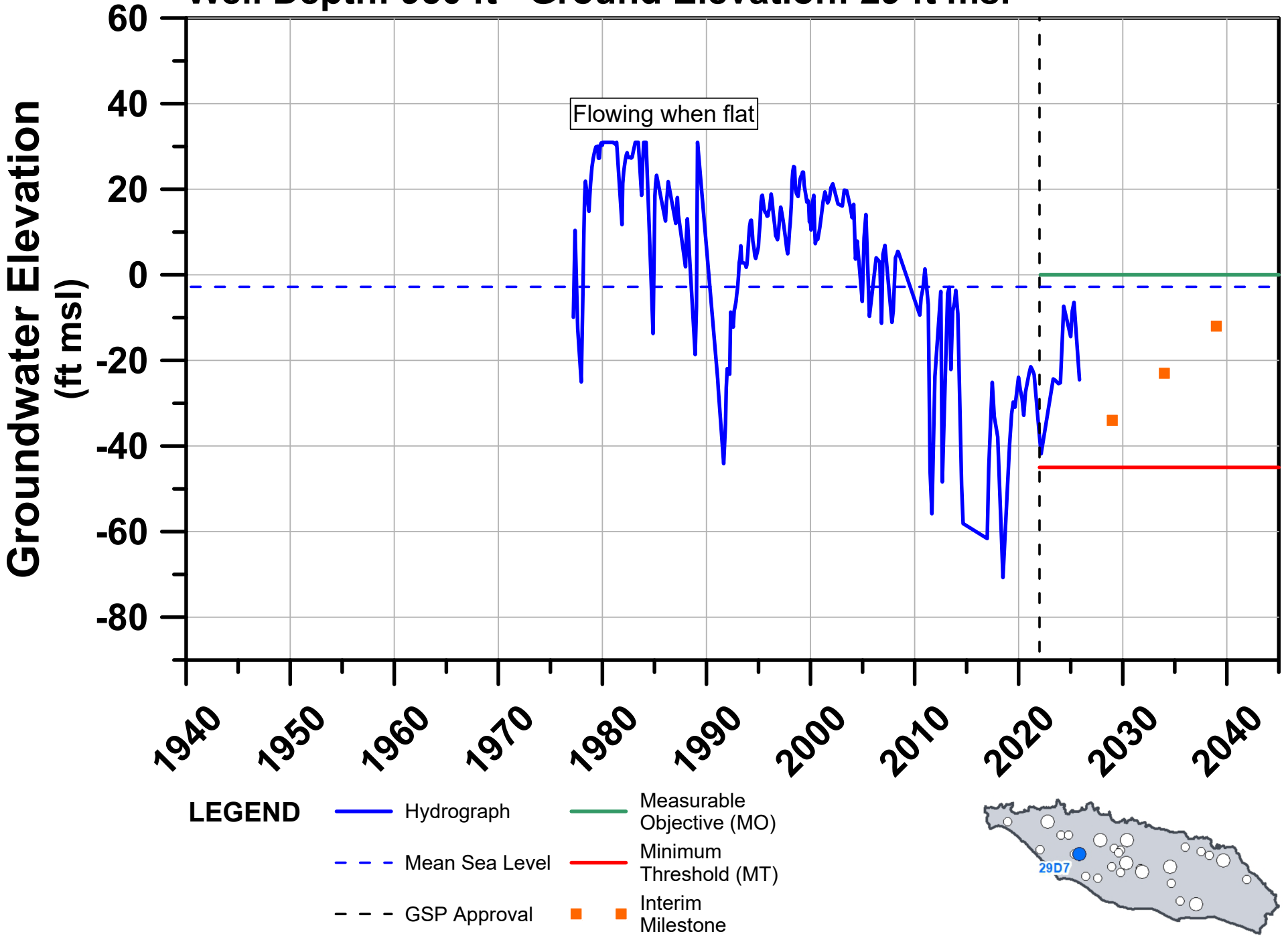

RMS 4N/25W - 27F2
Well Depth: 825 ft Ground Elevation: 136 ft msl
Groundwater Elevation
(ft msl)
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Hydrograph
Mean Sea Level
GSP Approval
Measurable Objective (MO)
Minimum Threshold (MT)
Interim Milestone
27F2

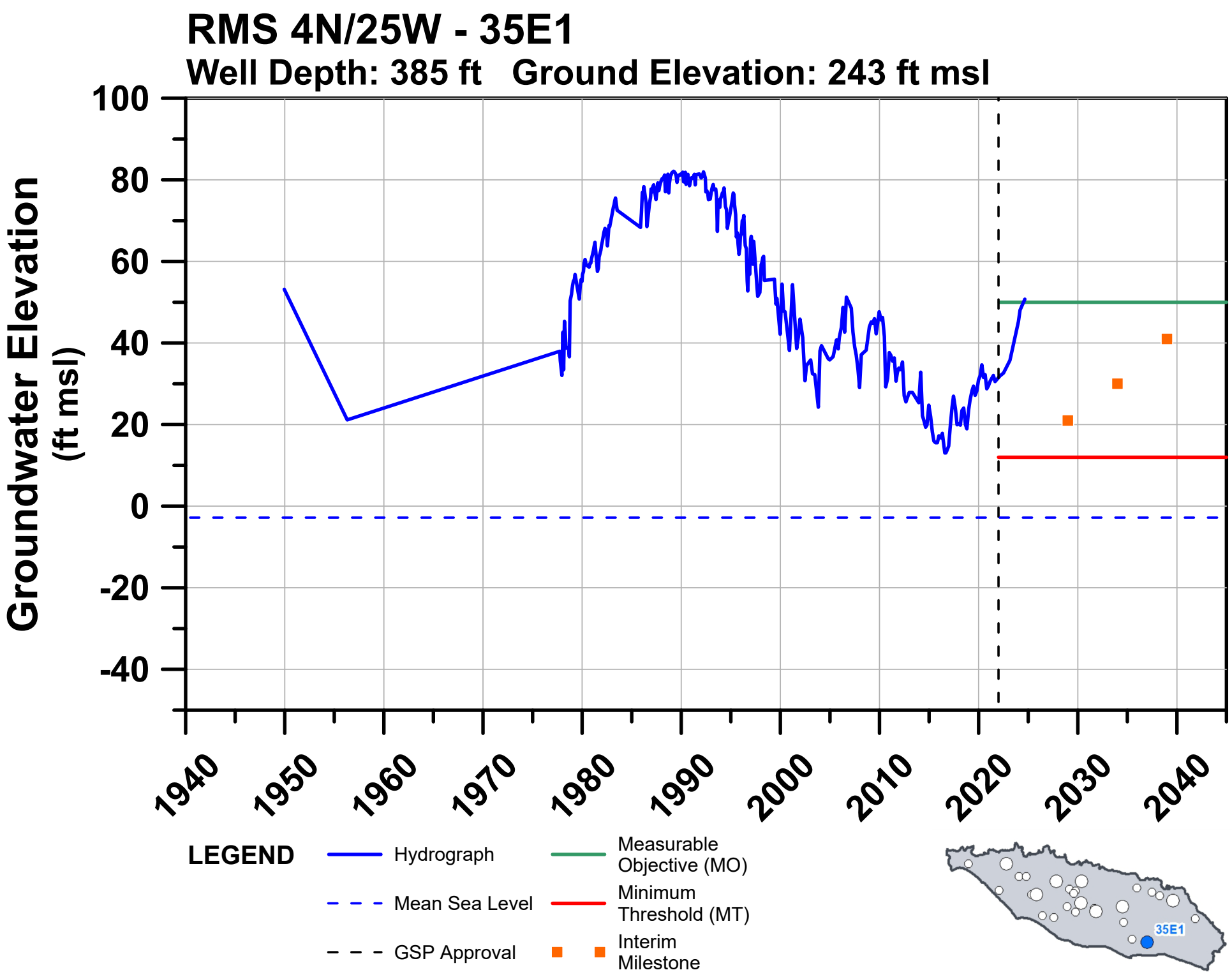

RMS 4N/25W - 28F7
Well Depth: 1,240/980 ft Ground Elevation: 65 ft msl
Groundwater Elevation
(ft msl)
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Hydrograph
Mean Sea Level
GSP Approval
Measurable Objective (MO)
Minimum Threshold (MT)
Interim Milestone
28F7

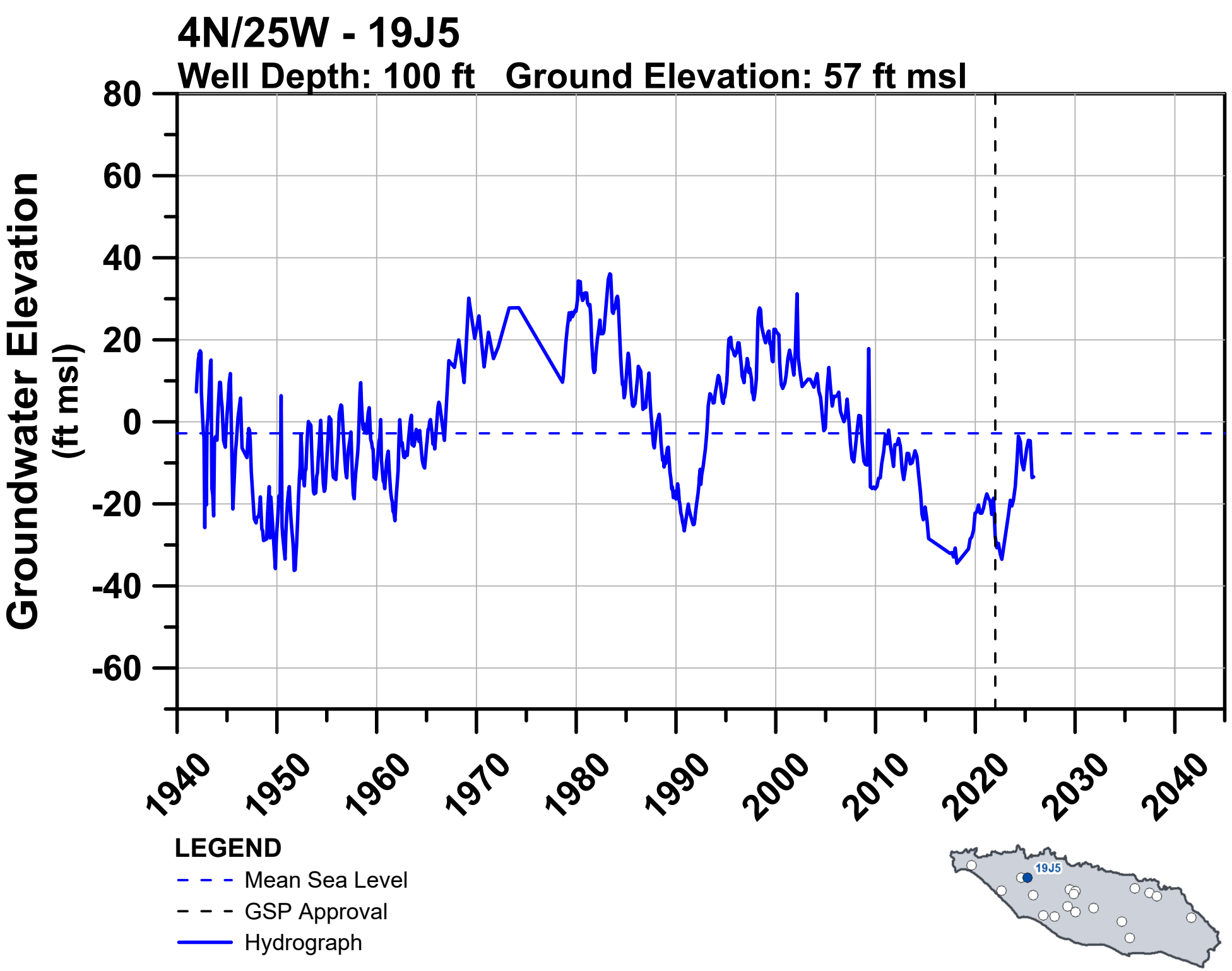

RMS 4N/25W - 28J1
Well Depth: 175 ft Ground Elevation: 103 ft msl
Groundwater Elevation (ft msl)
100
80
60
40
20
0
-20
-40
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Hydrograph
Mean Sea Level
GSP Approval
Measurable Objective (MO)
Minimum Threshold (MT)
Interim Milestone
28J1

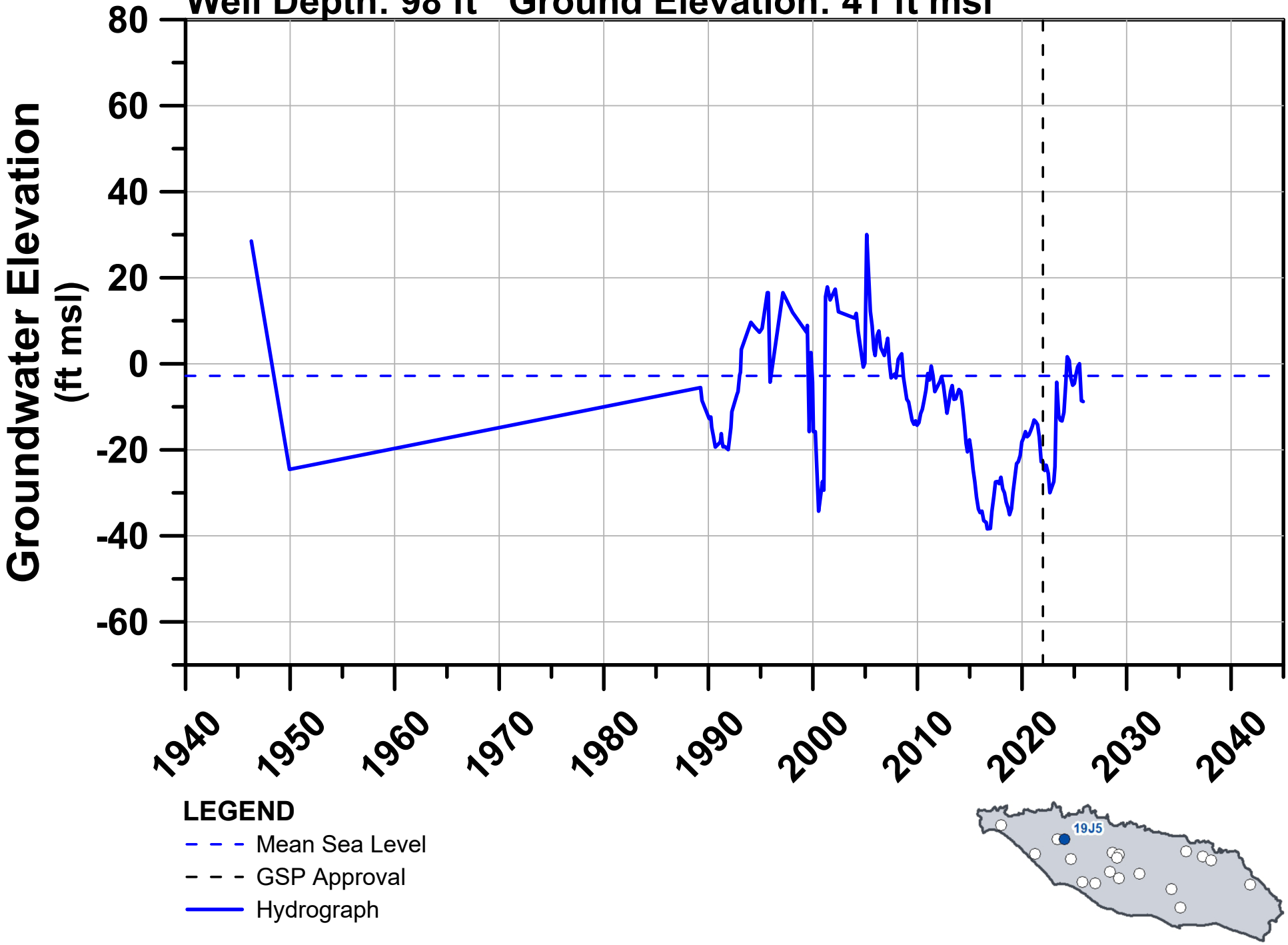
RMS 4N/25W - 29D7

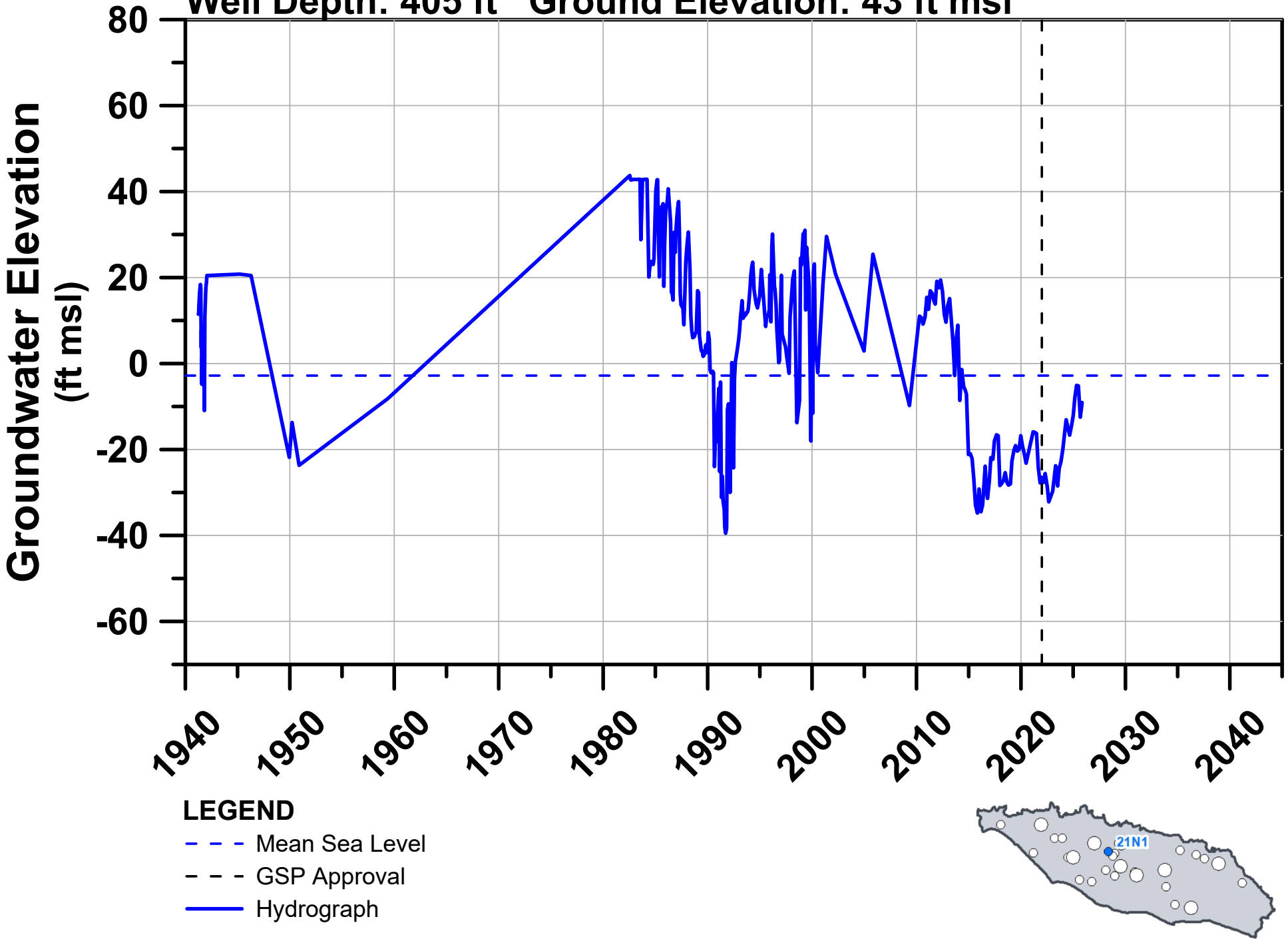
Well Depth: 950 ft Ground Elevation: 29 ft msl

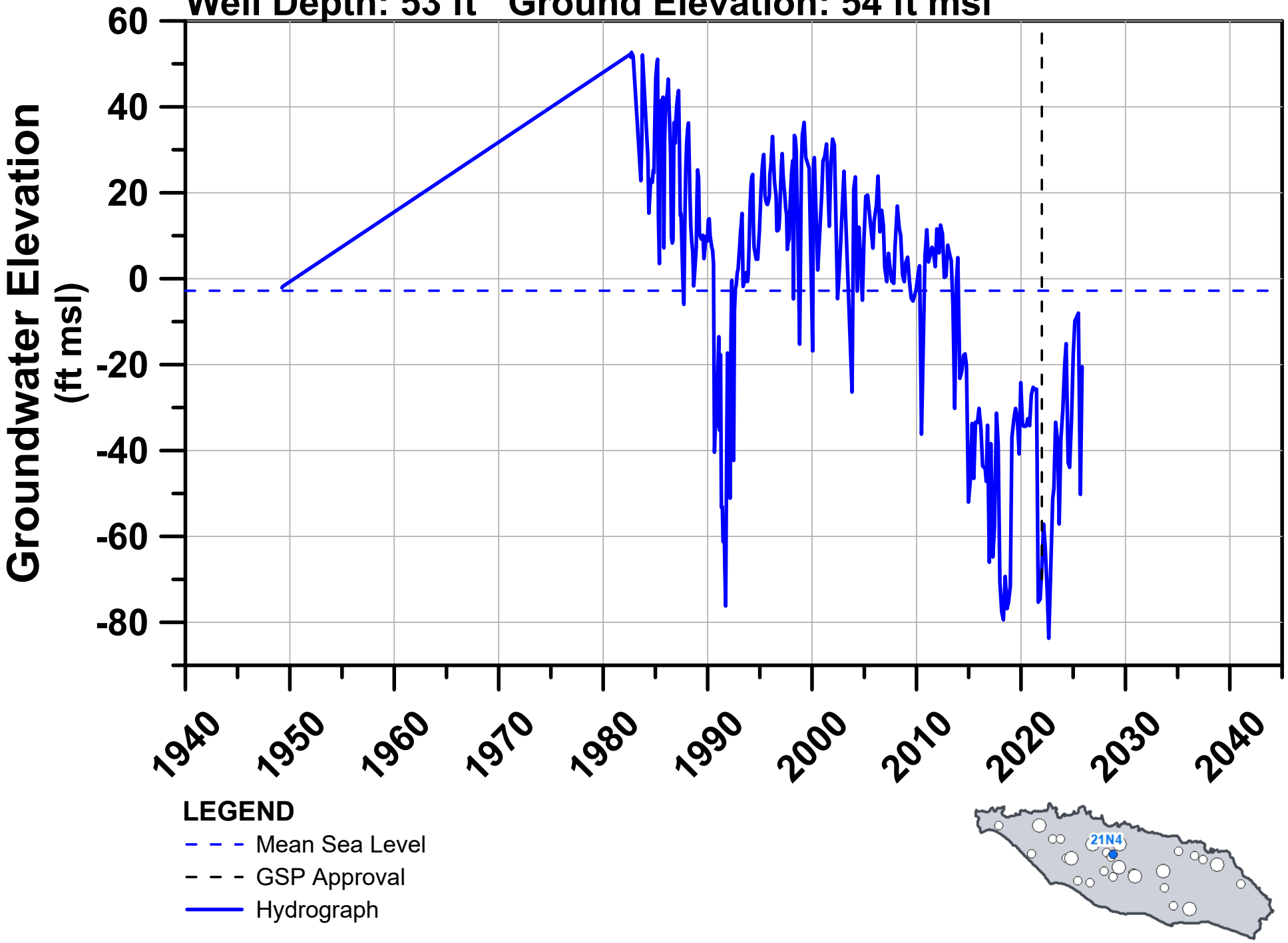



RMS 4N/25W - 35E1
Well Depth: 385 ft Ground Elevation: 243 ft msl
Groundwater Elevation (ft msl)
100
80
60
40
20
0
-20
-40
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Hydrograph
Mean Sea Level
GSP Approval
Measurable Objective (MO)
Minimum Threshold (MT)
Interim Milestone
35E1


4N/25W - 19J5
Well Depth: 100 ft Ground Elevation: 57 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
19J5

