

South American Subbasin Groundwater Sustainability Plan

Fourth Annual Report, Water Year 2024

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Submitted by:

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SOUTH AMERICAN SUBBASIN GSP - ANNUAL REPORT

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Executive Summary

California Water Code (CWC) §356.2 requires the submission of an annual report to DWR by April 1 of each year following the adoption of the Groundwater Sustainability Plan (GSP). This report is the fourth annual report submitted to DWR following GSP submission and provides an update on basin conditions and plan implementation progress within the South American Subbasin (SASb) for Water Year 2024 (October 1, 2023 – September 30, 2024). The report is prepared on behalf of six GSAs covering the South American Subbasin; the Sacramento Central Groundwater Authority (SCGA), Omochumne Hartnell Water District (OHWD), Sacramento County GSA (Sac Co GSA), Northern Delta GSA, Sloughhouse Resource Conservation District (SRCD) GSA and Reclamation District 551 (RD 551) GSA.

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

The Sustainability Goal of the Basin is to protect and ensure the long-term viability of groundwater resources for domestic, urban, agricultural, industrial, and environmental beneficial users of groundwater. The Sustainability Goal will be achieved by rigorous assessment of potential impacts to these beneficial users, and scientifically-informed management that avoids significant and unreasonable impacts to beneficial uses and users of groundwater.

This is demonstrated by an analysis of potential impacts to all beneficial users of groundwater, including, but not limited to, water supply entities, shallow well users, interconnected surface waters, and groundwater dependent ecosystems assuming a moderate warming climate change scenario and projected groundwater use. Results suggest that if 100% of the 45 Representative Monitoring Points (RMP) in the SASb simultaneously reached groundwater level minimum thresholds (MTs), less than 5% of wells would be impacted, less than 5% of interconnected surface water reach length would be impacted, and less than 5% of groundwater dependent ecosystem area would be impacted (Section 3.2, Section 3.3, and Appendices 3A-3C of the adopted SASb GSP; SASb, 2021). Thus, groundwater level MTs developed for the SASb GSP conservatively protect against impacts to beneficial users of groundwater within a reasonable margin of safety, and the maintenance of groundwater levels above MTs strongly indicates the avoidance of impacts to all beneficial users.

Importantly, measured data in the 2024 water year do not indicate the occurrence of significant undesirable results in the SASb (Table ES-1).

The remainder of the Executive Summary presents key metrics for water year 2024, including groundwater level data, groundwater quality data, land subsidence data, estimated water use, estimated groundwater use, estimated groundwater storage change, and progress on Plan Implementation regarding projects and management actions. In the sections and appendices that follow the Executive Summary, each key metric is discussed in detail.

It is noted that water years 2021 and 2022 were critically dry. The lack of rainfall and decreased availability of surface water during critically dry periods resulted in lower groundwater levels due to decreased natural recharge, and increased groundwater pumping. Water year 2023 was a wet year and water year 2024 is assumed to be above normal while waiting for DWR to publish a final 2024 value. Relatively low groundwater extractions and relatively high recharge into the aquifer during these years resulted in higher groundwater levels and increased groundwater storage.