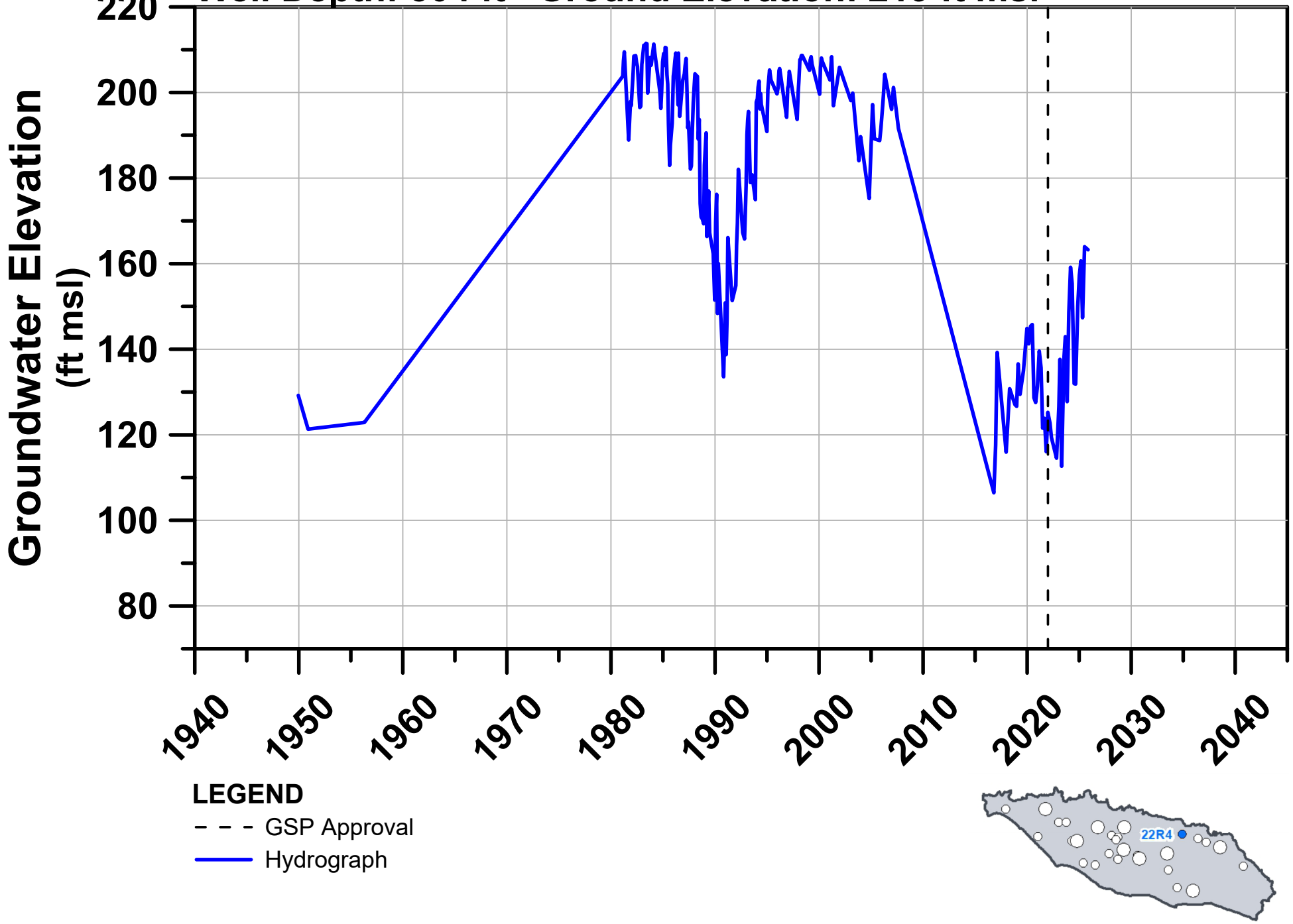

4N/25W - 19K5
Well Depth: 98 ft Ground Elevation: 41 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
19J5

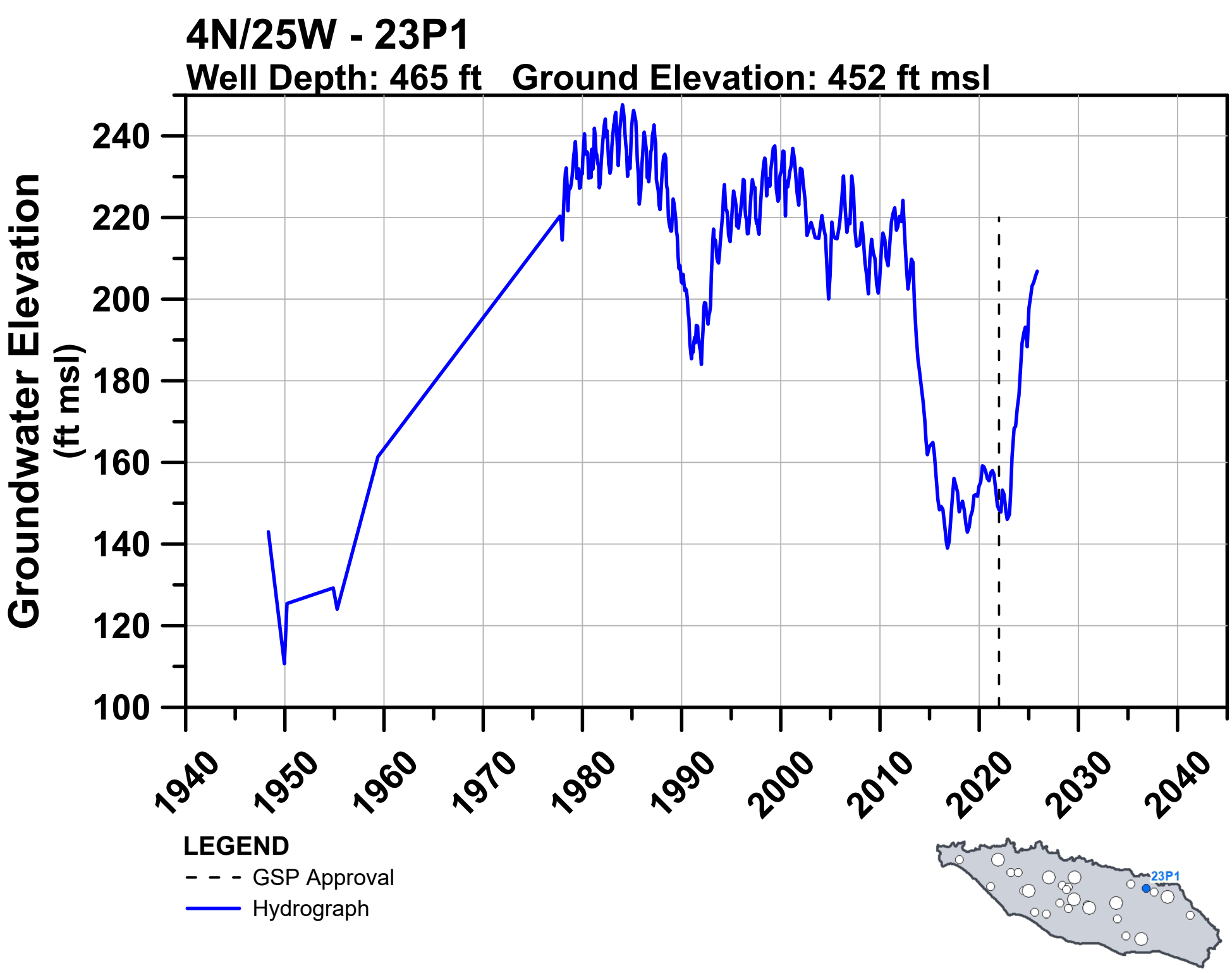

4N/25W - 21N1
Well Depth: 405 ft Ground Elevation: 43 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
21N1


4N/25W - 21N4
Well Depth: 53 ft Ground Elevation: 54 ft msl
Groundwater Elevation
(ft msl)
60
40
20
0
-20
-40
-60
-80
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
21N4

4N/25W - 22R4

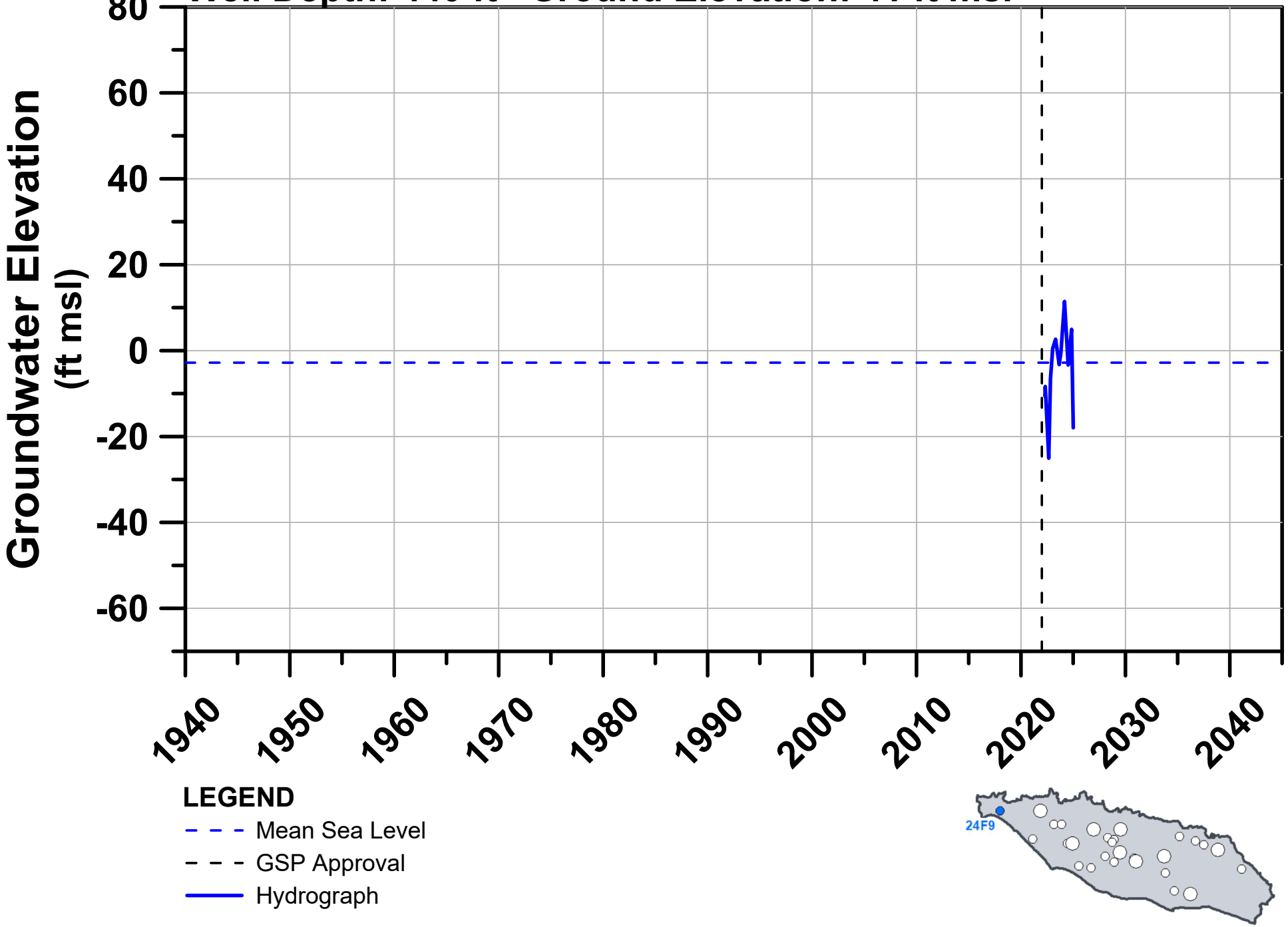
Well Depth: 504 ft Ground Elevation: 219 ft msl




4N/25W - 23P1
Well Depth: 465 ft Ground Elevation: 452 ft msl
Groundwater Elevation
(ft msl)
240
220
200
180
160
140
120
100
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
GSP Approval
Hydrograph
23P1

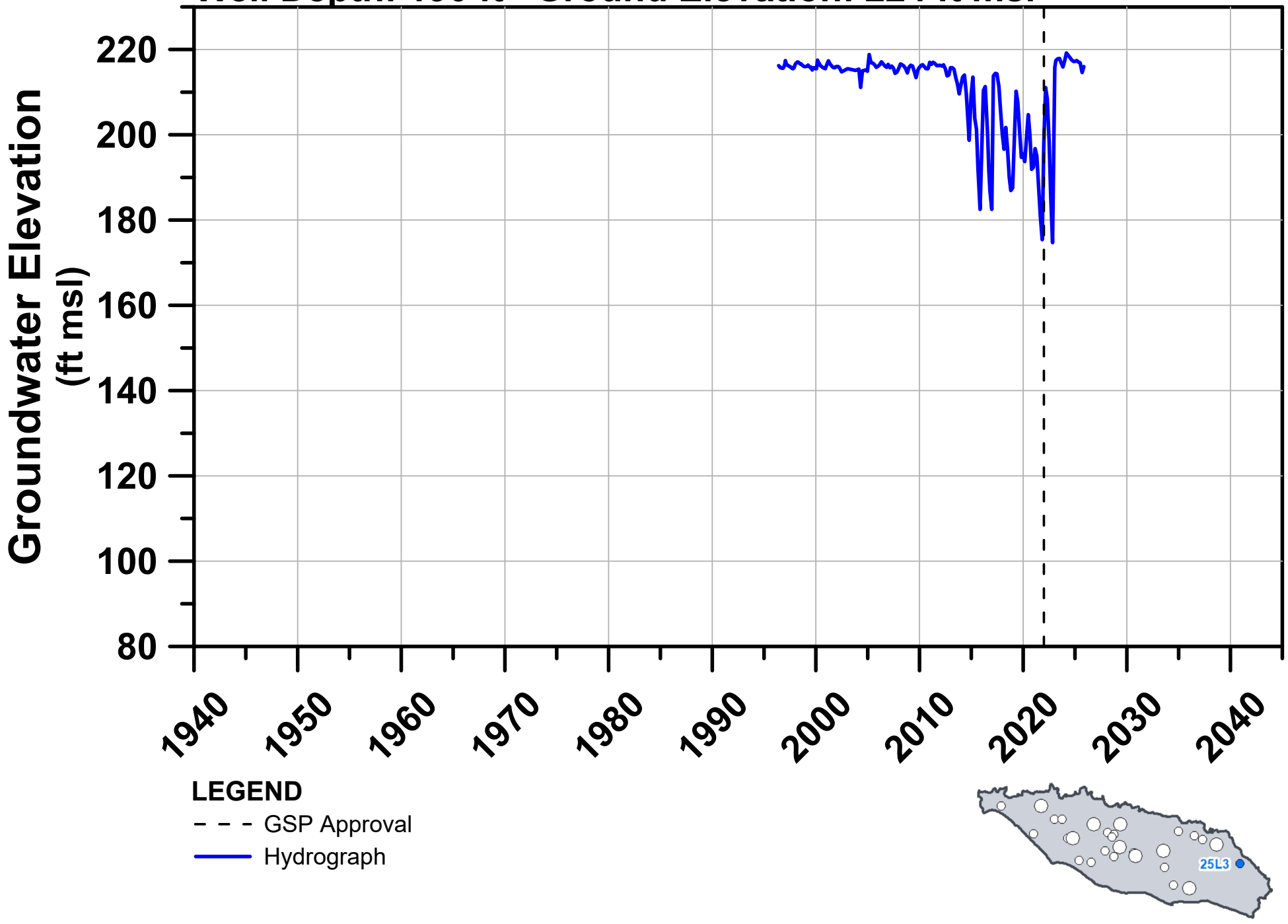
4N/25W - 24F9

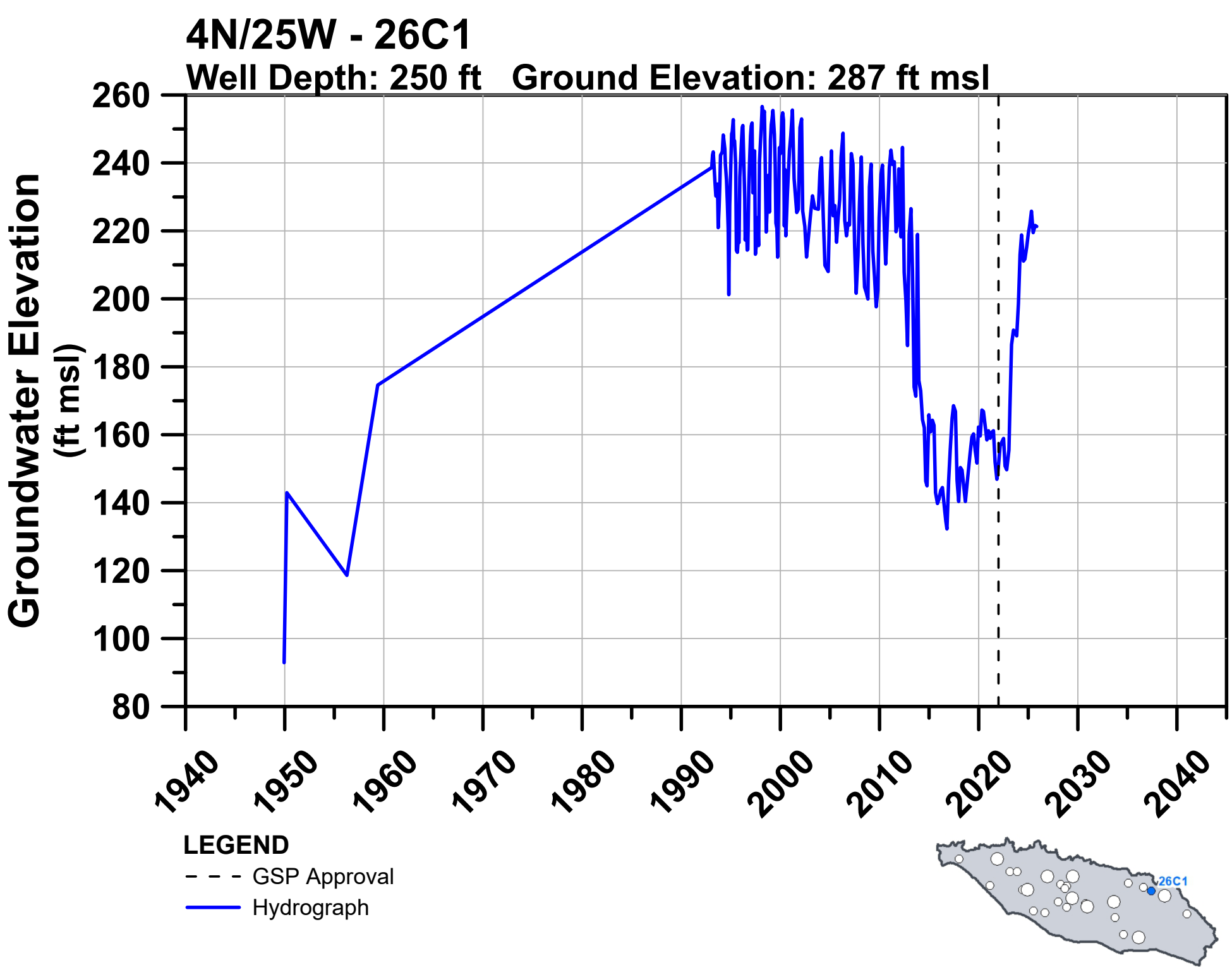
Well Depth: 440 ft Ground Elevation: 41 ft msl