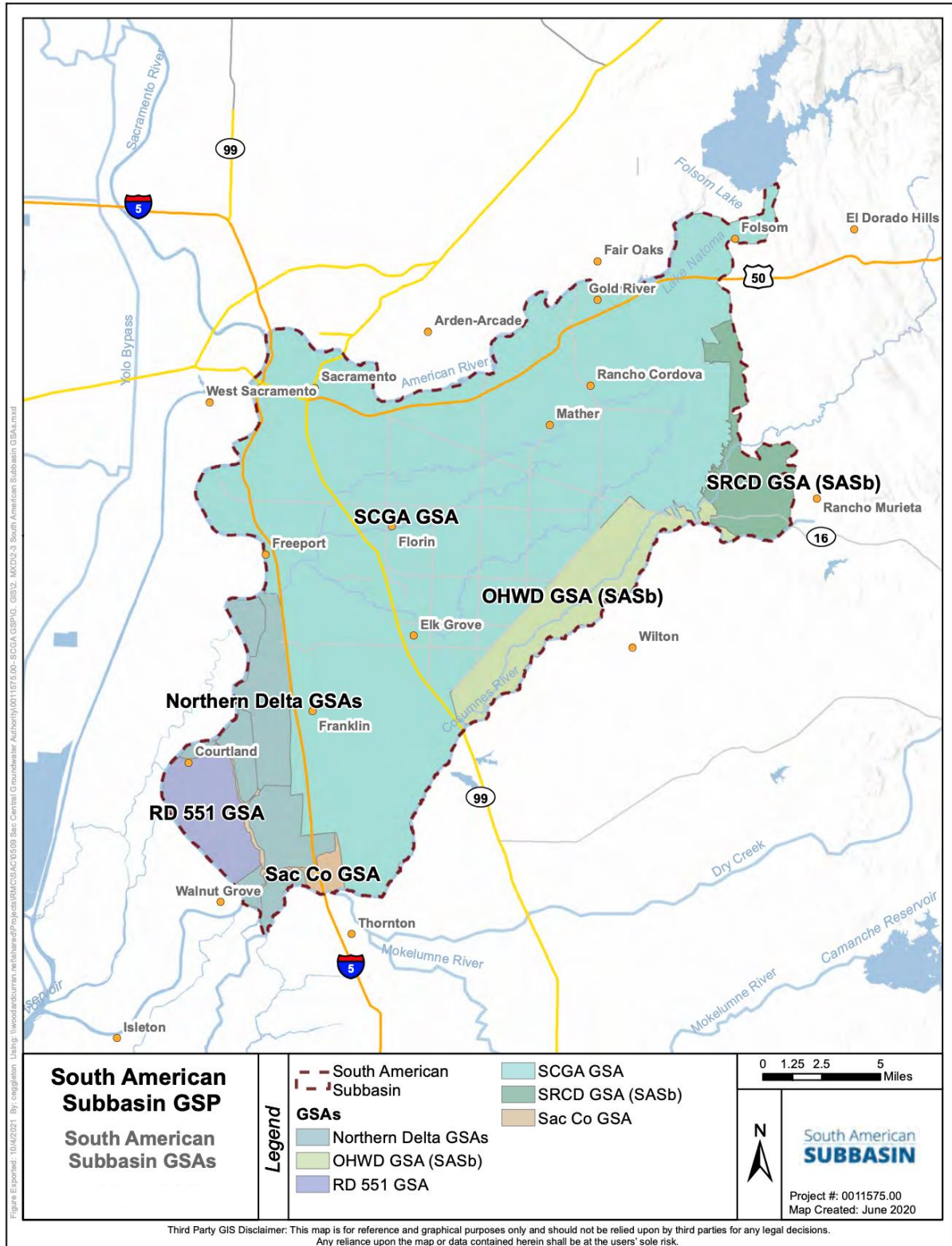


Figure ES-1: South American Subbasin and its six GSAs in Sacramento County, California