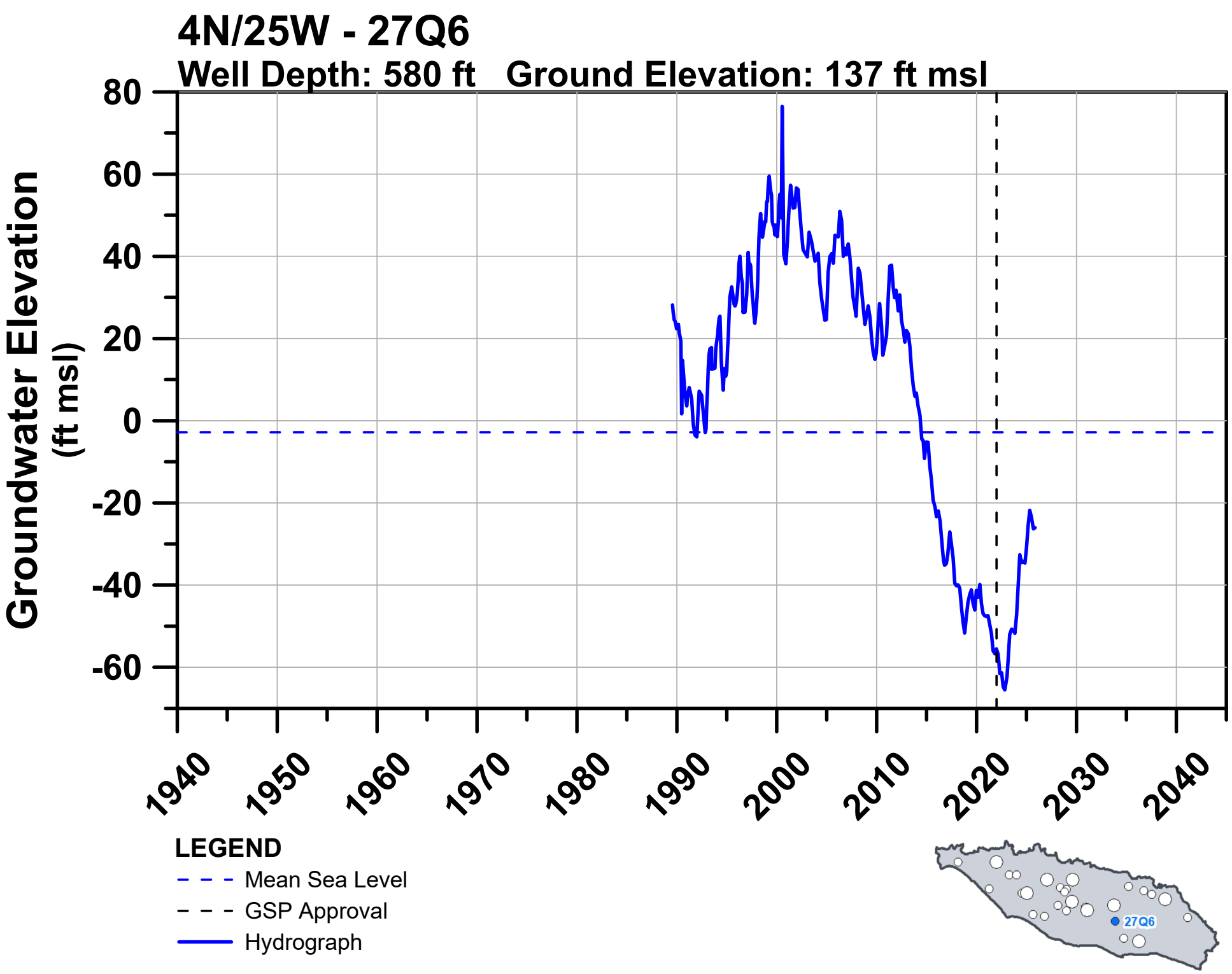


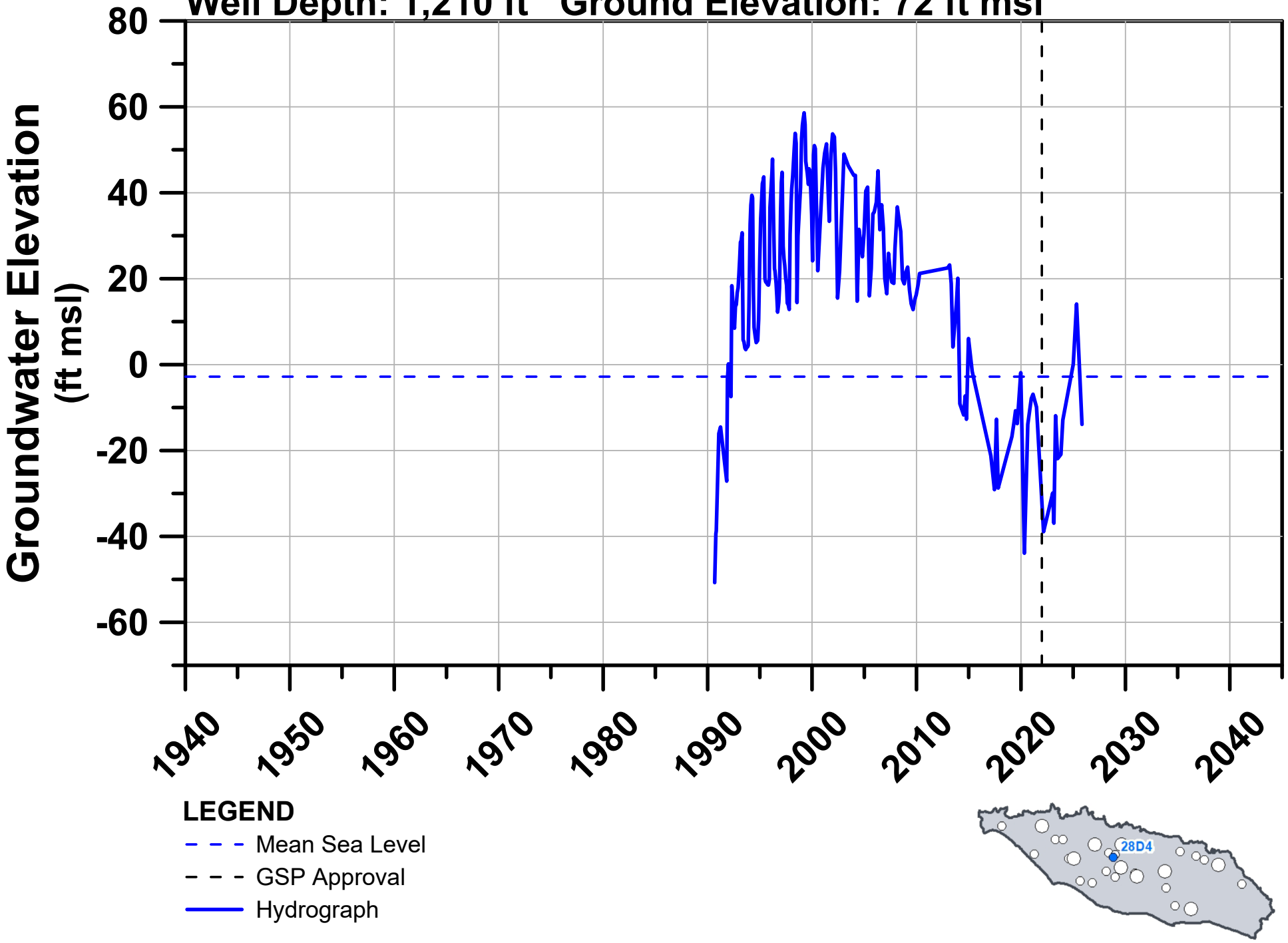
4N/25W - 25L3

Well Depth: 190 ft Ground Elevation: 224 ft msl



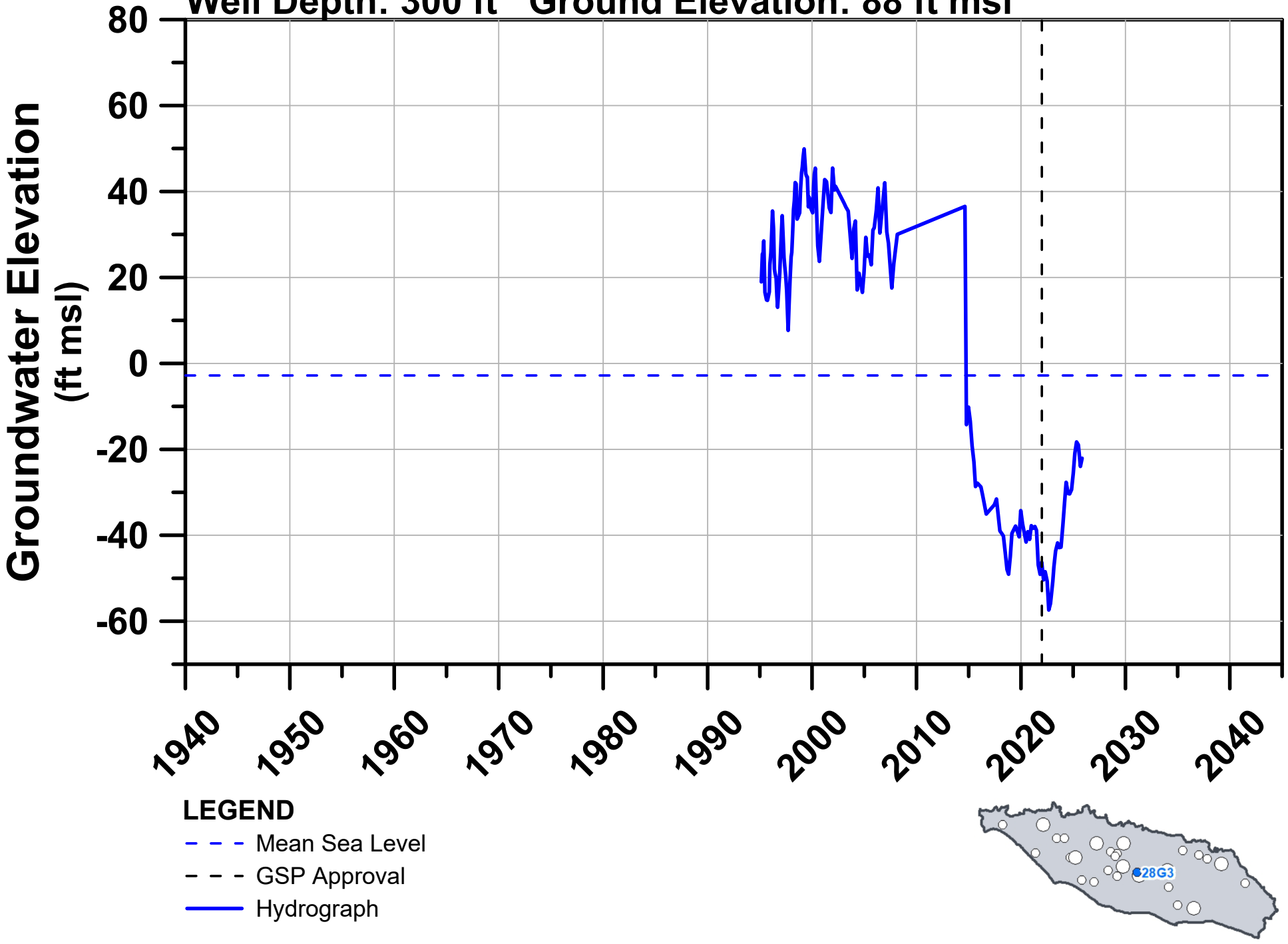

4N/25W - 26C1
Well Depth: 250 ft Ground Elevation: 287 ft msl
Groundwater Elevation
(ft msl)
260
240
220
200
180
160
140
120
100
80
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
GSP Approval
Hydrograph
26C1

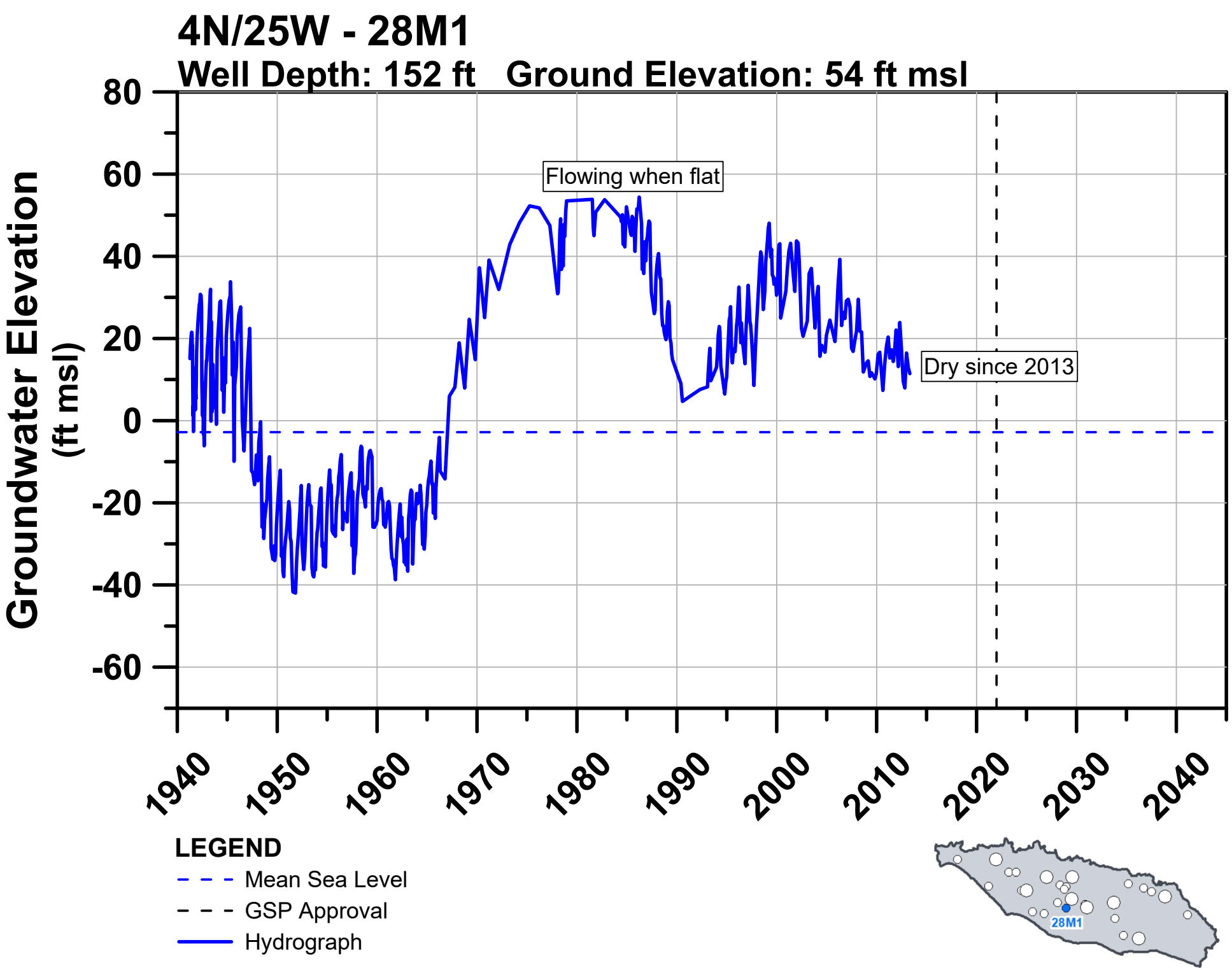

4N/25W - 27Q6
Well Depth: 580 ft Ground Elevation: 137 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
27Q6

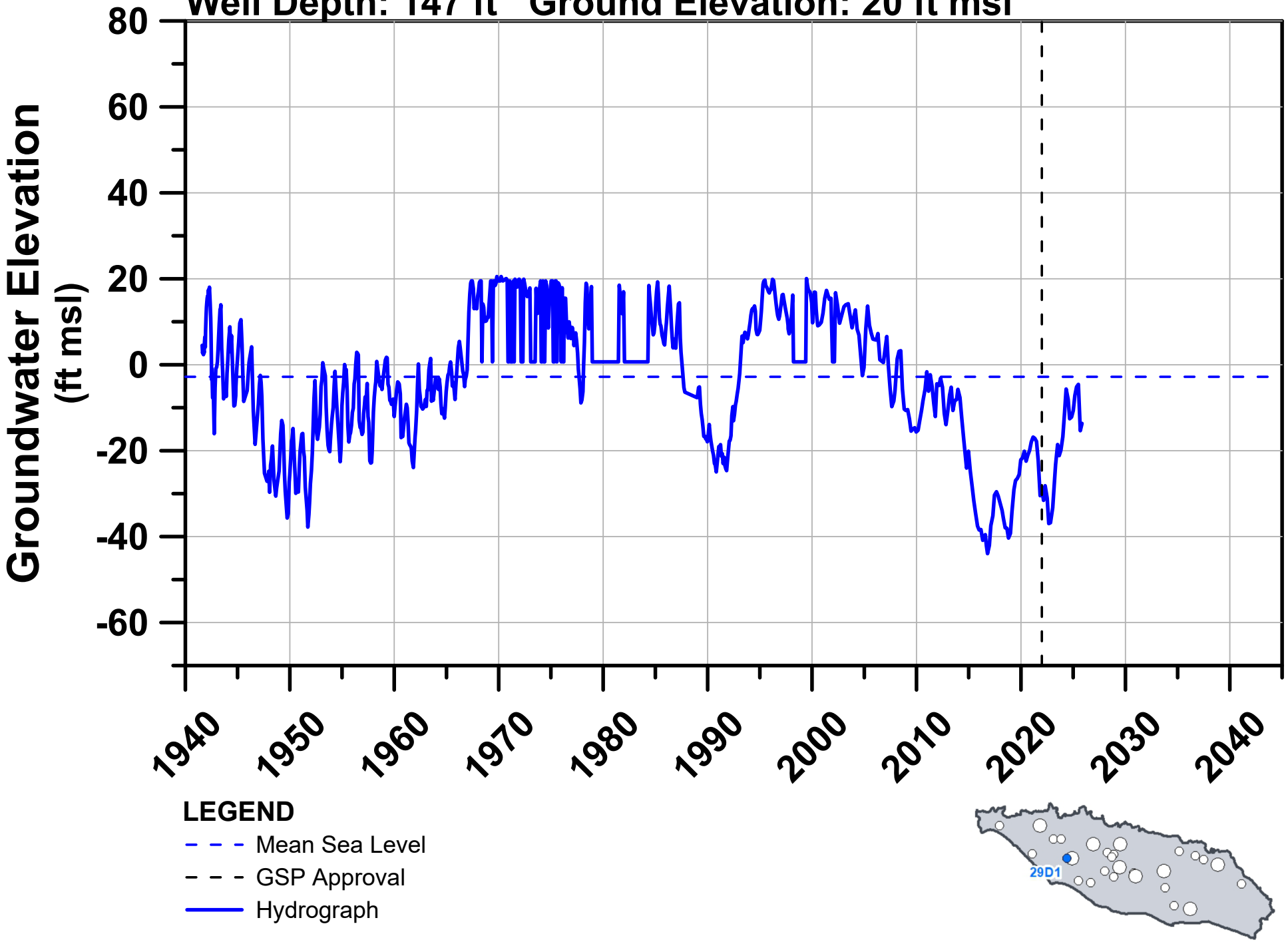

4N/25W - 28D4
Well Depth: 1,210 ft Ground Elevation: 72 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
28D4

4N/25W - 28G3

Well Depth: 300 ft Ground Elevation: 88 ft msl

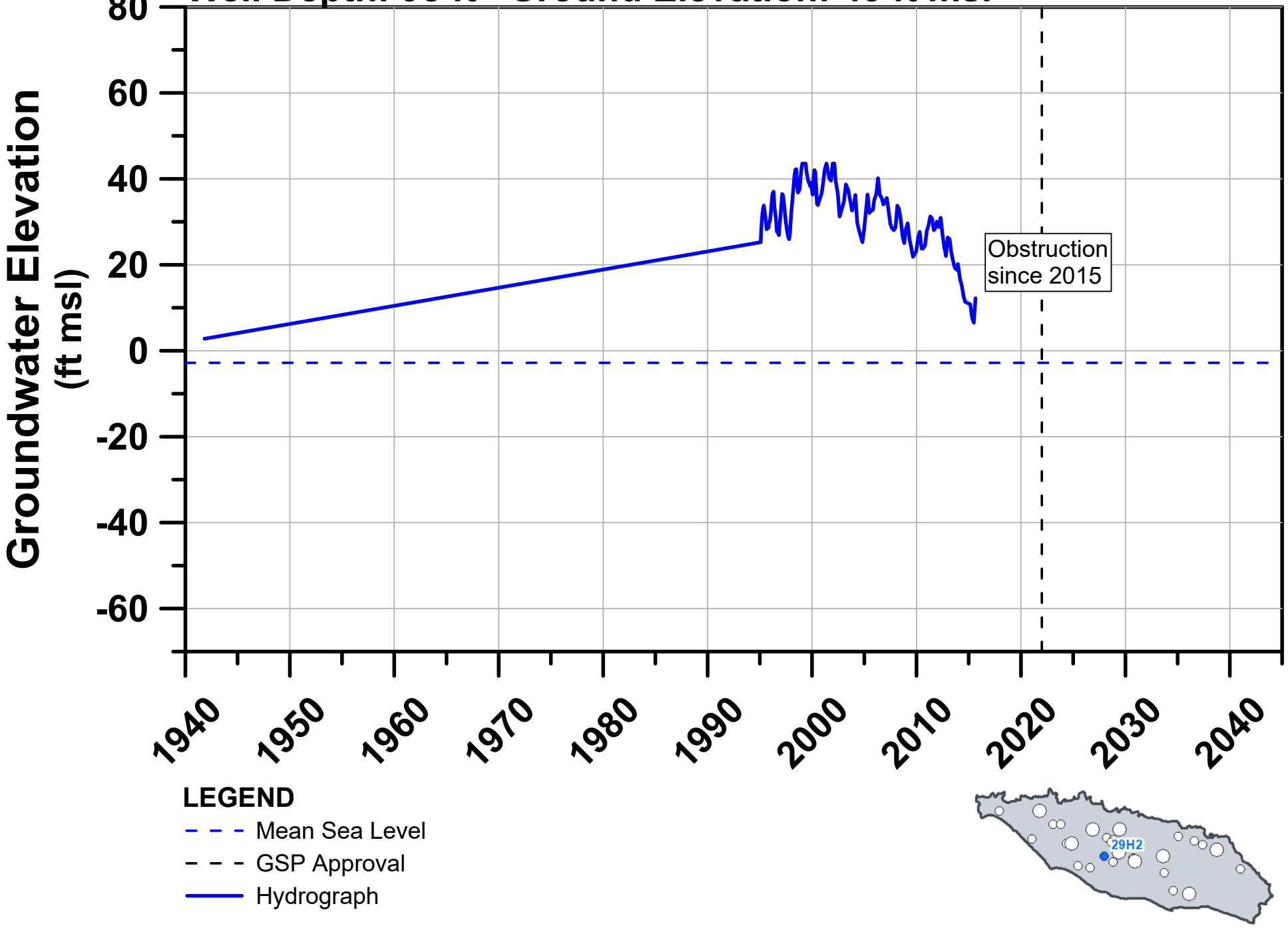


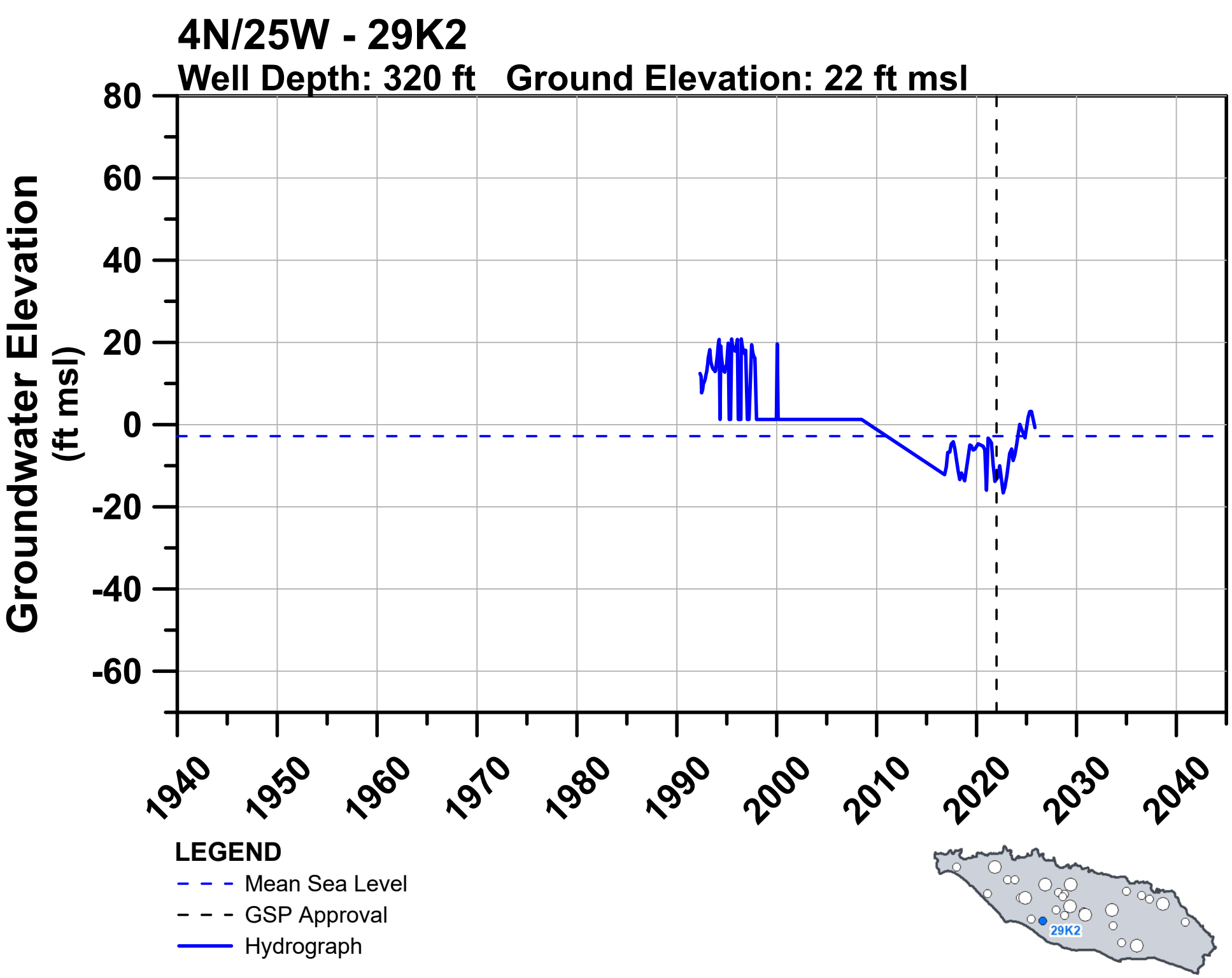

4N/25W - 28M1
Well Depth: 152 ft Ground Elevation: 54 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
Flowing when flat
Dry since 2013
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
28M1

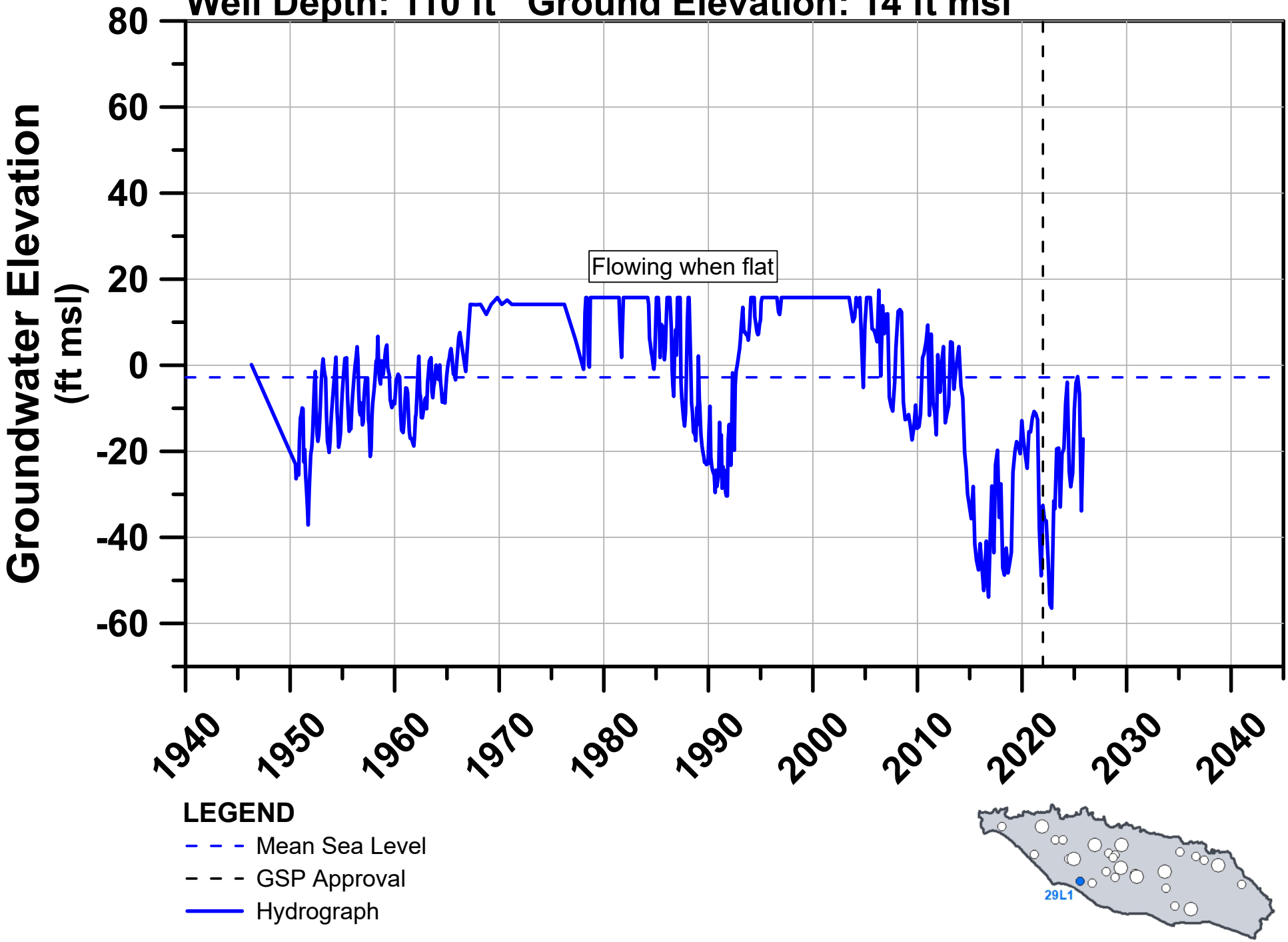

4N/25W - 29D1
Well Depth: 147 ft Ground Elevation: 20 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
29D1