Table ES-1: Summary of Sustainable Management Criteria

Sustainability Indicator	Minimum Threshold (MT)	Measurable Objective (MO)	Occurrence of Undesirable Results	Water Year 2024 Annual Report Status
Groundwater Levels	Set at historical minimum elevations to protect sensitive uses and users and avoid undesirable results.	Average groundwater levels observed from January 2015 to June 2021. MOs are higher in the Harvest Water area to account for recharge over time.	More than 25% of representative monitoring wells fall below MTs for three consecutive years.	<u>No occurrence of undesirable results</u>
Groundwater Storage	Groundwater levels used as a proxy for this sustainability indicator.			<u>No occurrence of undesirable results</u>
Seawater Intrusion	This sustainability indicator is not applicable in the SASb.			
Degraded Groundwater Quality	Nitrate = 10 mg/L Specific Conductance = 1600 micromhos/cm	Maintain concentration at each RMP below the maximum concentration observed at the RMP prior to May 2020. No MO shall exceed 90% of the MT (9 mg/L for nitrate, 1440 micromhos/cm for specific conductance).	More than 2 RMPs exceeding the MT for Nitrate or for Specific Conductance.	<u>No occurrence of undesirable results</u>
Land Subsidence	No more than 0.1 foot in any single year and a cumulative 0.5 foot in any five-year period, resulting in no long-term permanent subsidence.	Maintain current ground surface elevations	When subsidence substantially interferes with beneficial users of groundwater and surface land uses.	<u>No occurrence of undesirable results</u>
Depletions of Inter-connected Surface Waters	Groundwater levels used as a proxy for this sustainability indicator.			<u>No occurrence of undesirable results</u>

Groundwater Levels

Measured groundwater levels in the 2024 water year were above MTs in 93% of RMPs and do not indicate the occurrence of undesirable results (**Section 2.1**). Fall 2024 groundwater levels were compared to minimum thresholds, measurable objectives, and 2027 milestones. The measurement taken on the date closest to September 30, 2024 (the end of the 2024 water year) was used for each well. For wells with continuous measurements on telemetry, the average of the groundwater levels recorded for the month of October was used. Groundwater levels stayed above MTs in 93% of measured RMPs; thus 7% of measured RMPs were below MTs. This frequency of wells below MTs avoids the identification of undesirable results defined in the GSP (25% of wells below MTs for three consecutive years) and, by extension, avoids significant and unreasonable impacts to domestic, urban, agricultural, and industrial groundwater users. Groundwater levels in measured RMPs for interconnected surface water (ISW) stayed above MTs in 89% of RMPs; thus only one measured ISW RMP (11%) was below a MT, which avoids the occurrence of significant and unreasonable impacts to ISW.

Water Use and Groundwater Budget

Total groundwater extractions for the 2024 water year are estimated to be 178,000 AF (**Section 2.2**), while surface water diversions are estimated to be 138,300 AF (**Section 2.3**). Total water use is estimated to be 316,200 AF, and total water use by water use sector (which does not include remediation water) is estimated to be 287,900 AF (**Section 2.4**). The CoSANA model was used to develop a water budget for the basin to estimate the change in storage of the SASb during water year 2024. As expected since water year 2024 was an above normal year, the estimate of basin storage increased about 29,800 AF during the water year (**Section 2.5**). During the 30-year period from 1995-2024, there has been an estimated cumulative increase in groundwater storage of 171,200 AF, reflecting an average annual increase of about 5,700 AF per year.

Land Subsidence

Land subsidence was measured by satellite data (i.e., InSAR) and found to be negligible (**Section 2.6**). Estimated land subsidence was within instrument error, and is not a cause for concern. These findings are consistent with the relatively stable groundwater levels observed in the 2024 water year, and with the historical record.

Groundwater Quality

Groundwater quality SMCs are defined for nitrate and specific conductance. Measured groundwater concentrations during water year 2024 are presented in **Section 2.7** and do not indicate the occurrence of undesirable results (greater than two wells with exceedances for either nitrate or specific conductance). One RMP exceeded the MT for specific conductance, and no RMPs exceeded the MT for nitrate.

Plan Implementation Progress

Progress continues in the implementation of the GSP. Harvest Water remains on schedule to complete construction in 2026 and begin delivering recycled water to growers by 2027. OHWD was previously granted a five-year temporary groundwater recharge permit through the State Water Board, and in water year 2024 recharged 343.7 acre-feet from the Cosumnes River to the Subbasin. Outreach and communication with stakeholders continues, and the Domestic Well

Advisory Group (DWAG) focused on collecting groundwater level measurements from volunteers and continuing to improve the domestic well inventory. Additionally, the GSAs collaborated with the DWAG and the Volunteer Monitoring Program (VMP) to evaluate data quality and to further coordinate on monitoring and reporting to support GSP implementation.