4N/25W - 29H2

Well Depth: 98 ft Ground Elevation: 43 ft msl

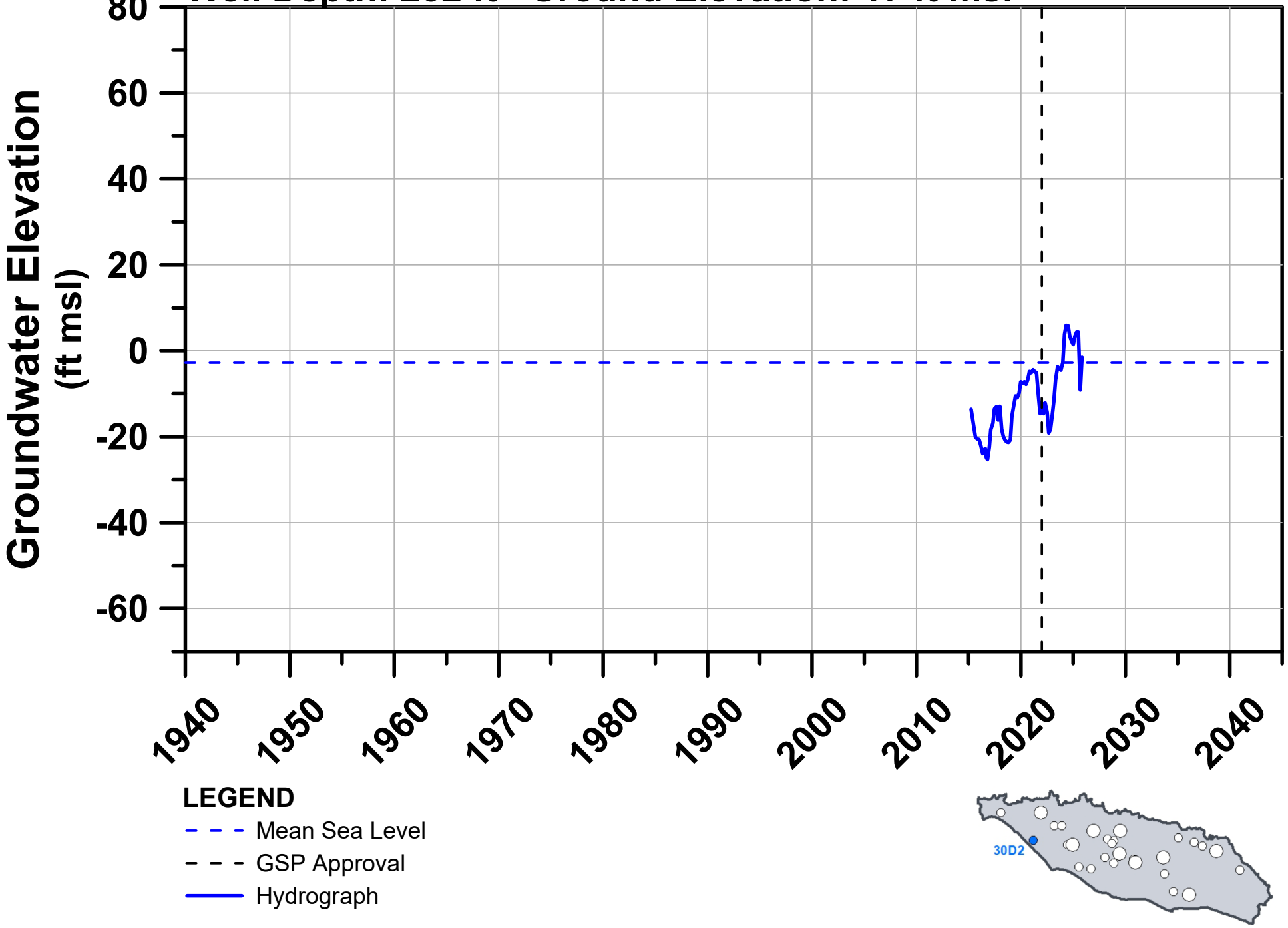


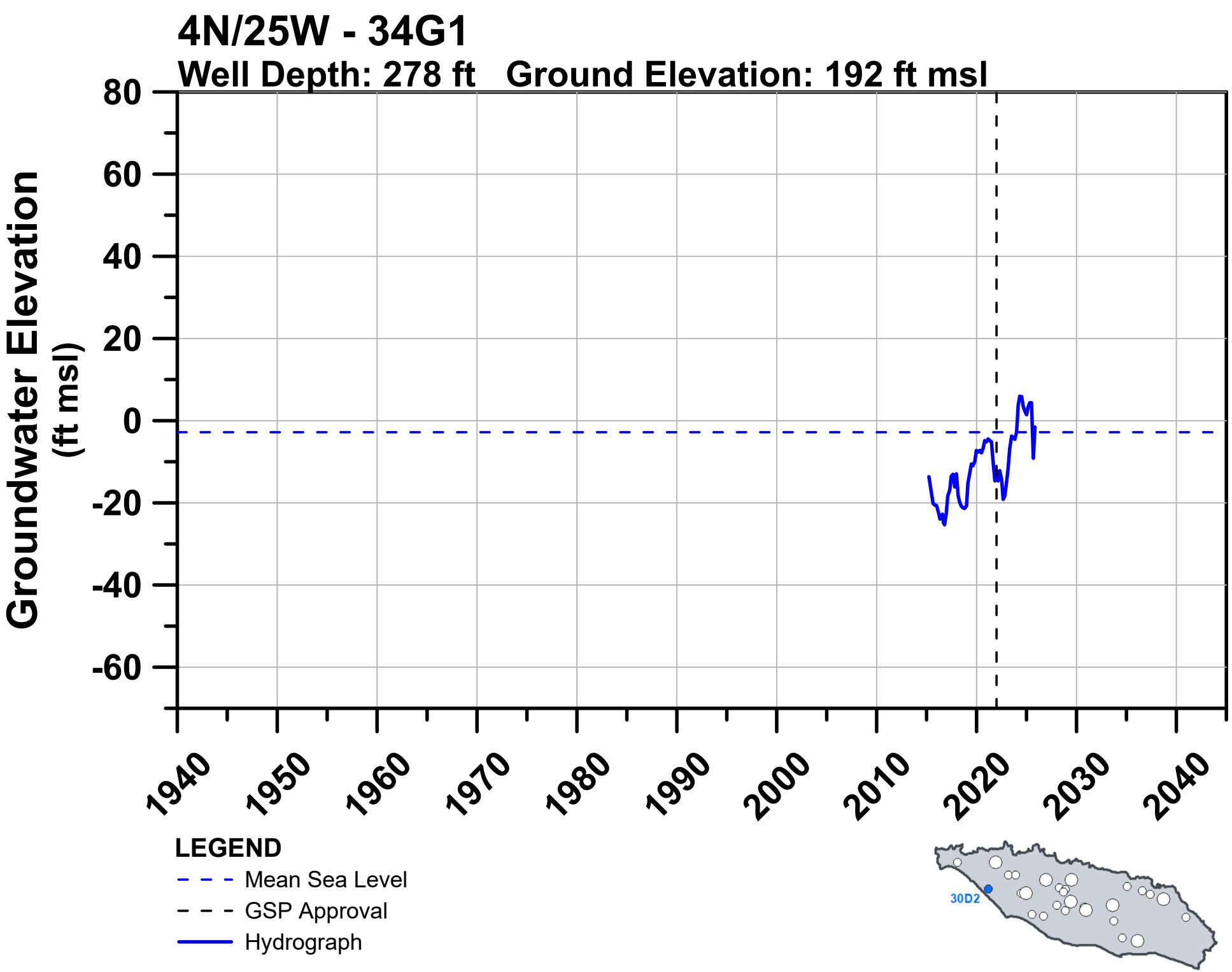

4N/25W - 29K2
Well Depth: 320 ft Ground Elevation: 22 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
29K2


4N/25W - 29L1
Well Depth: 110 ft Ground Elevation: 14 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
Flowing when flat
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
29L1

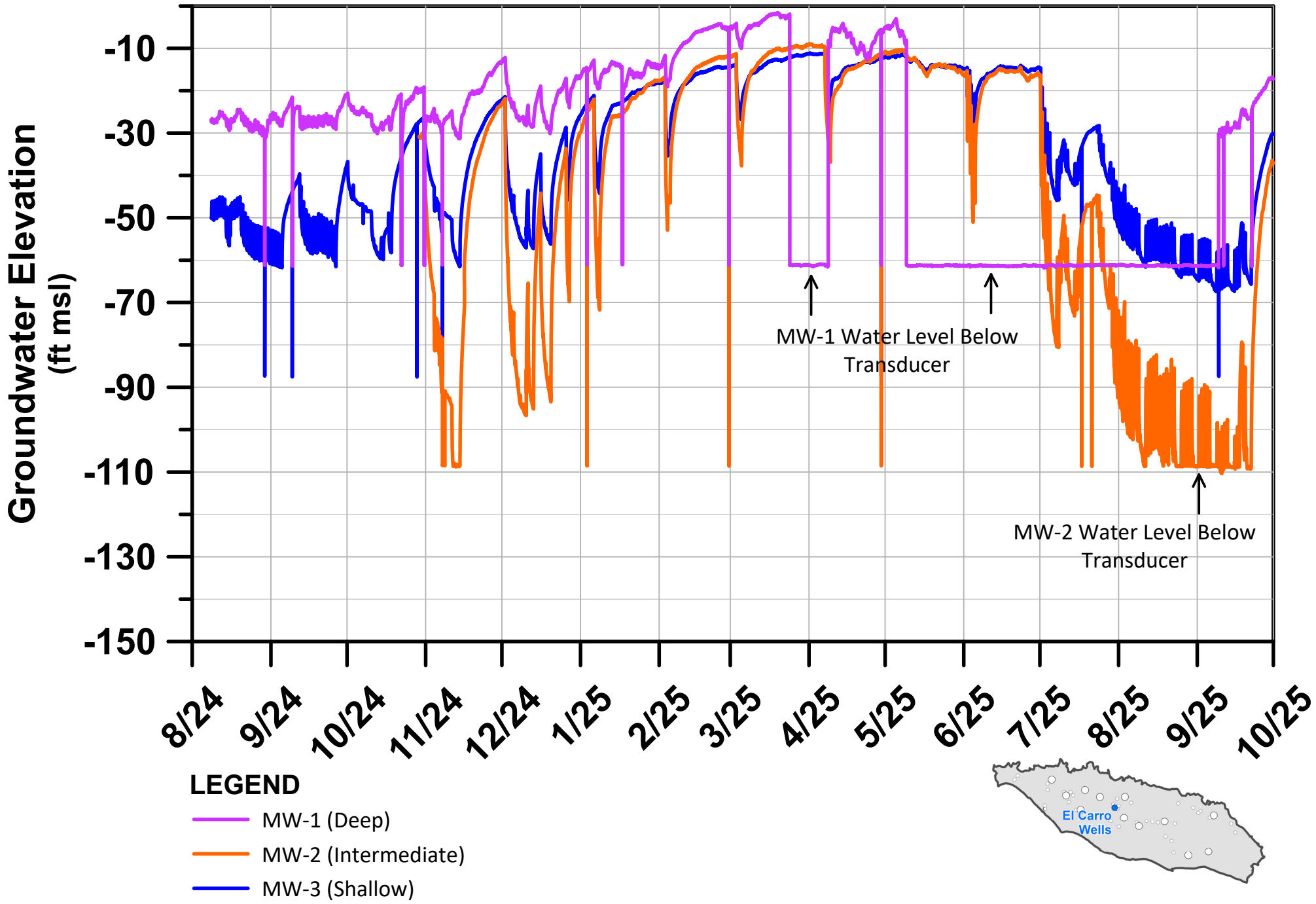
4N/25W - 30D2

Well Depth: 232 ft Ground Elevation: 17 ft msl




4N/25W - 34G1
Well Depth: 278 ft Ground Elevation: 192 ft msl
Groundwater Elevation
(ft msl)
80
60
40
20
0
-20
-40
-60
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
LEGEND
Mean Sea Level
GSP Approval
Hydrograph
30D2

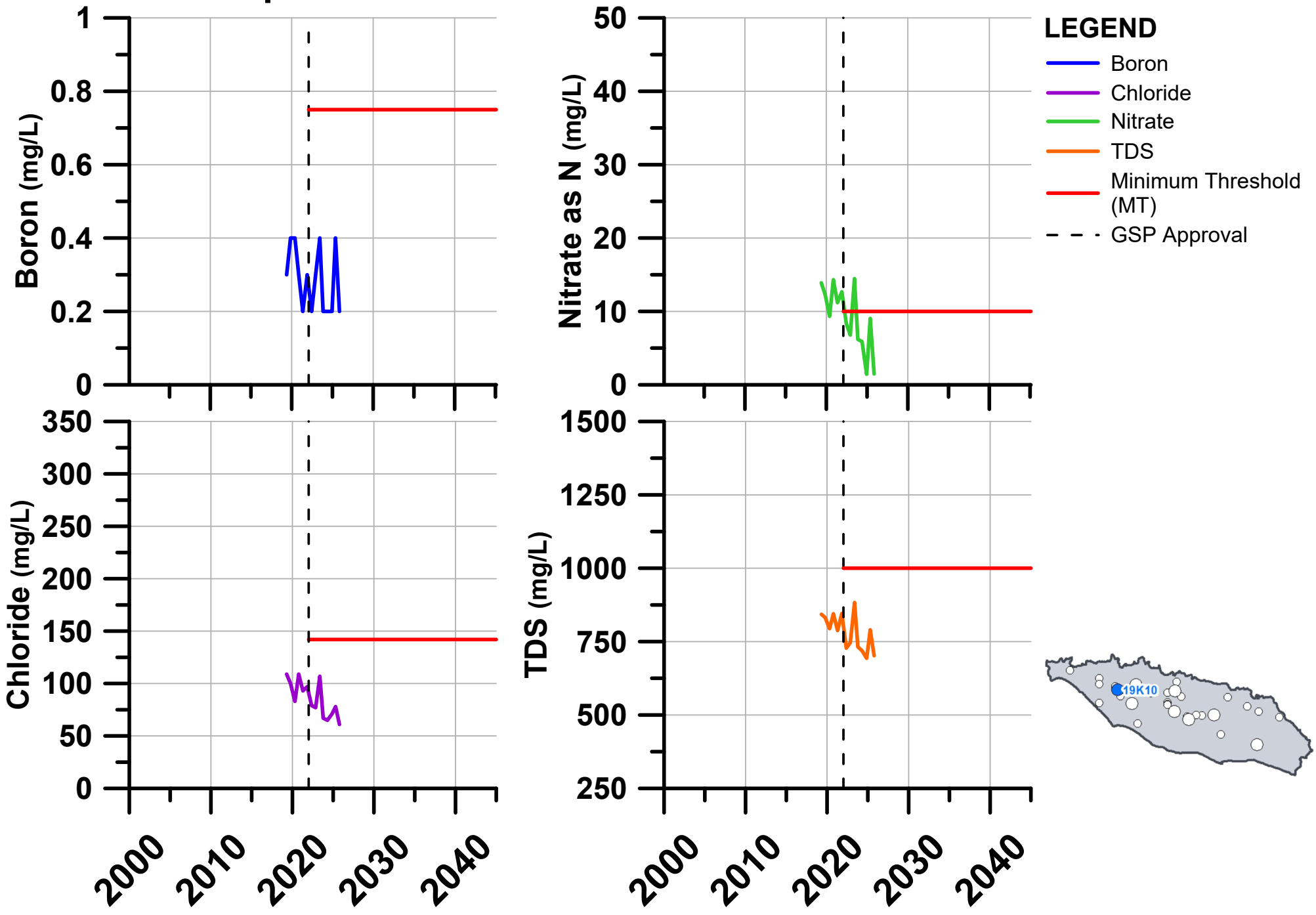
El Carro Wells Hydrograph



APPENDIX E – CHEMOGRAPHS FOR GROUNDWATER QUALITY MONITORING NETWORK

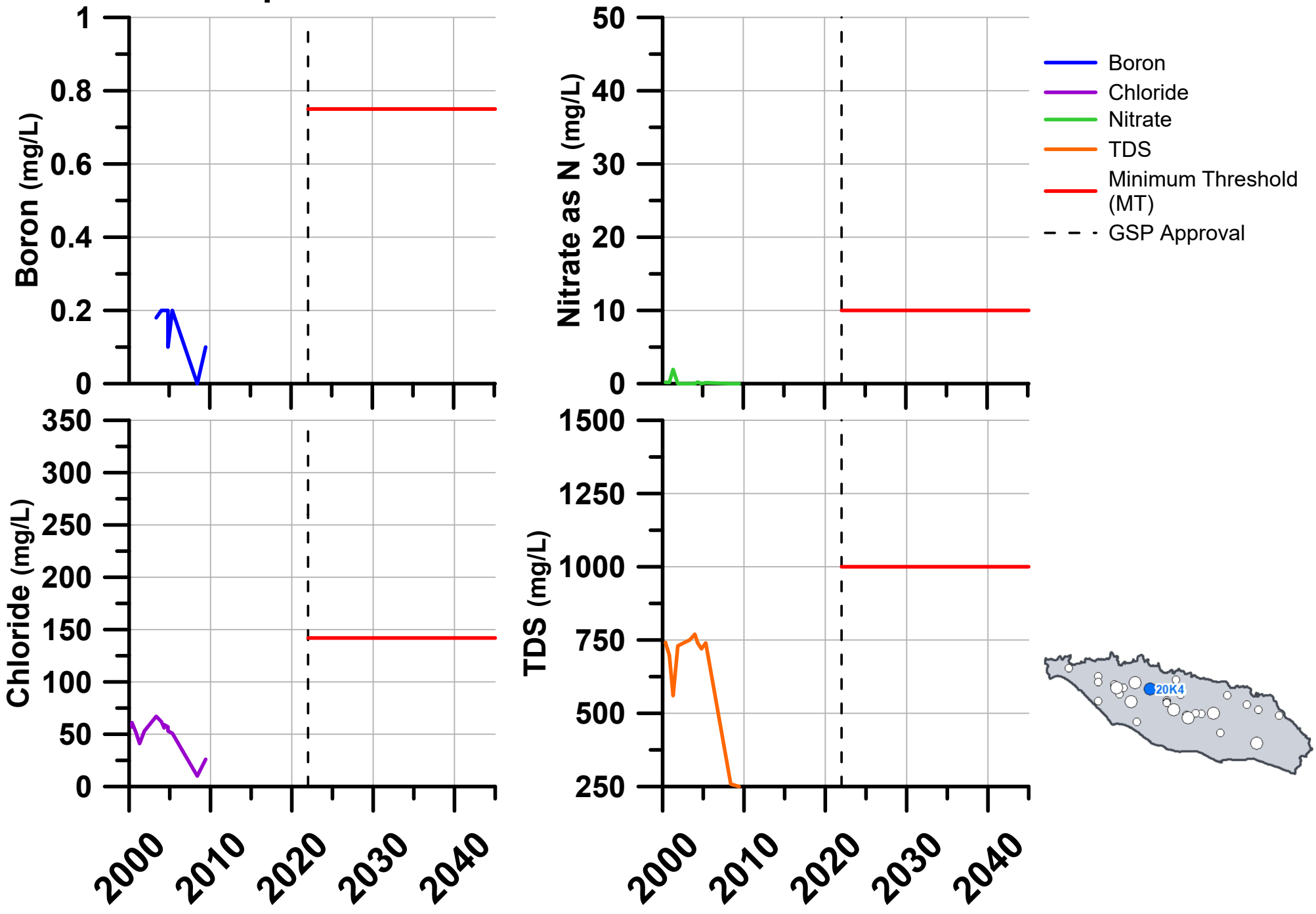
RMS 4N/25W - 19K10

Well Depth: 602 ft Ground Elevation: 38 ft NAVD 88



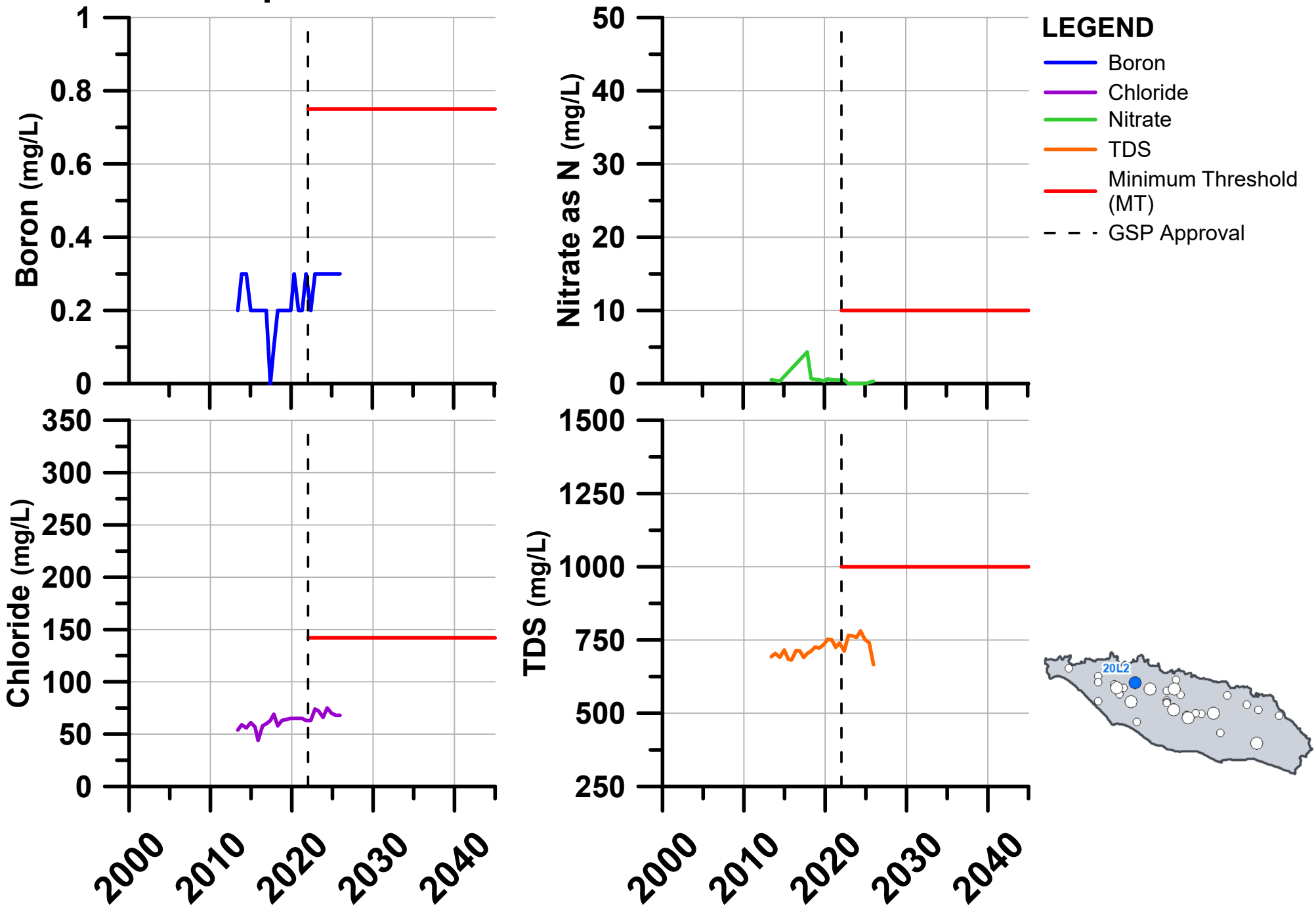
RMS 4N/25W - 20K4

Well Depth: 903 ft Ground Elevation: 47 ft NAVD 88



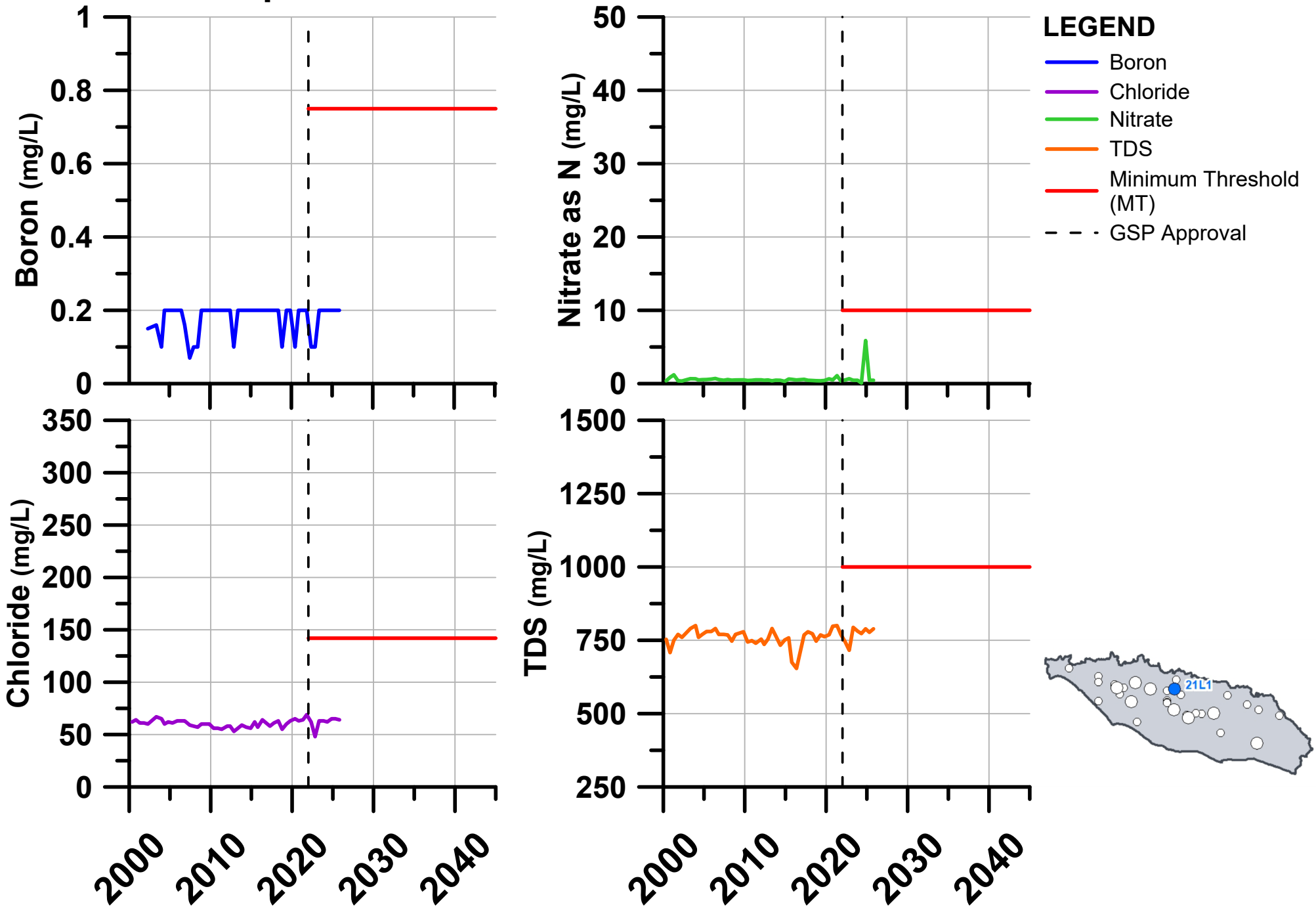
RMS 4N/25W - 20L5

Well Depth: Unknown Ground Elevation: 80 ft NAVD 88



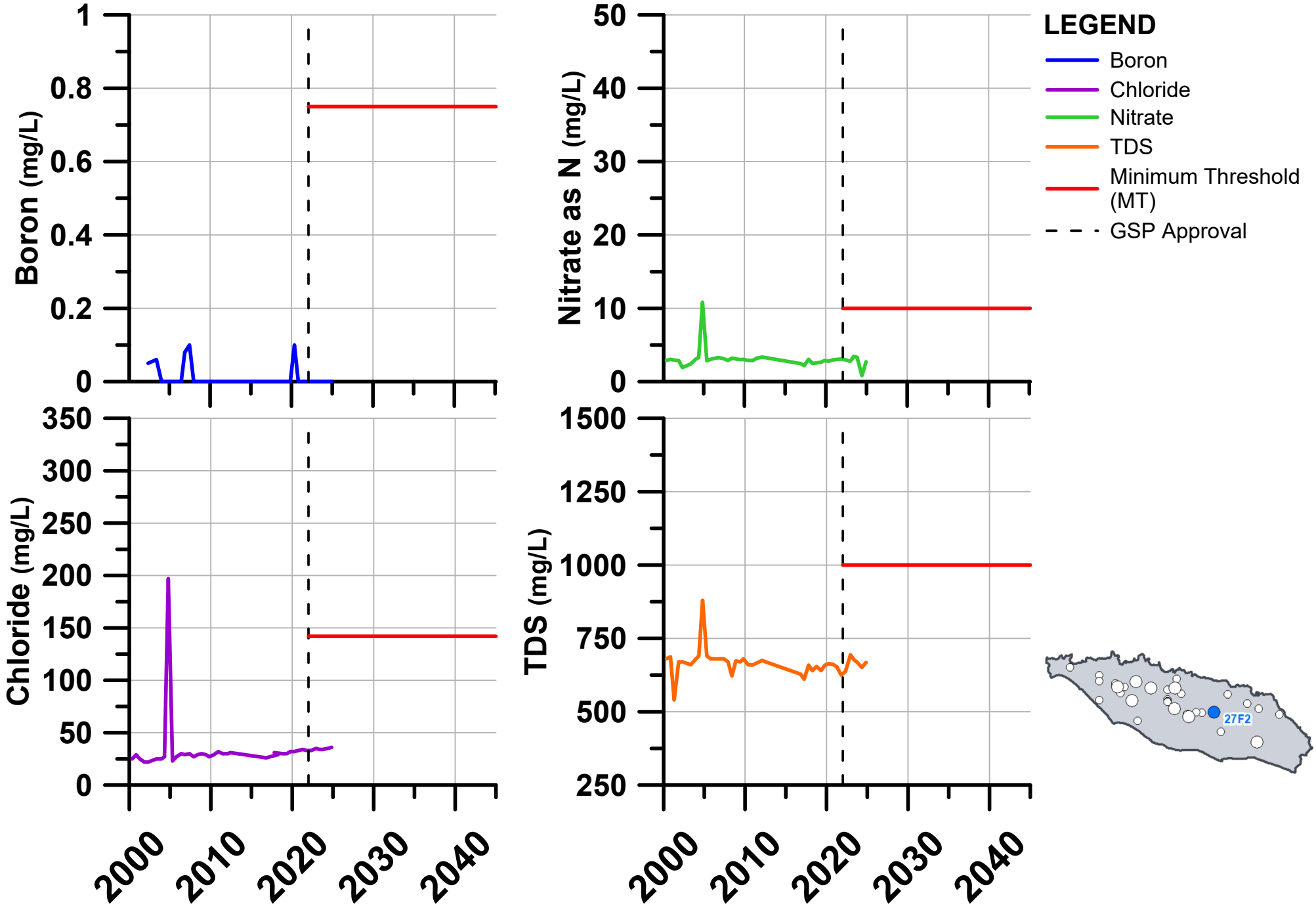
RMS 4N/25W - 21L1

Well Depth: 732 ft Ground Elevation: 69 ft NAVD 88



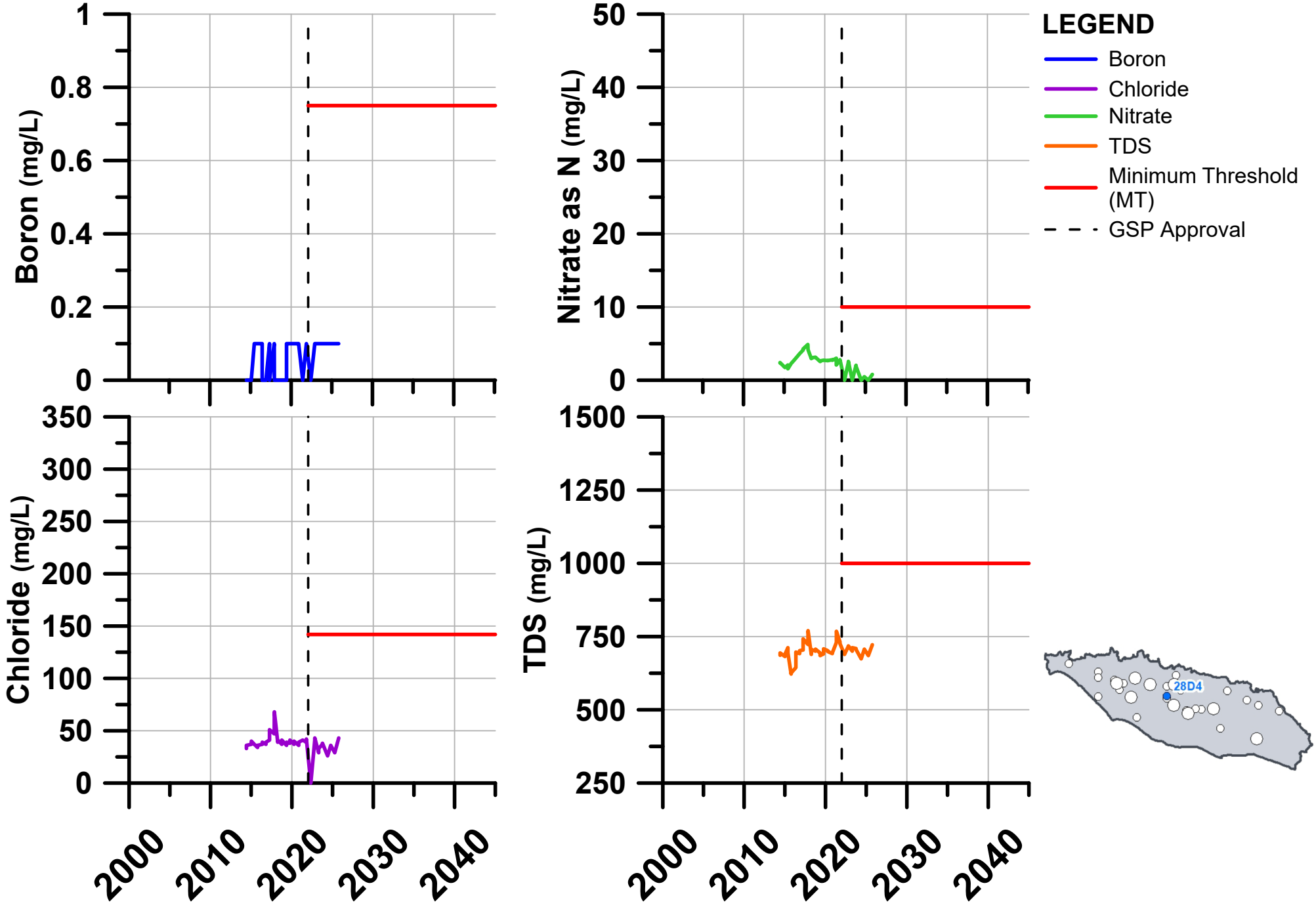
RMS 4N/25W - 27F2

Well Depth: 825 ft Ground Elevation: 136 ft NAVD 88



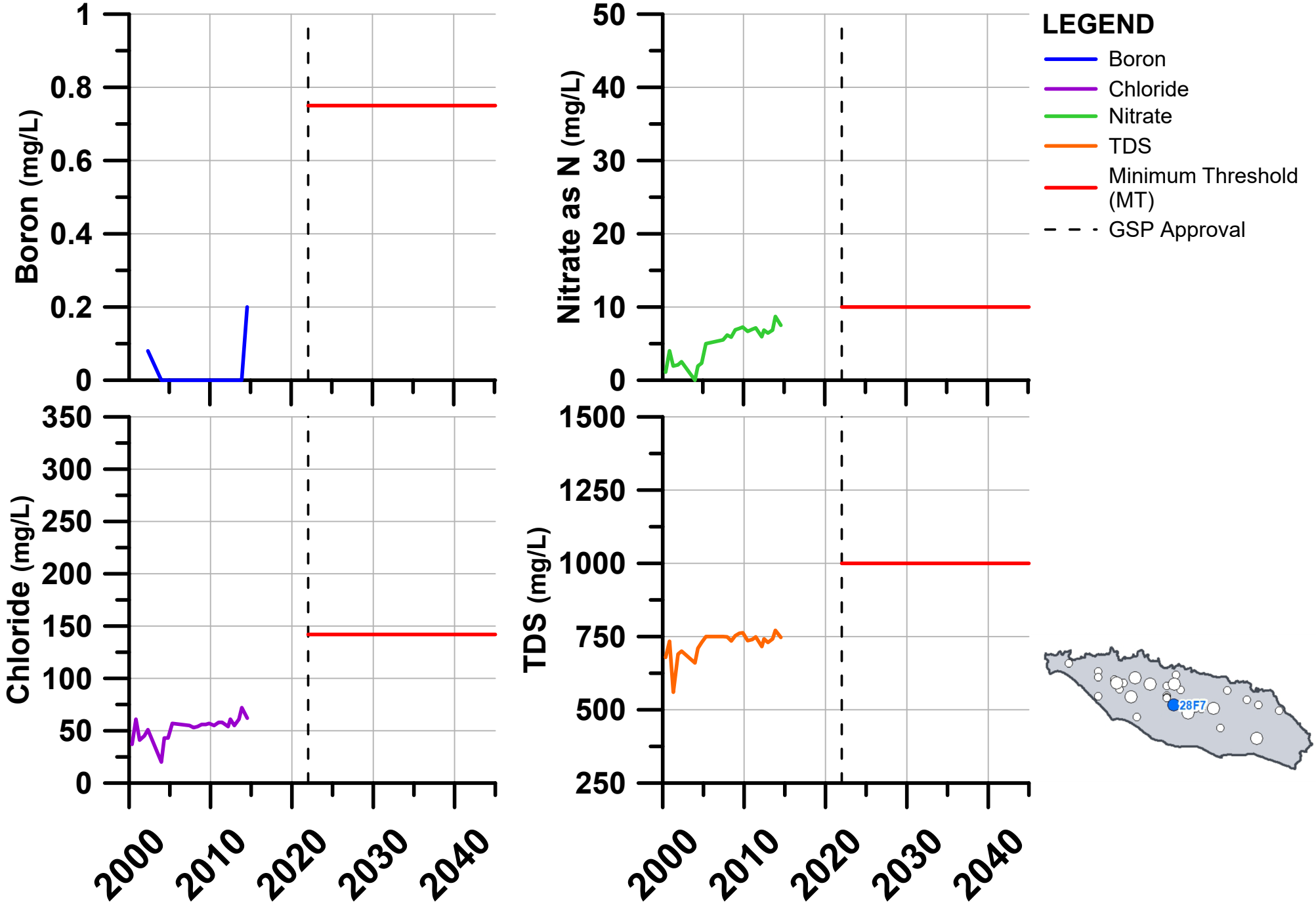
RMS 4N/25W - 28D4

Well Depth: 1,210 ft Ground Elevation: 72 ft NAVD 88



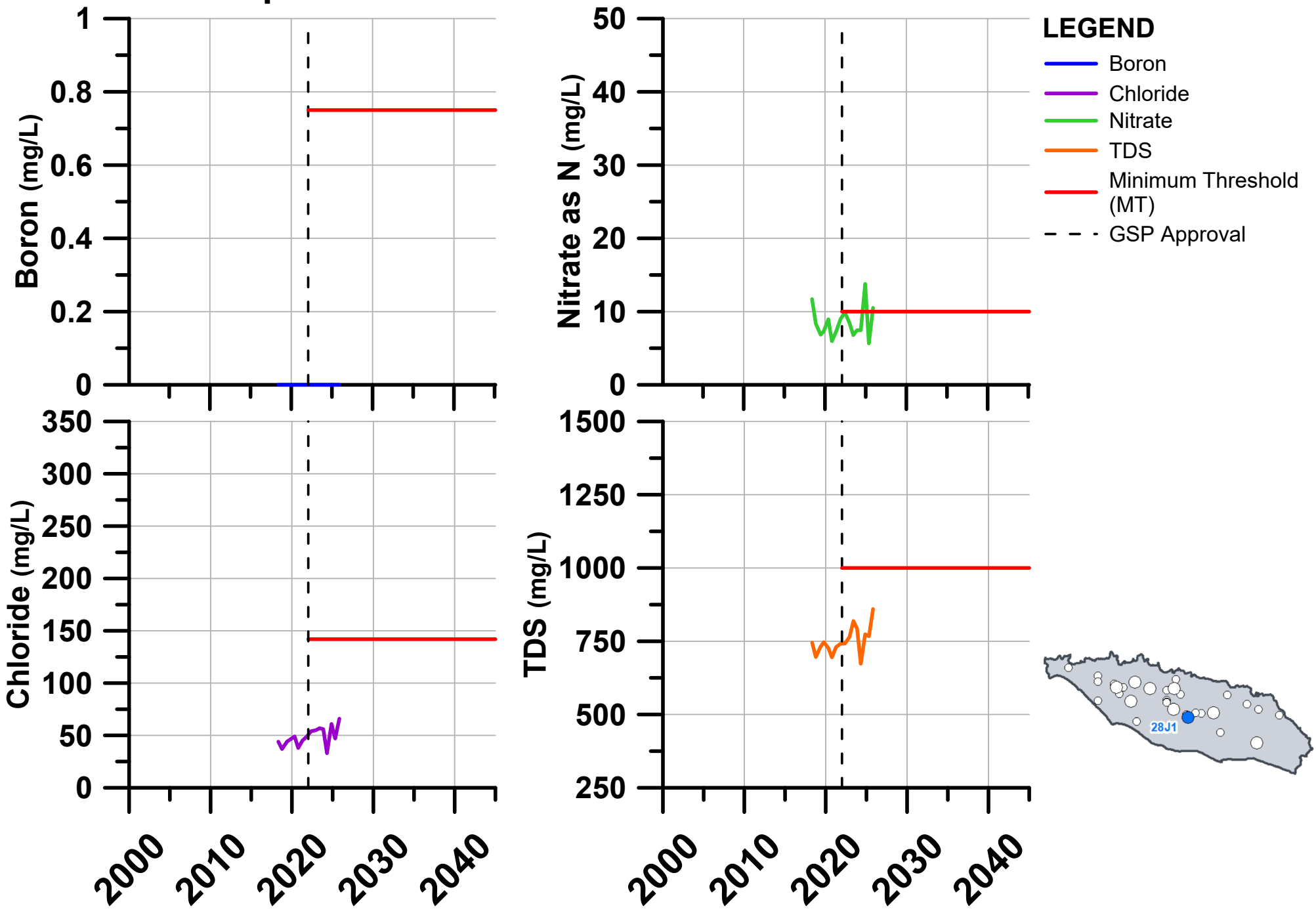