1 Introduction

The South American Subbasin (SASb, or basin) Groundwater Sustainability Plan (GSP or Plan) was adopted in November and December of 2021 by six Groundwater Sustainability Agencies (GSAs) formed in accordance with the Sustainable Groundwater Management Act (SGMA) of 2014. The GSAs were formed to coordinate, develop, and implement a GSP for the South American Subbasin (DWR Subbasin No. 5-012.01). The GSP was submitted to the California Department of Water Resources (DWR) on January 27, 2022, ahead of the January 31, 2022 deadline for high and medium priority basins.

California Water Code (CWC) §356.2 requires the submission of an annual report to DWR by April 1 of each year following the adoption of the GSP. This report is the fourth annual report submitted to DWR following submission of the GSP and provides an update on basin conditions and initial plan implementation progress within the SASb for Water Year 2024 (October 1, 2023 – September 30, 2024). CWC §356.2 requires annual reports to include general information about the SASb and GSP, groundwater elevation data (contour maps and hydrographs), groundwater extraction, surface water supply, changes in groundwater storage, and a description of progress towards implementation of the GSP since the end of the study period for the previous annual report.

The annual report production schedule follows the completion of the preceding water year:

- September 30: end of water year for upcoming reporting period
- October 1 – November 15 (1.5 months): input preceding water year data into the Data Management System (DMS)
- November – February (4 months): produce draft report
- March (1 month): review and finalize report
- April 1: submit finalized report to DWR

GSAs implement the annual reporting process by collecting groundwater data, coordinating and communicating with stakeholders and the public, and overseeing the monitoring, modeling, and sustainable management criteria (SMC) tracking that informs annual reporting. GSAs are also responsible for broader SGMA implementation.

Fundamentally, the Annual Report serves as an annual touchpoint and progress report to survey groundwater conditions across the basin, evaluate conditions against sustainable management criteria, summarize implementation activities, and communicate findings with state agencies, member agencies, and the public. It is noted that data relevant to the production of the GSP, and key metrics such as water level and groundwater quality, are available on the basin's data management system (DMS)¹.

¹ <https://opti.woodardcurran.com/southamericansubbasin/main.php>

2 Basin Conditions

2.1 Groundwater Elevations

The SASb GSP defines Sustainable Management Criteria with respect to quantifiable impacts to beneficial users of groundwater that if exceeded, would lead to the occurrence of undesirable results. The SASb GSP focuses on three classes of sensitive groundwater users – shallow wells, interconnected surface waters, and groundwater dependent ecosystems – in three technical appendices. Modeling results suggested that if 100% of the 45 RMPs in the SASb simultaneously reached groundwater level MTs, less than 5% of wells would be impacted, less than 5% of interconnected surface water reach length would be impacted, and less than 5% of groundwater dependent ecosystem area would be impacted (Section 3.2, Section 3.3, and Appendices 3A-3C; SASb, 2021). Hence, groundwater level MTs developed for the SASb GSP conservatively protect against impacts to all beneficial users of groundwater within a reasonable margin of safety; the maintenance of groundwater levels above MTs is a proxy that strongly indicates the avoidance of impacts to beneficial users.

The groundwater elevation monitoring network is described in Section 3.5.2 of the GSP and is designed to demonstrate groundwater occurrence, level, flow directions, and hydraulic gradients between the principal aquifer and surface water features. The groundwater level monitoring network presented in the GSP included 45 wells; however, two wells were sealed or destroyed in water year 2022, leaving 43 wells as shown in **Figure 2-1**.