RMS 4N/25W - 28F7

Well Depth: 1,240/980 ft Ground Elevation: 65 ft NAVD 88



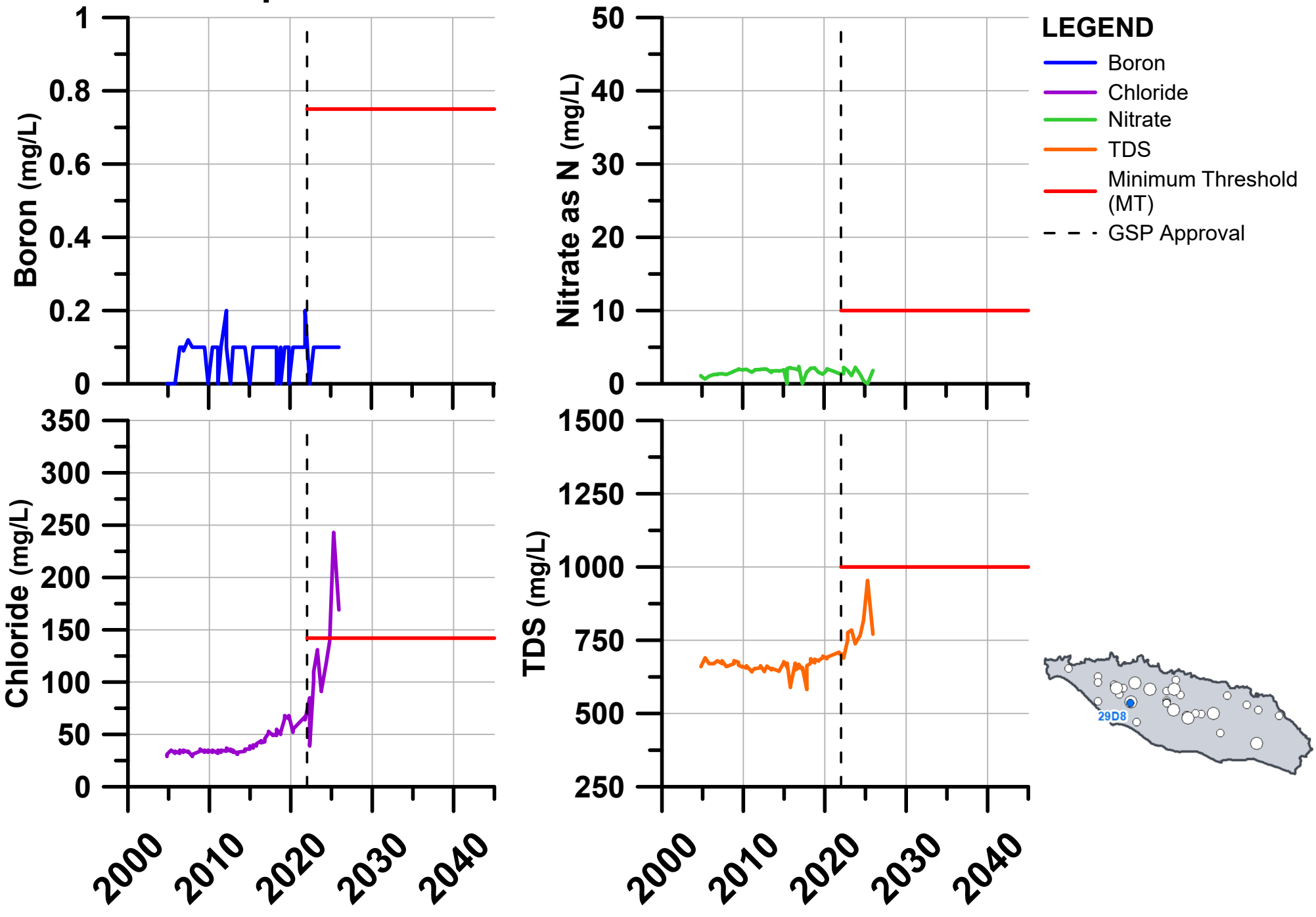
RMS 4N/25W - 28J3

Well Depth: 860 ft Ground Elevation: 92 ft NAVD 88



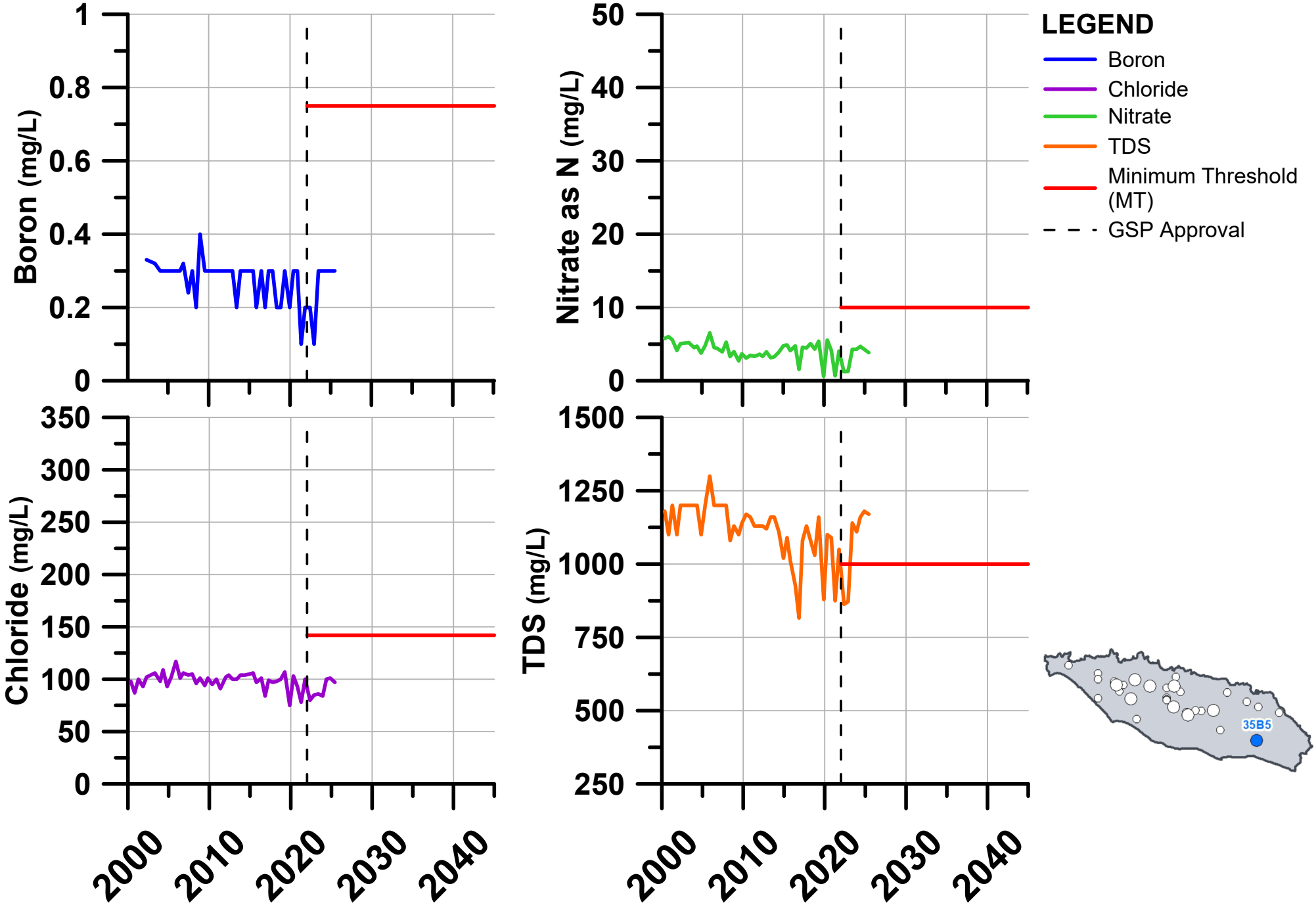
RMS 4N/25W - 29D8

Well Depth: 958 ft Ground Elevation: 29 ft NAVD 88



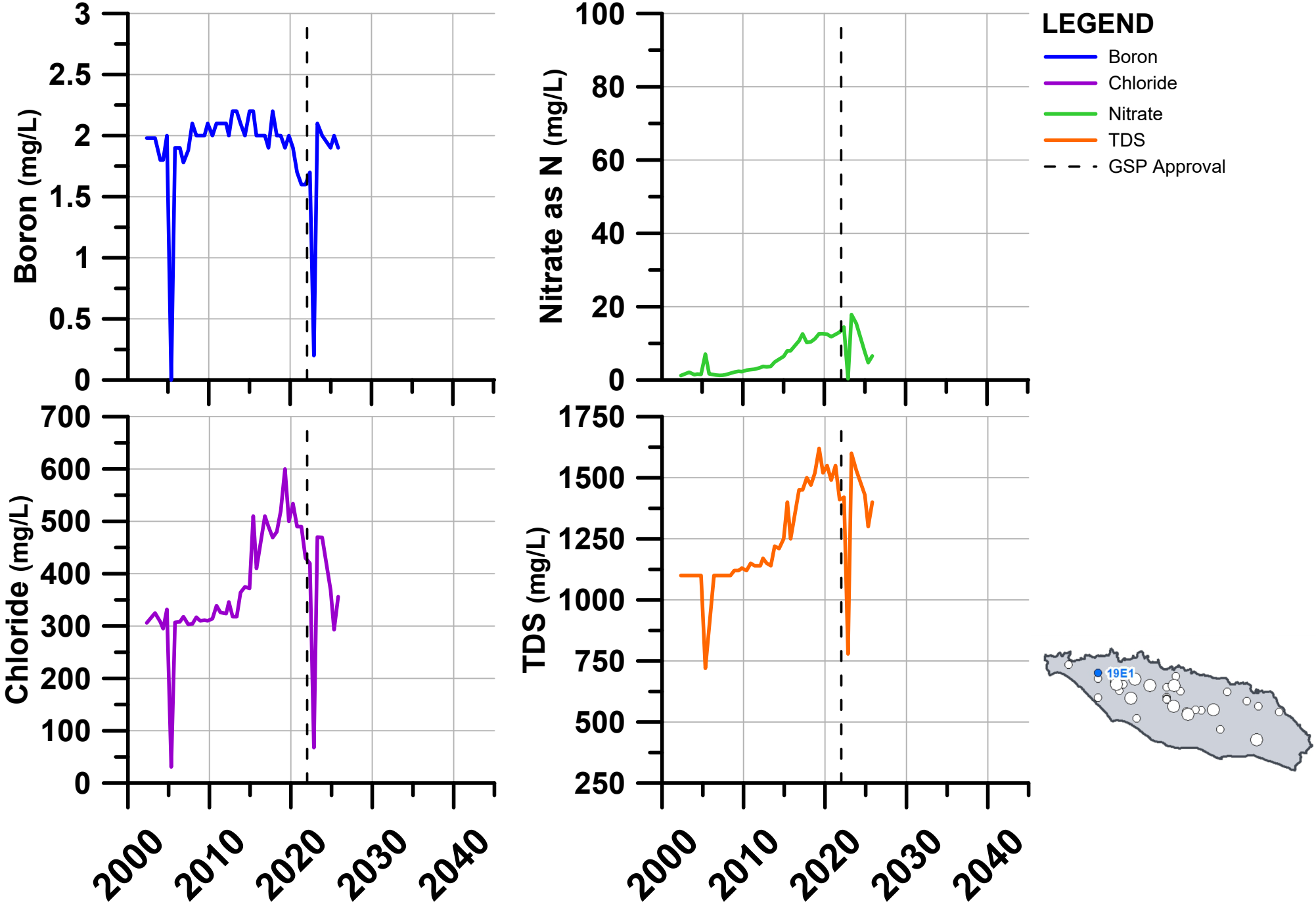
RMS 4N/25W - 35B5

Well Depth: 280 ft Ground Elevation: 142 ft NAVD 88



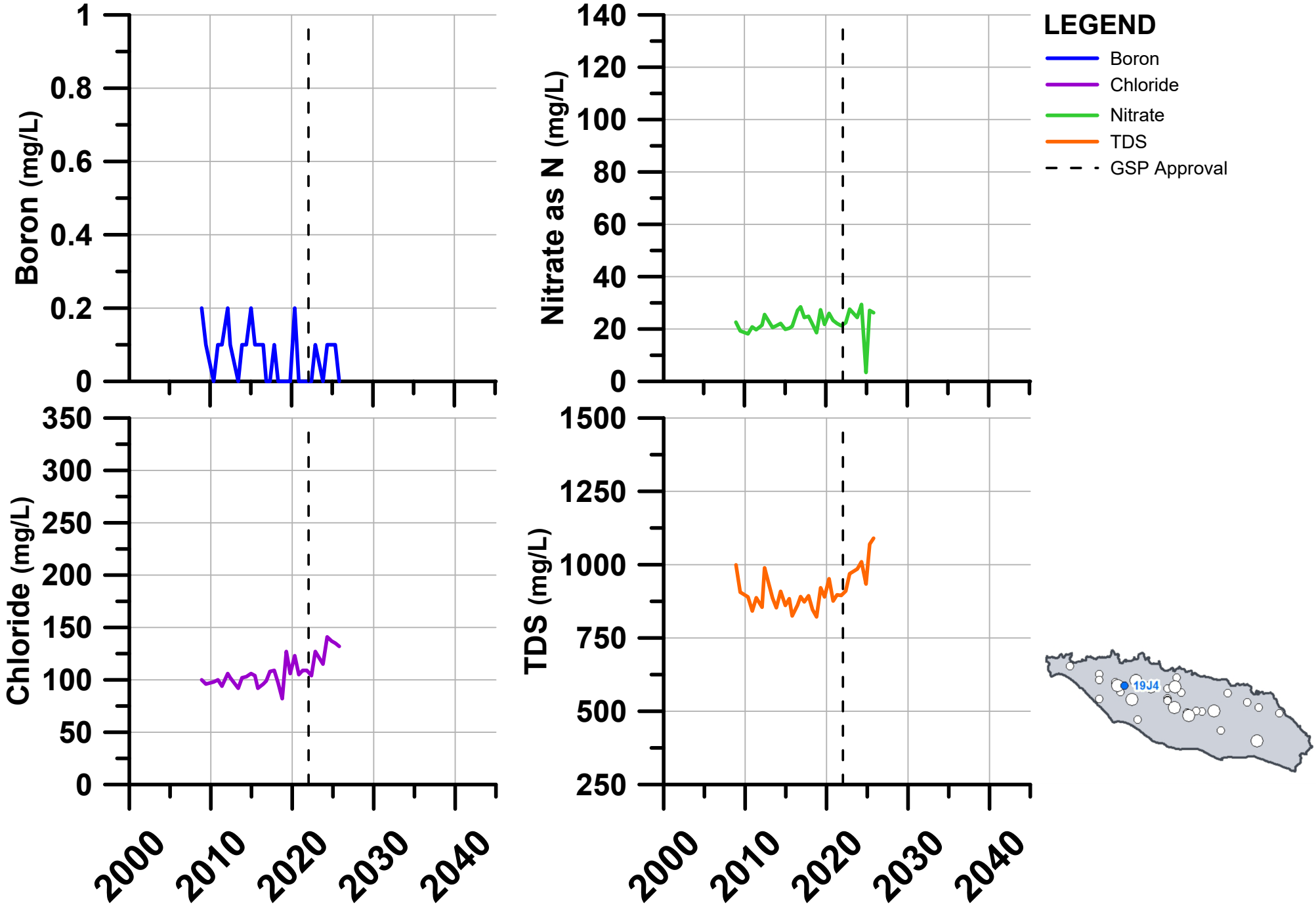
4N/25W - 19E1

Well Depth: 600 ft Ground Elevation: 78 ft NAVD 88



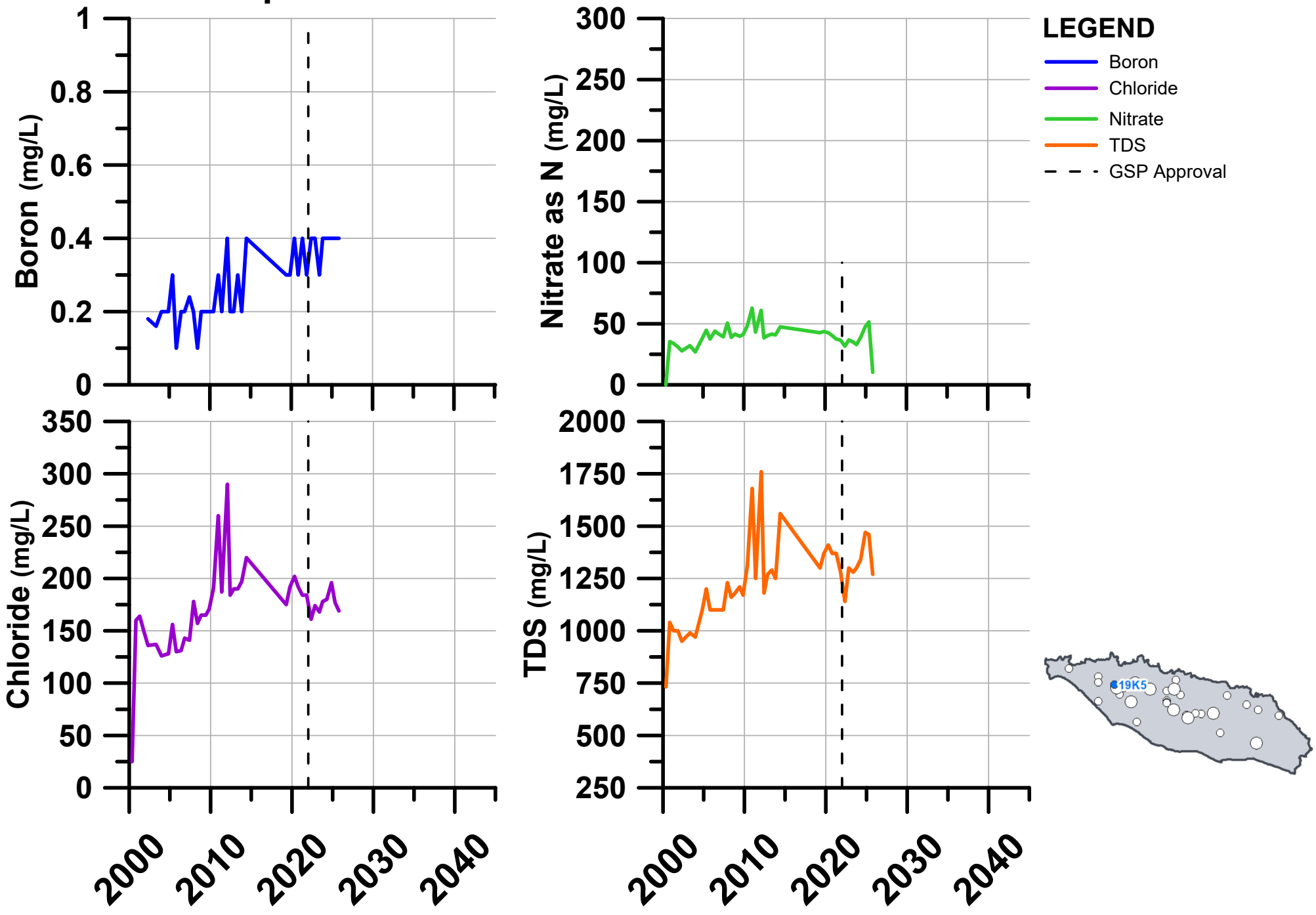
4N/25W - 19J4

Well Depth: 150 ft Ground Elevation: 58 ft NAVD 88



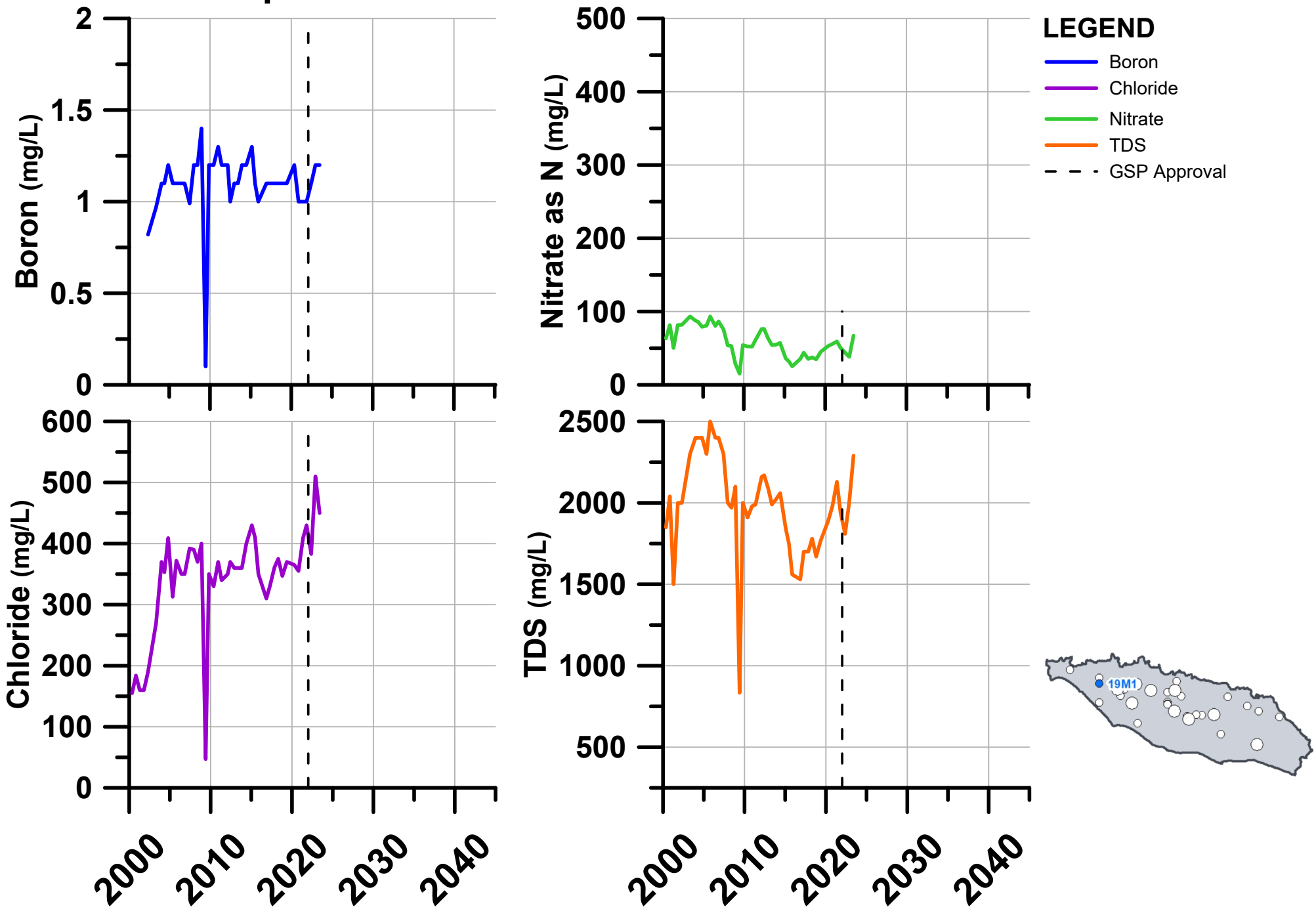
4N/25W - 19K5

Well Depth: 98 ft Ground Elevation: 41 ft NAVD 88



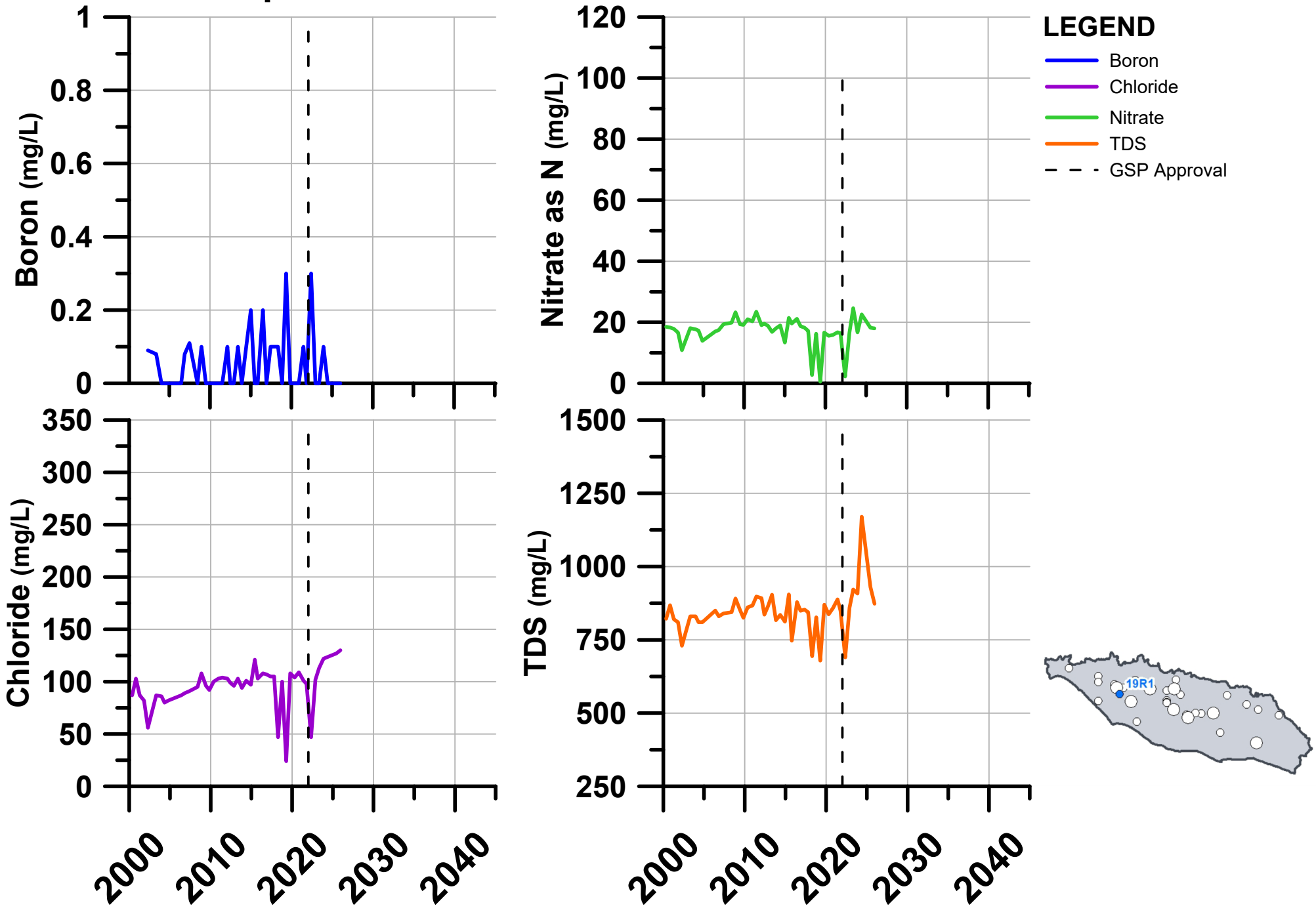
4N/25W - 19M1