Groundwater level data was collected from the following sources:

- Department of Water Resources (DWR)
- Omoichumne-Hartnell Water District (OHWD)
- University of California Davis (UCD)
- Sacramento State University (CSUS)
- Sacramento Central Groundwater Authority (SCGA)
- Aerojet

The intent of comparing fall 2024 groundwater levels to minimum thresholds, measurable objectives, and 2027 milestones is to evaluate the status of groundwater conditions in the SASb. In implementing this approach, the measurement taken on the date closest to September 30, 2024 (the end of the 2024 water year) was used for each well. For wells with continuous measurements on telemetry, the average of the groundwater levels recorded for the month of October was used. Measurements from all 43 RMPs included in this evaluation were collected in October 2024, with the exception of one measurement collected in November 2024. **Table 2-1** provides a comparison of measured groundwater elevations at each monitoring well with minimum thresholds, measurable objectives, and the 2027 interim milestones. **Figure 2-2** displays a map of each RMP measured in fall 2024 and compares the measured groundwater elevation to the RMP's MT. Separate maps for the upper and lower aquifer are provided.

Groundwater levels evaluated for the 2024 water year stayed above MTs in 93% of measured RMPs²; thus 7% of measured RMPs were below MTs, which avoids the occurrence of undesirable results (defined in the GSP as 25% of RMP wells below MTs **for three consecutive years**) and by extension, reflects an absence of significant and unreasonable impacts to domestic, urban,

² 43 of 45 groundwater level and storage RMPs are included in this evaluation, and 40/43 of these RMPs (93%) stayed above MTs.

agricultural, industrial, and environmental beneficial users of groundwater. Of the 43 wells included in this evaluation, 3 were below the minimum threshold and 6 were below the 2027 interim milestone at the time of measurement. All 3 RMPs with water levels below the minimum threshold are in the lower aquifer.

RMP 31, an irrigation well in the lower aquifer zone located on a golf course, had a groundwater level of -23.3 ft. AMSL in October 2024. The RMP's MT is -22 ft. AMSL, and in reviewing the RMP's hydrograph, presented in **Figure 2-4** and in *Appendix A: Groundwater Elevation Hydrographs*, water levels at this well appear to be experiencing a gradual but steady decline since 2005 (with one uncharacteristically high, and likely inaccurate, measurement in December 2017). The water level at this RMP was also below the MT last year, with a measured elevation of -24.3 ft. AMSL in October 2023. This well is near the Aerojet Superfund Site and the GSAs are evaluating if the remediation pumping is impacting this site.

RMP 39, a monitoring well for the Aerojet Superfund Site, had a measured groundwater level of 96.5 ft. AMSL in October 2024, which is below the well's MT of 99 ft. AMSL. The well is in the lower aquifer zone. As shown in **Figure 2-4** and Appendix A, groundwater levels at this well have been relatively consistent but below the MT since April 2022. Groundwater remediation pumping is conducted in the region of the Aerojet Superfund Site. Further evaluation is needed to determine if this remediation pumping impacts water levels at this RMP. If so, a determination needs to be made if this RMP accurately represents water levels in the Subbasin, or if the RMP should be removed from the water level RMP network. The water level at this RMP was also below the MT last year, with a measured elevation of 98.8 ft. AMSL in October 2023.

RMP 42, a monitoring well for the Aerojet Superfund Site, had a measured groundwater level of 100.3 ft. AMSL in October 2024, which is below the well's MT of 102 ft. AMSL. As shown in **Figure 2-4** and Appendix A, groundwater levels at this well declined between 2019 and 2022. The well is part of the interconnected surface water monitoring (ISW) network and is in the lower aquifer zone. Groundwater remediation pumping is conducted in the region of the Aerojet Superfund Site. Further evaluation is needed to determine if this remediation pumping impacts water levels at this RMP. If so, a determination needs to be made if this RMP accurately represents water levels in the Subbasin, or if the RMP should be removed from the water level RMP network. The water level at this RMP was above the MT last year, with a measured elevation of 103.7 ft. AMSL in October 2023.