Well Depth: 204 ft Ground Elevation: 58 ft NAVD 88



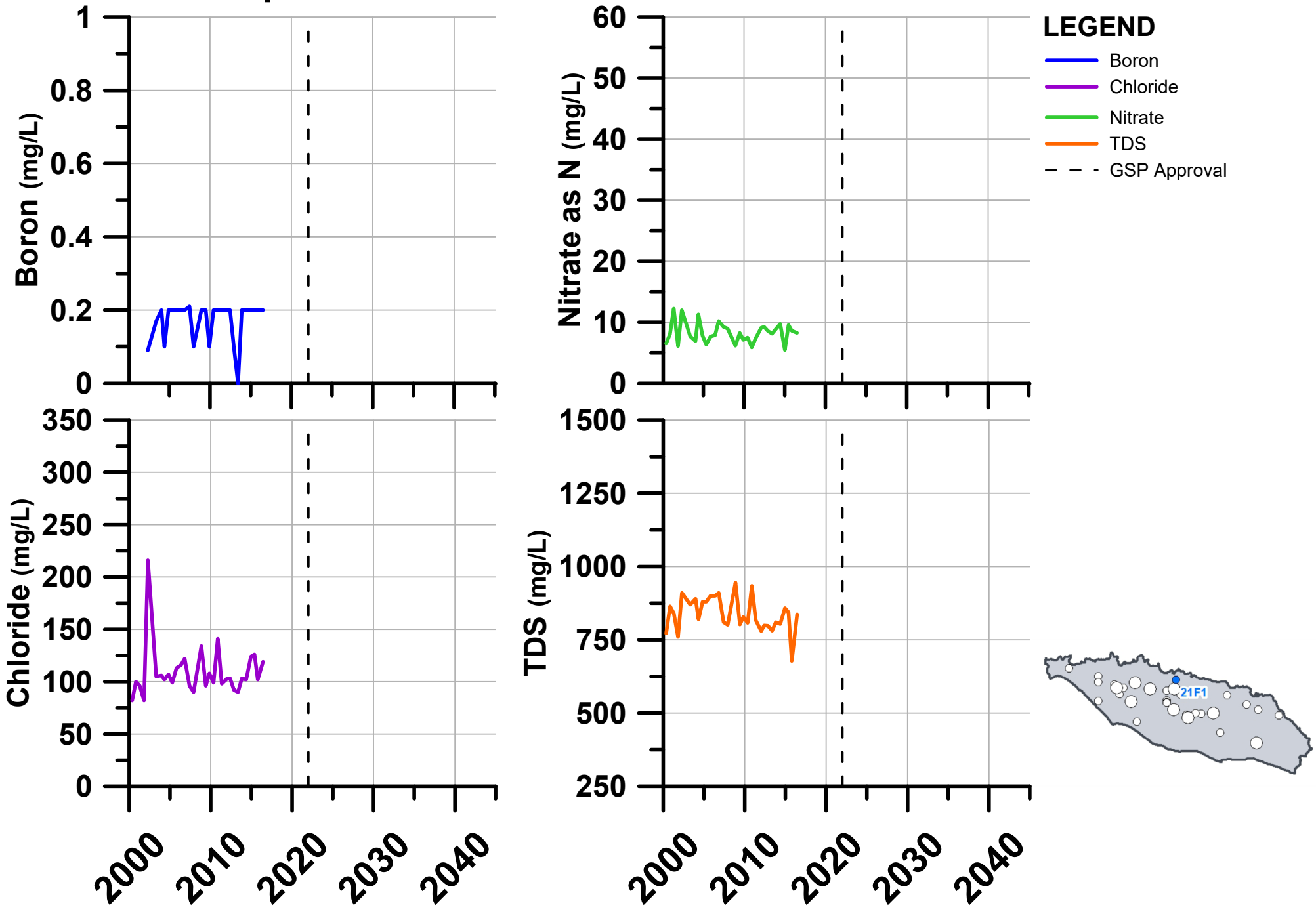
4N/25W - 19R1

Well Depth: 146 ft Ground Elevation: 30 ft NAVD 88



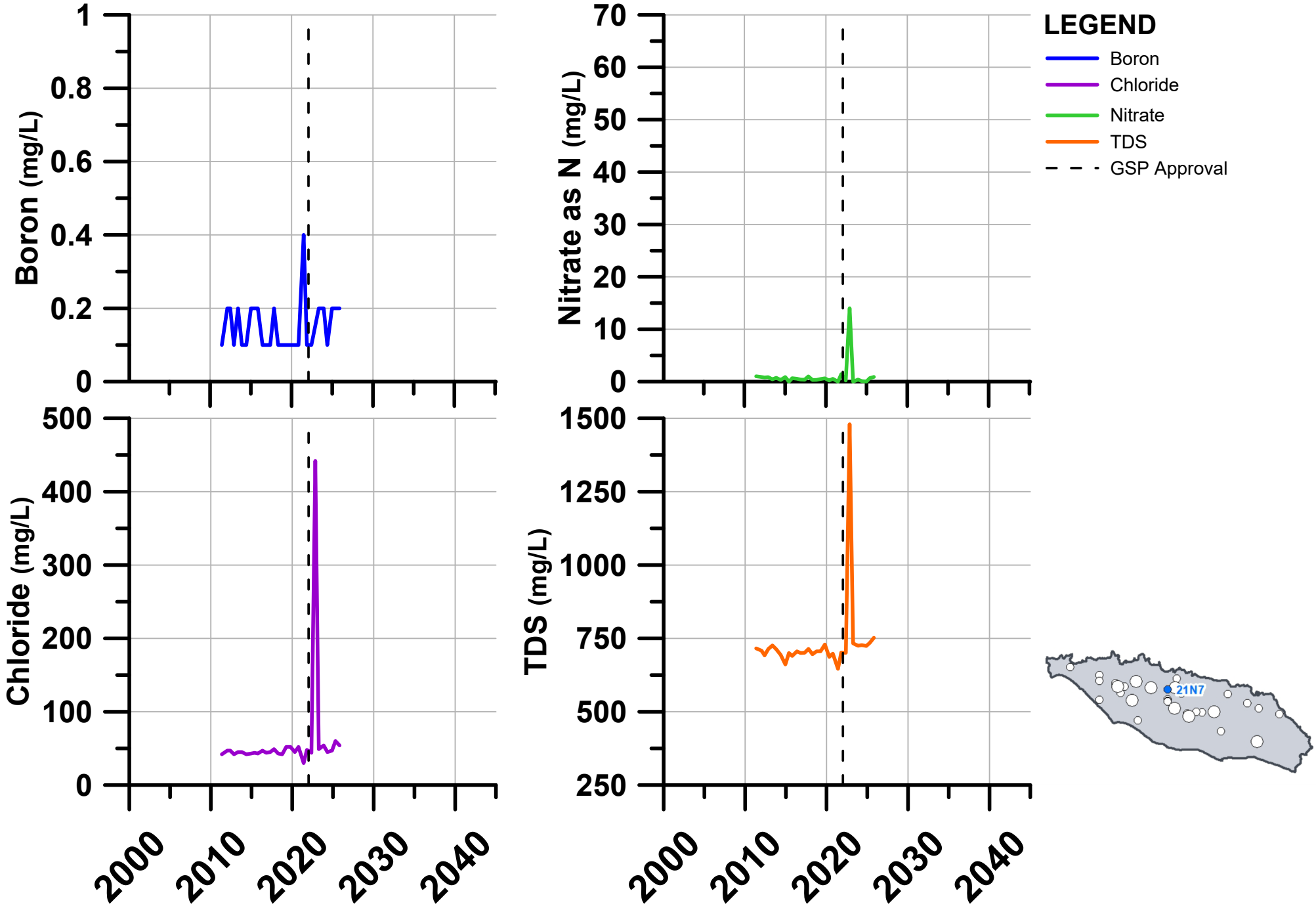
4N/25W - 21F1

Well Depth: 450 ft Ground Elevation: 118 ft NAVD 88



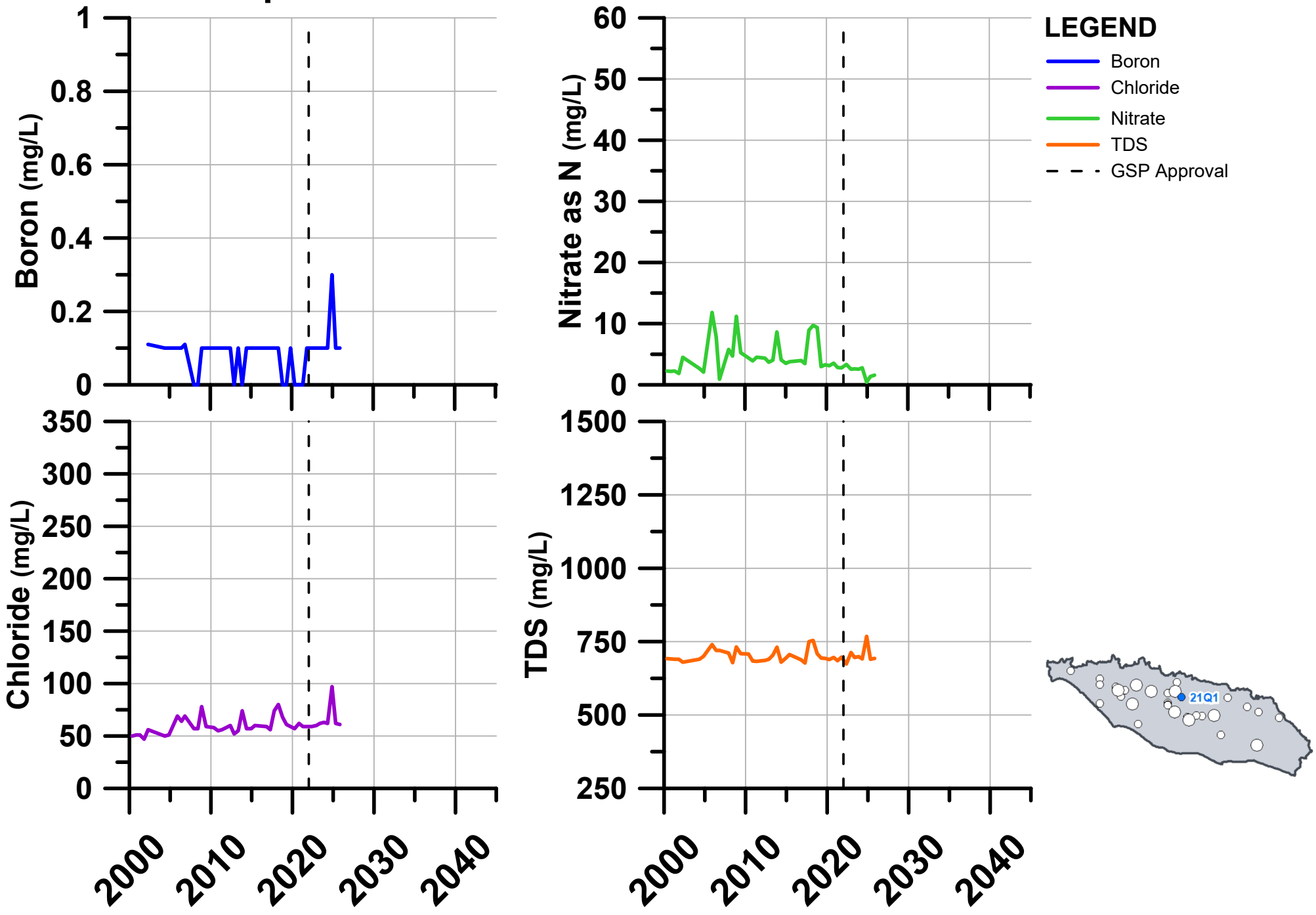
4N/25W - 21N7

Well Depth: 875 ft Ground Elevation: 58 ft NAVD 88



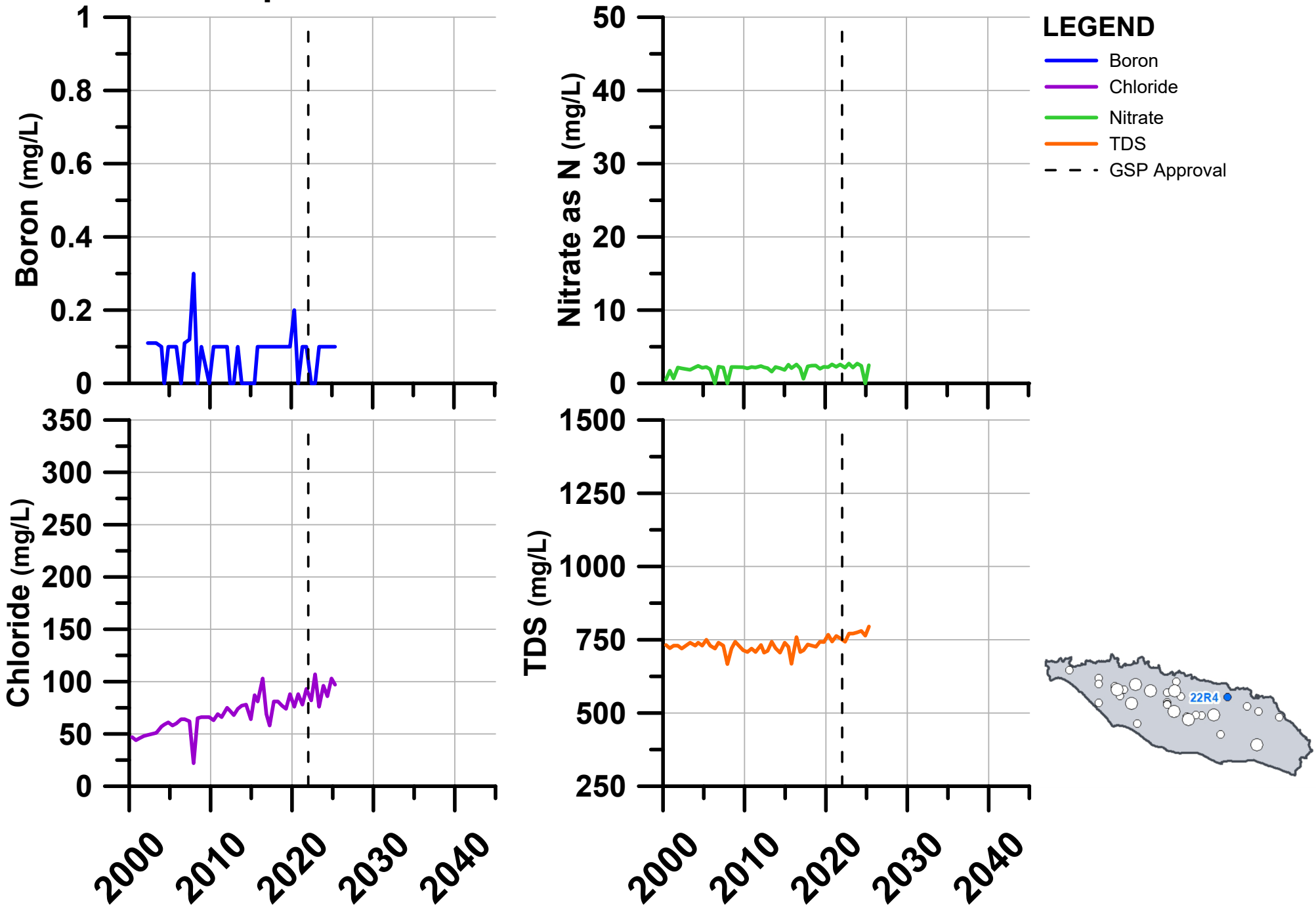
4N/25W - 21Q1

Well Depth: 740 ft Ground Elevation: 78 ft NAVD 88



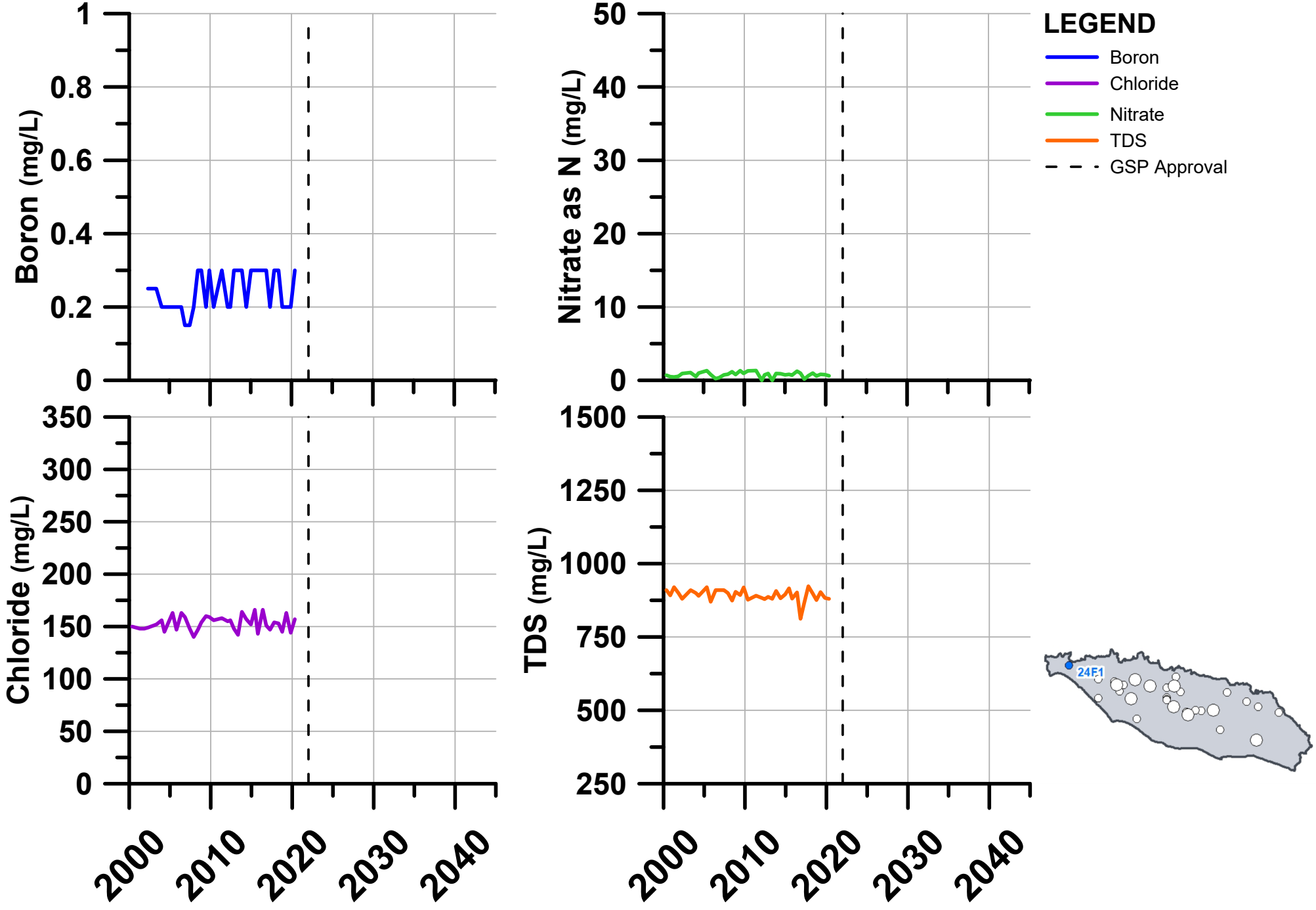
4N/25W - 22R4

Well Depth: 504 ft Ground Elevation: 219 ft NAVD 88



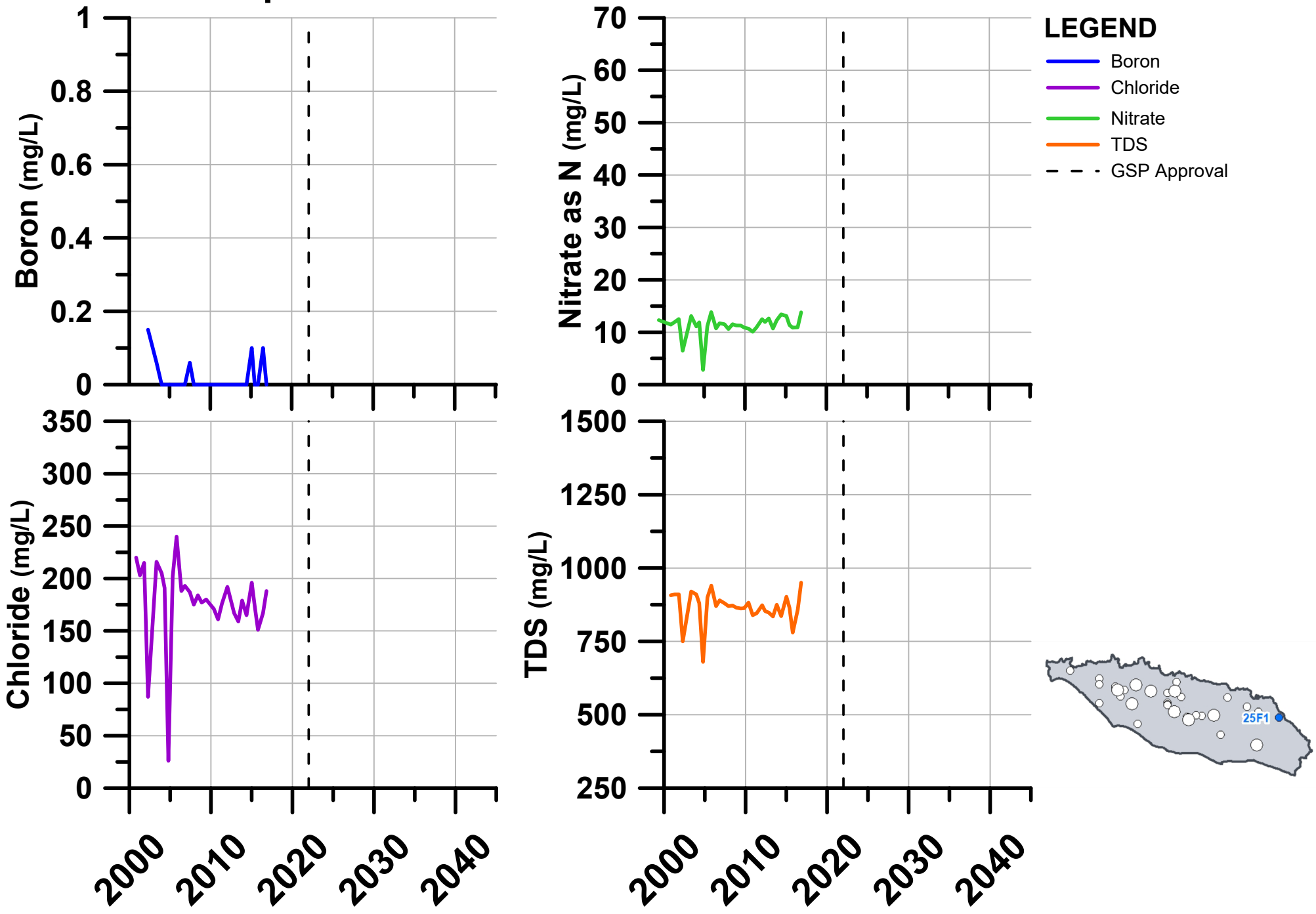
4N/25W - 24F1

Well Depth: 146 ft Ground Elevation: 54 ft NAVD 88



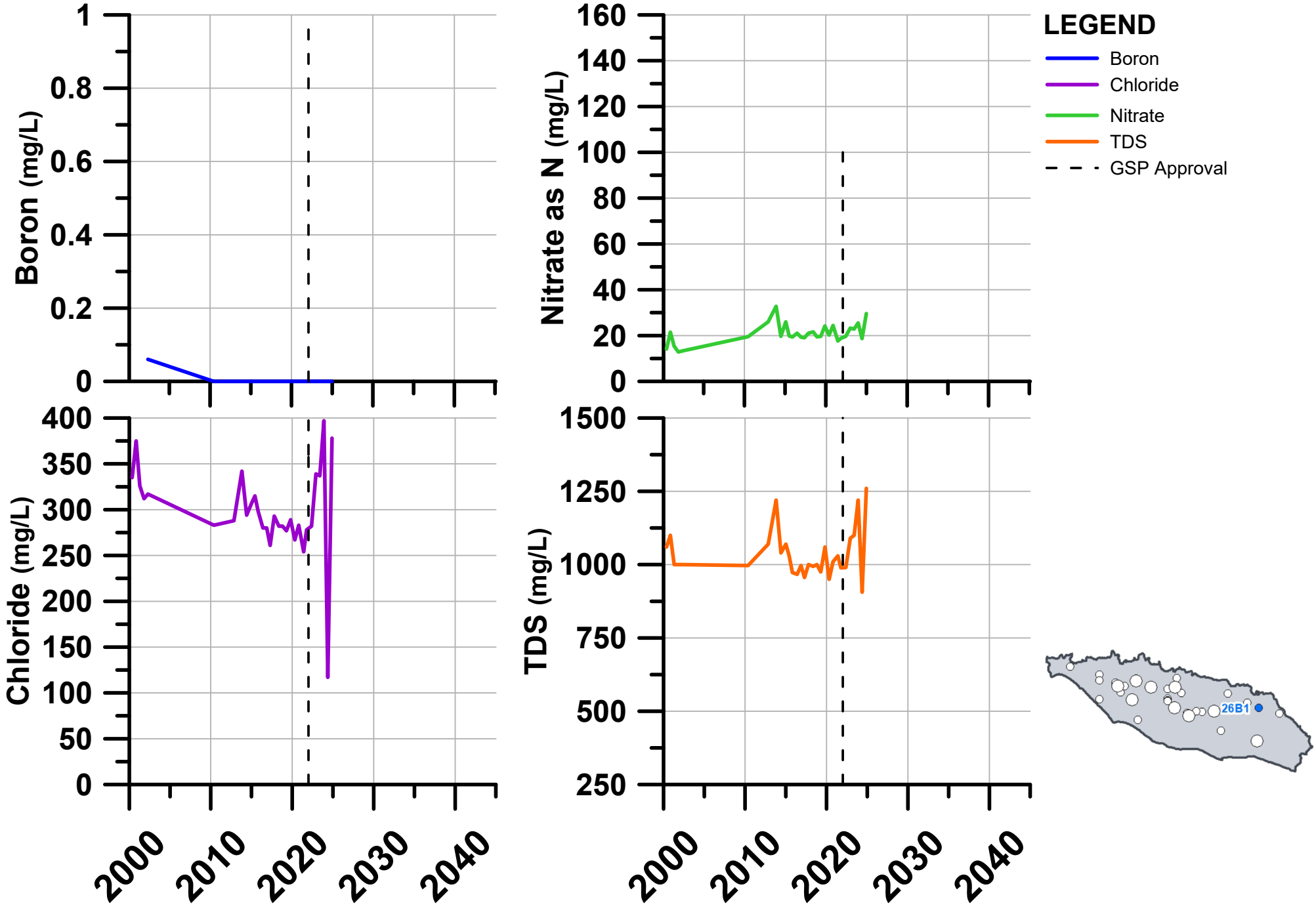
4N/25W - 25F1

Well Depth: 800 ft Ground Elevation: 300 ft NAVD 88



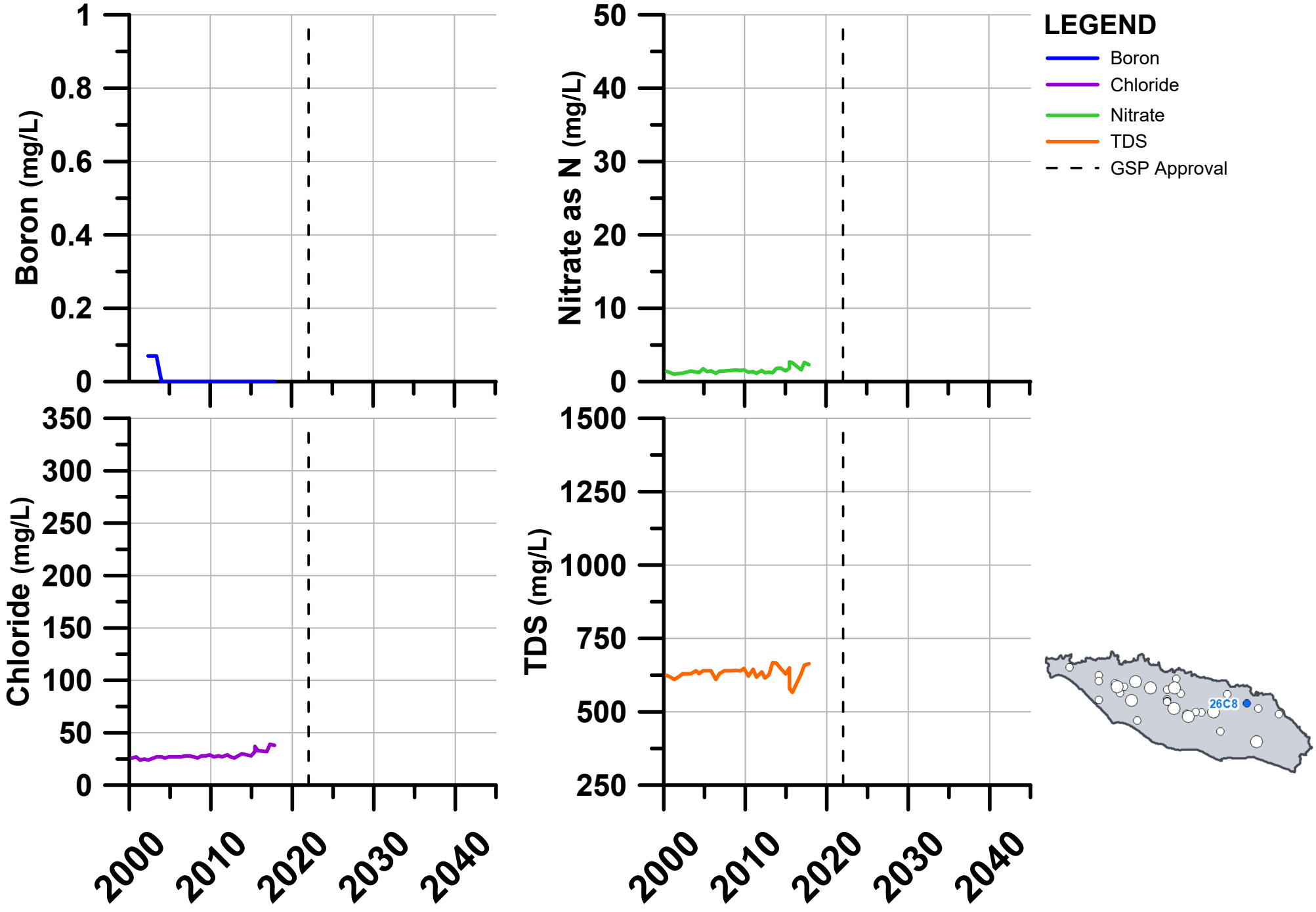
4N/25W - 26B1