Groundwater levels in measured RMPs for ISW³ stayed above MTs in 89% of RMPs; thus only one of the measured RMPs was below MTs, which avoids the occurrence of significant and unreasonable impacts to ISW. The recently sealed RMP_37 and the recently destroyed RMP_40 were both ISW RMPs in the GSP. Similar to last year, this Annual Report defines RMP_42 as an ISW well to replace RMP_40, resulting in 9 ISW RMPs as opposed to the original 10. Of the 9 ISW RMPs, one was below the 2027 interim milestone at the time of measurement, and 8 were above. The ISW RMPs are indicated in **Figure 2-1** and **Figure 2-2**.

³ 9 ISW RMP measurements are included as part of this evaluation, and 8/9 (89%) of these RMPs stayed above MTs.

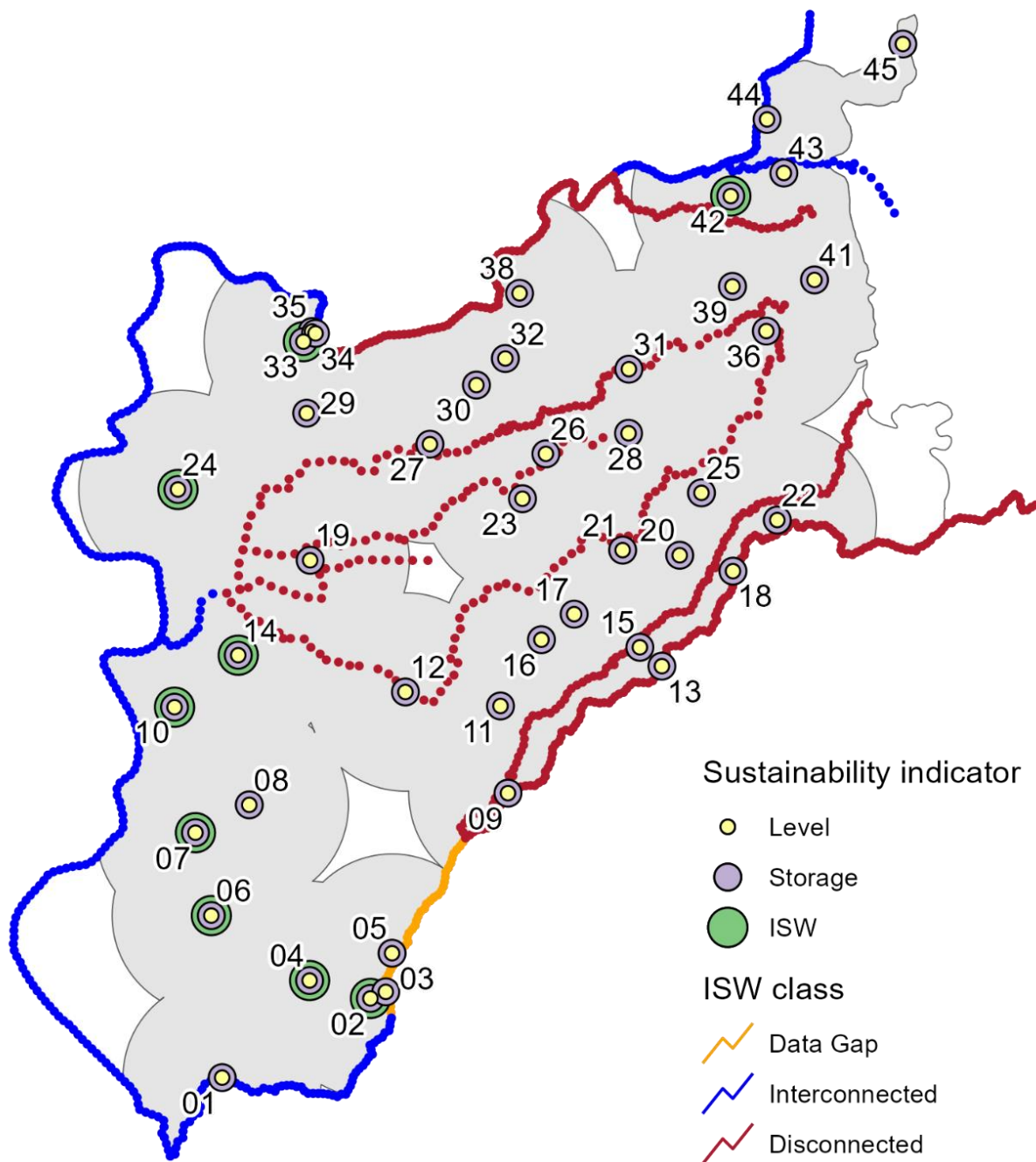


Figure 2-1: Groundwater Levels Monitoring Network (red dots indicate probable disconnected reaches, blue dots indicate probable interconnected reaches). Network coverage is depicted with grey, circular 24.25 square mile buffers around each monitoring point.

Table 2-1: Measured Elevations in Water Year 2024 Compared to Sustainability Criteria and 2027 Interim Milestones

RMP	Aquifer Zone	WY 2024 Date Measured	WY 2024 Measured Elevation (feet amsl)	Minimum Threshold (feet amsl)	Measurable Objective (feet amsl)	Status Compared to MT and MO	2027 Interim Milestone (feet amsl)	Status compared to 2027 IM
01	upper	10/16/2024	7.5	-3	1	Above MO	-2	Above IM
02	upper	10/4/2024	-12.0	-29	12	Above MT	-18	Above IM
03	upper	10/17/2024	-4.8	-14	14	Above MT	-6	Above IM
04	upper	10/16/2024	-16.9	-46	-10	Above MT	-36	Above IM
05	upper	10/17/2024	5.0	-15	31	Above MT	-3	Above IM
06	upper	10/4/2024	-13.9	-28	9	Above MT	-18	Above IM
07	upper	10/25/2024	-8.1	-12	-3	Above MT	-9	Above IM
08	upper	10/16/2024	-15.5	-28	-19	Above MO	-25	Above IM
09	upper	10/15/2024	33.1	-3	26	Above MO	5	Above IM
10	upper	10/16/2024	-6.6	-11	-7	Above MO	-9	Above IM
11	upper	10/18/2024	-17.8	-33	-22	Above MO	-30	Above IM
12	lower	10/16/2024	-28.4	-41	-34	Above MO	-38	Above IM
13	upper	10/15/2024	-23.5	-37	-20	Above MT	-32	Above IM
14	upper	10/16/2024	-8.0	-18	-14	Above MO	-16	Above IM
15	upper	10/15/2024	30.6	-34	31	Above MT	-17	Above IM
16	upper	10/15/2024	-27.1	-42	-33	Above MO	-39	Above IM
17 ⁽²⁾	lower	10/15/2024	-10.8	-47	-38	Above MO	-44	Above IM
18	lower	10/15/2024	14.0	5	10	Above MO	7	Above IM
19	lower	10/16/2024	-10.5	-23	-17	Above MO	-21	Above IM
20	upper	10/15/2024	-8.4	-17	-8	Above MT	-14	Above IM
21	lower	10/16/2024	-18.4	-54	-37	Above MO	-49	Above IM
22	lower	10/15/2024	38.4	14	35	Above MO	20	Above IM
23	upper	10/15/2024	-25.2	-34	-29	Above MO	-32	Above IM
24	upper	10/17/2024	-5.2	-12	-7	Above MO	-10	Above IM
25	lower	10/15/2024	11.4	4	10	Above MO	6	Above IM
26	lower	10/25/2024	-21.8	-34	-28	Above MO	-32	Above IM
27	upper	10/17/2024	-13.0	-50	-34	Above MO	-45	Above IM
28	lower	10/15/2024	-13.5	-21	-14	Above MO	-18	Above IM
29	upper	10/25/2024	-0.3	-5	1	Above MT	-3	Above IM
30	lower	10/15/2024	-11.8	-41	-29	Above MO	-37	Above IM
31	lower	10/25/2024	-23.3	-22	-10	Below MT	-18	Below IM
32	lower	10/16/2024	-4.6	-16	-6	Above MO	-13	Above IM
33	upper	10/29/2024	6.1	-5	-1	Above MO	-3	Above IM
34	upper	11/1/2024	3.8	-6	-1	Above MO	-4	Above IM
35	lower	10/31/2024	4.0	-8	-4	Above MO	-6	Above IM
36	lower	10/15/2024	68.2	68	75	Above MT	71	Below IM
37 ⁽¹⁾	upper	n/a	n/a	1	5	Unknown	3	Unknown
38	upper	10/25/2024	29.4	15	19	Above MO	17	Above IM
39	lower	10/15/2024	96.5	99	105	Below MT	101	Below IM
40 ⁽¹⁾	lower	n/a	n/a	14	48	Unknown	24	Unknown
41	upper	10/16/2024	100.1	90	123	Above MT	99	Above IM
42	lower	10/16/2024	100.3	102	110	Below MT	105	Below IM
43	lower	10/15/2024	198.6	198	206	Above MT	201	Below IM
44	lower	10/15/2024	132.2	130	133	Above MT	132	Above IM
45	lower	10/15/2024	362.7	362	366	Above MT	363	Below IM