Well Depth: 552 ft Ground Elevation: 457 ft NAVD 88



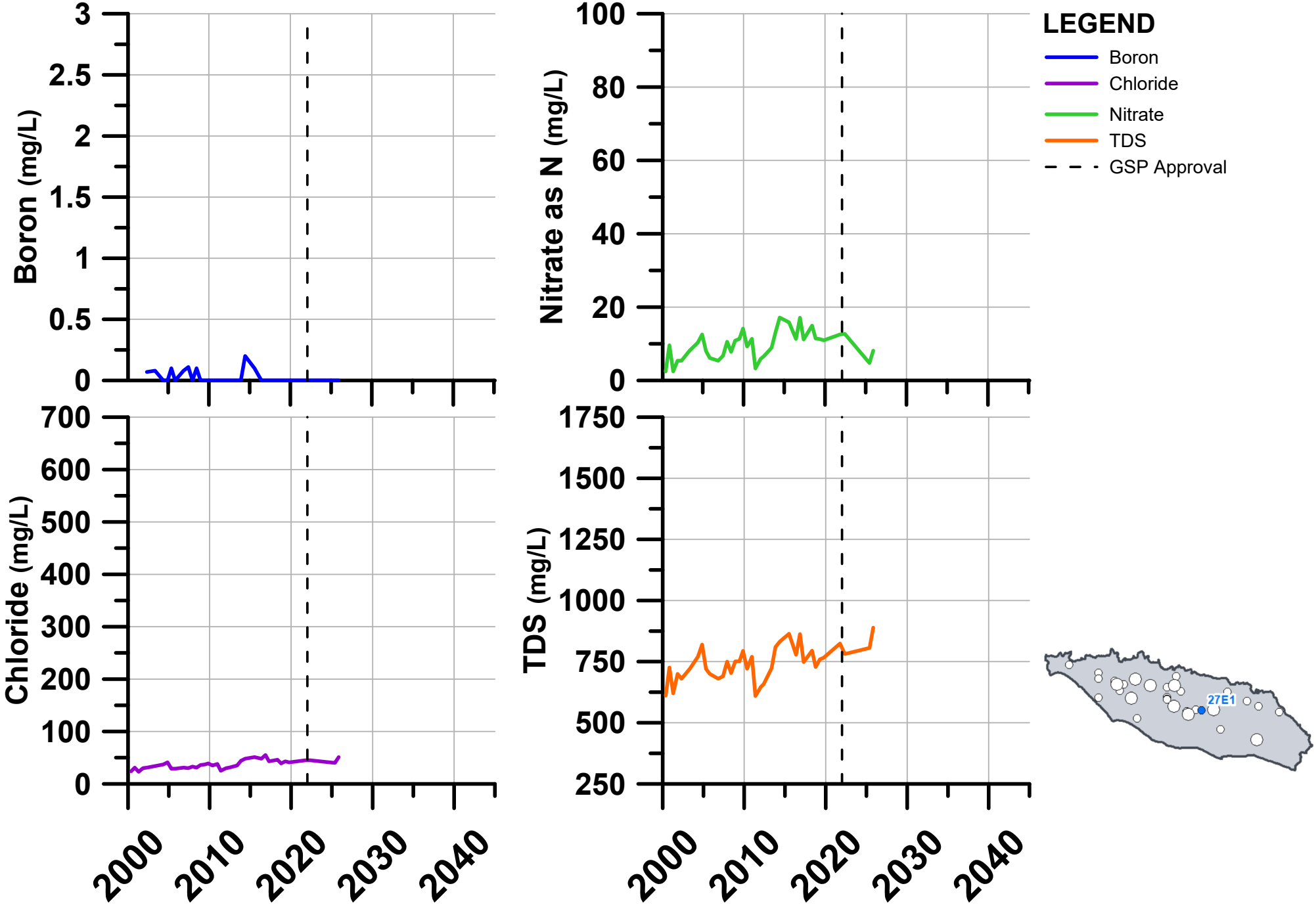
4N/25W - 26C8

Well Depth: 360 ft Ground Elevation: 269 ft NAVD 88



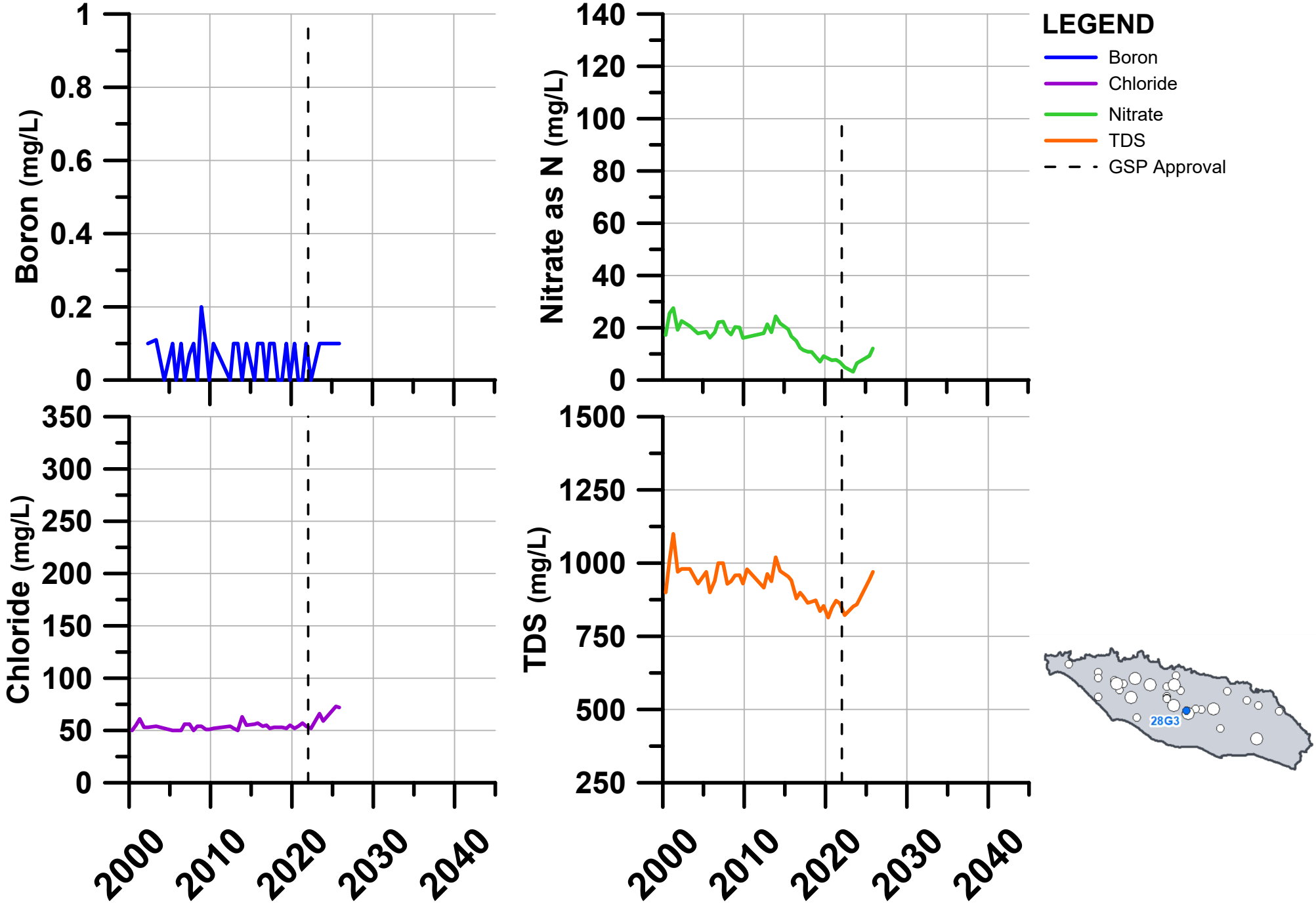
4N/25W - 27E1

Well Depth: ft Ground Elevation: ft NAVD 88



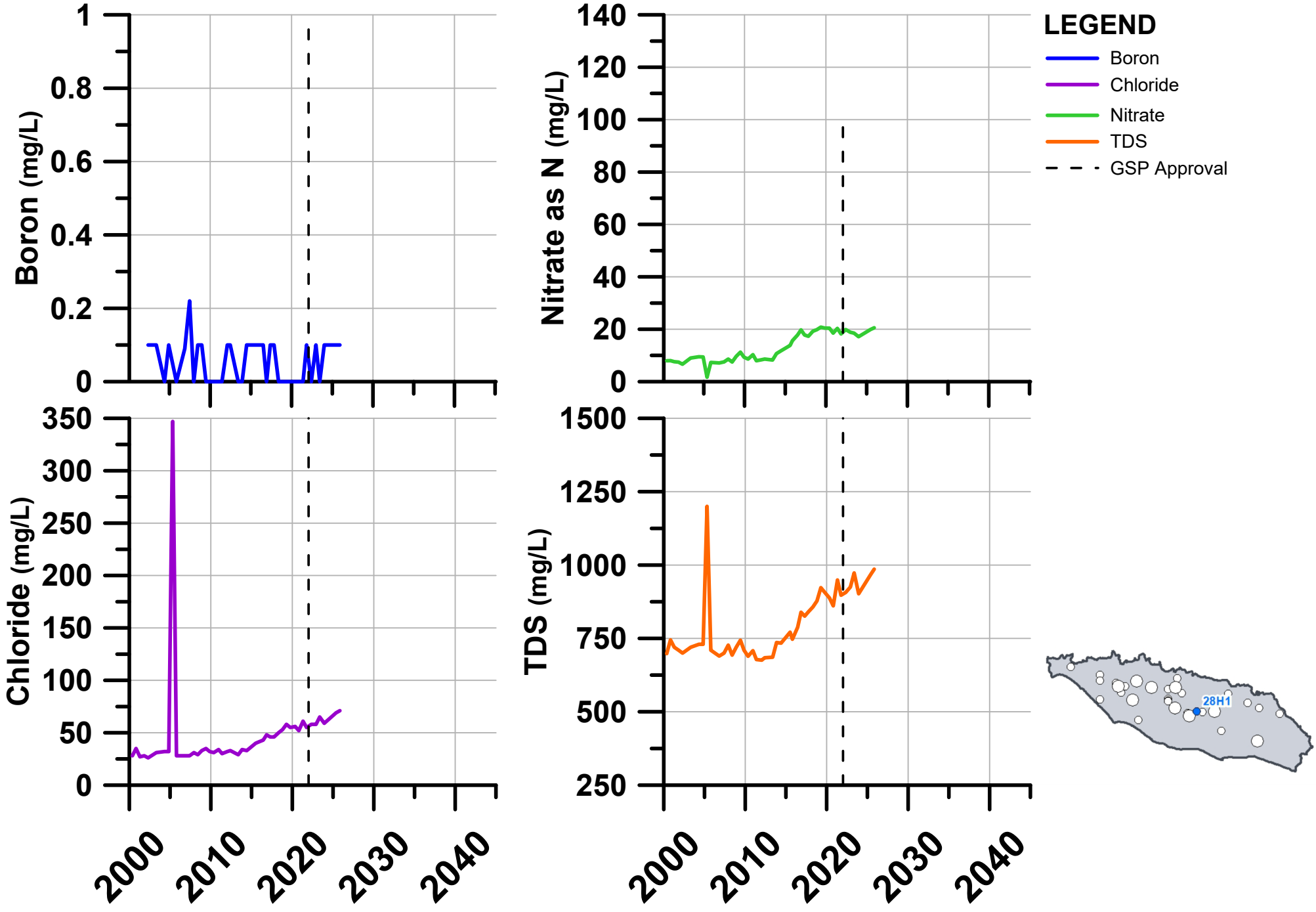
4N/25W - 28G3

Well Depth: 300 ft Ground Elevation: 88 ft NAVD 88



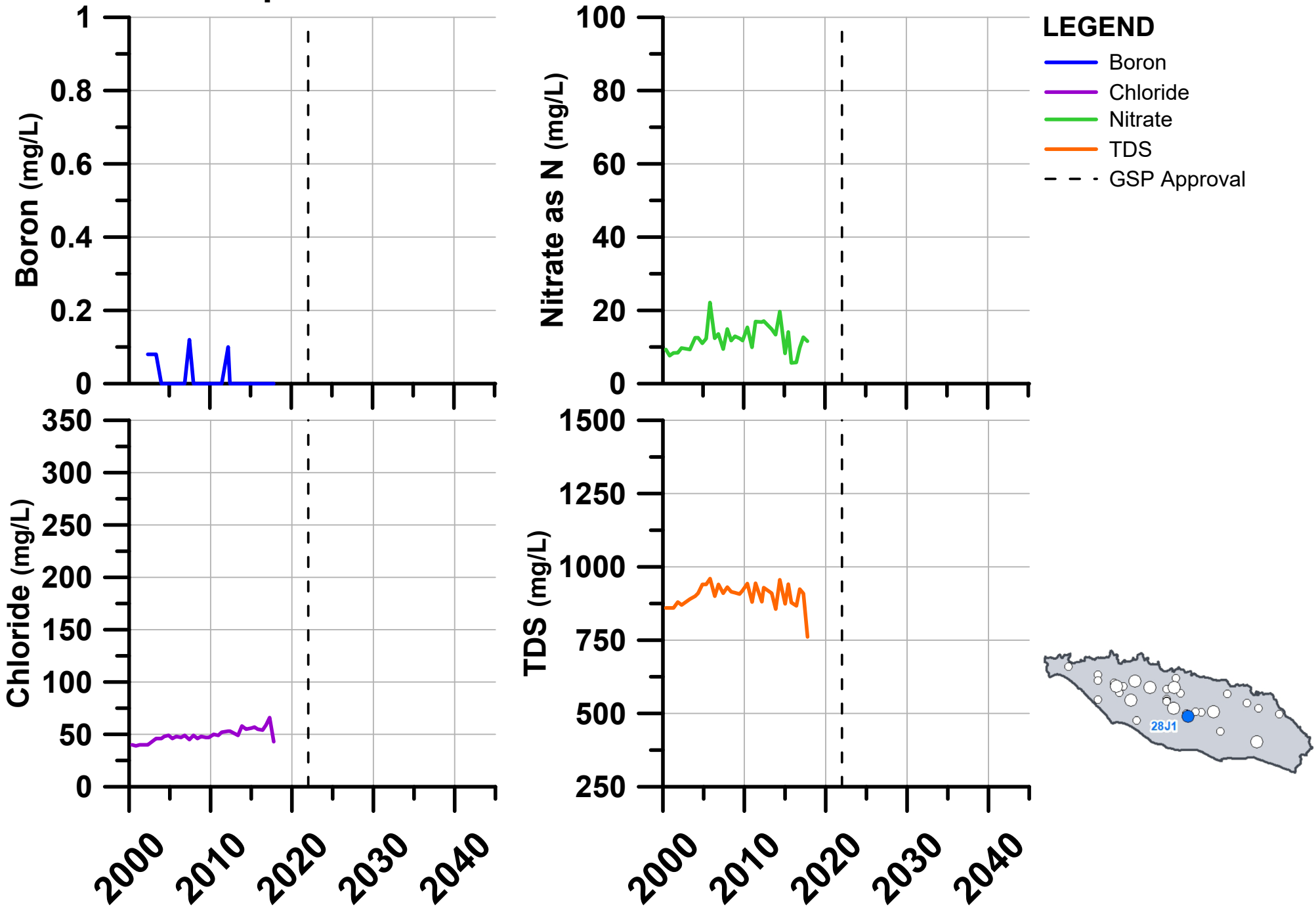
4N/25W - 28H1

Well Depth: 500 ft Ground Elevation: 109 ft NAVD 88



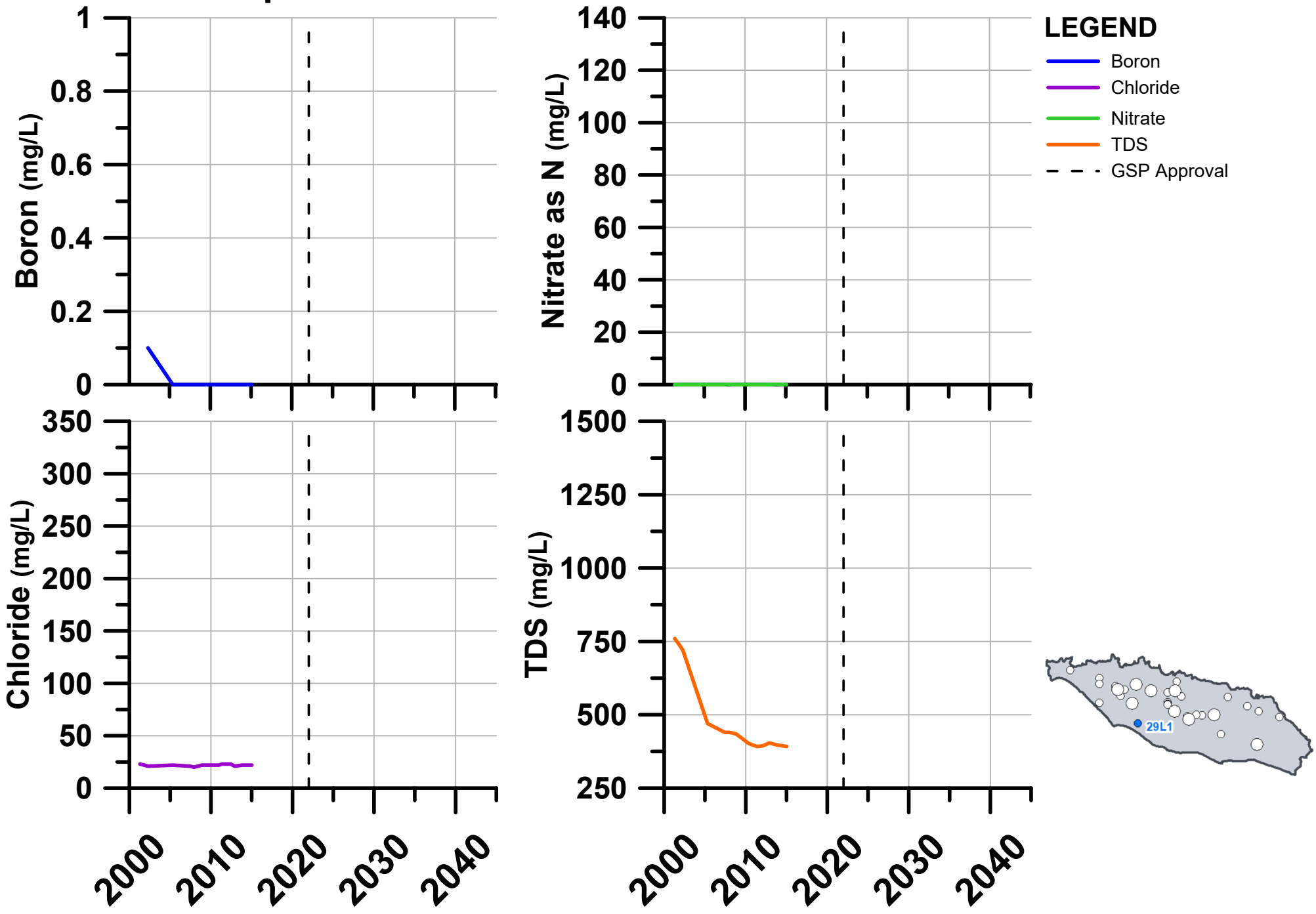
4N/25W - 28J1

Well Depth: 175 ft Ground Elevation: 103 ft NAVD 88



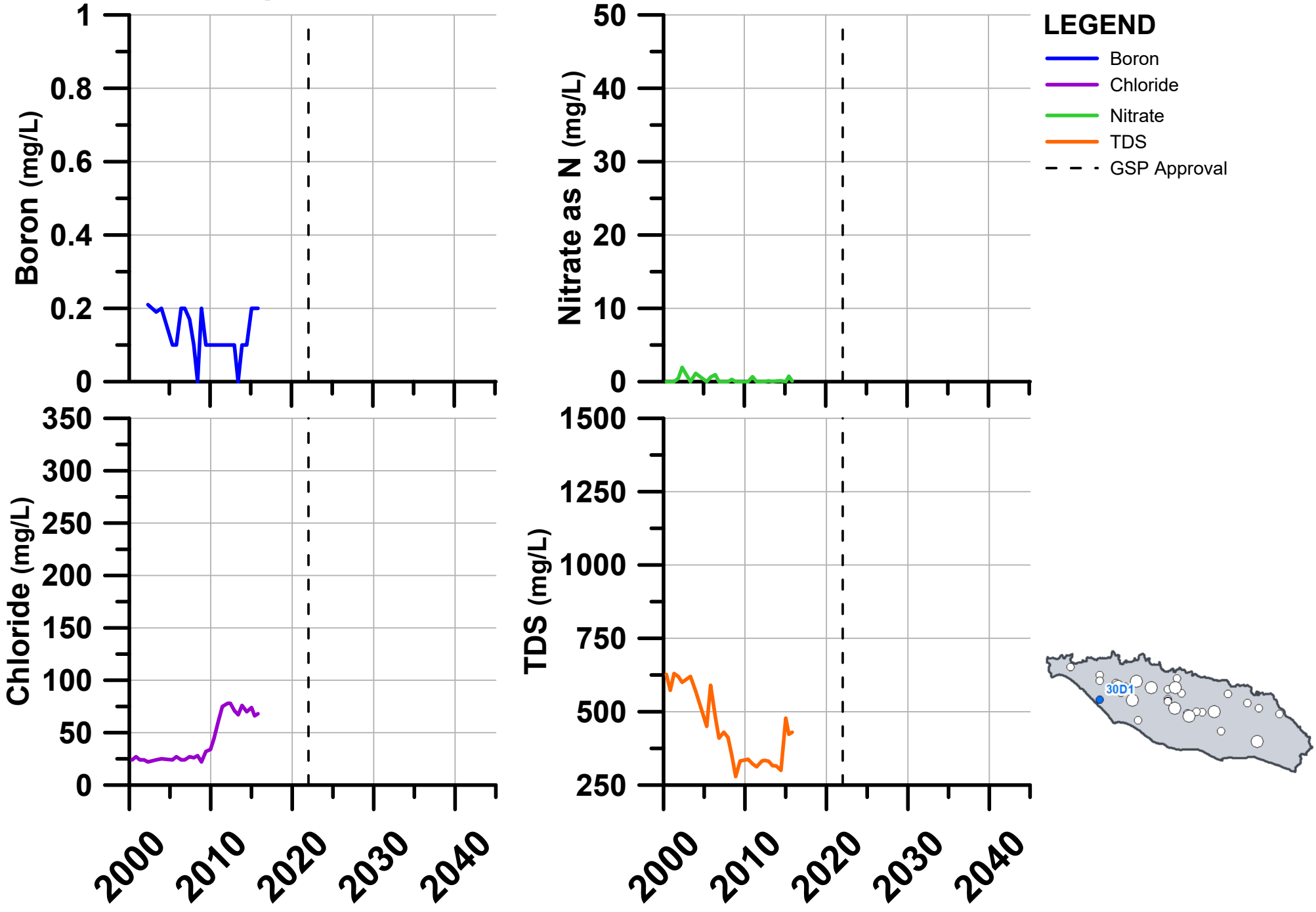
4N/25W - 29L1

Well Depth: 110 ft Ground Elevation: 14 ft NAVD 88



4N/25W - 30D1

Well Depth: 210 ft Ground Elevation: 8 ft NAVD 88



4N/25W - 34B4

Well Depth: 408 ft Ground Elevation: 139 ft NAVD 88