1. RMP removed from the network due to the RMP being sealed (RMP_37) or destroyed (RMP_40).

2. It is noted the Fall WY2024 measurement is high in comparison to previous measurements. The October 2023 measurement was -32.6 ft amsl, and the April 2024 measurement was -26.9 ft amsl.

Groundwater elevations measured at RMPs in the 2024 water year are reported as biannual contour maps (i.e., spring and fall levels) and hydrographs. Contour maps provide a regional, spatial snapshot of groundwater levels, whereas hydrographs drill down into representative locations and show data from preceding water years to illustrate long-term trends and dependencies on water year type. Contour maps (**Figure 2-3**) show groundwater elevations across spring and fall seasons, with characteristically slightly higher spring levels compared to fall levels. Wells within a 20-kilometer (12.42 mile) buffer of the SASb boundary are retained in groundwater level interpolation (via ordinary kriging) to represent cross-boundary hydraulic gradients and the regional groundwater elevations in Sacramento County within which the SASb is located. Spring (February to May) and fall (October to November) measurements are grouped by month to create the two groundwater level contour maps.

As reported in the SASb GSP, groundwater elevation gradients point inwards towards centers of groundwater pumping. Groundwater elevations are near land surface elevation in the southwestern portion of the SASb.

Hydrographs of groundwater elevations and water year type using historical data from January 1, 2005 through the current reporting year are presented in **Figure 2-4**. Larger images of the hydrographs that include an extended period of record are presented in *Appendix A: Groundwater Elevation Hydrographs*.

2.1.1 Groundwater Elevation Monitoring Network Status Update

As detailed in the Annual Report for water year 2022, two water level RMPs have been removed from the network (RMP_37 was sealed and RMP_40 was destroyed). Both wells were also part of the initial ISW network. The 2022 Annual Report proposed to define RMP_42 as an ISW well to replace the recently destroyed RMP_40.

With the two wells removed from the network, the remaining 43 water level RMPs provide adequate coverage that is representative of basin conditions. The upcoming GSP periodic evaluation includes an assessment of the monitoring network. The results of this assessment will determine whether additional monitoring is needed.

To ensure that all RMPs are sampled, the detailed monitoring plan that is implemented each year is presented in *Appendix B: Groundwater Level Monitoring Coordination Plan*.

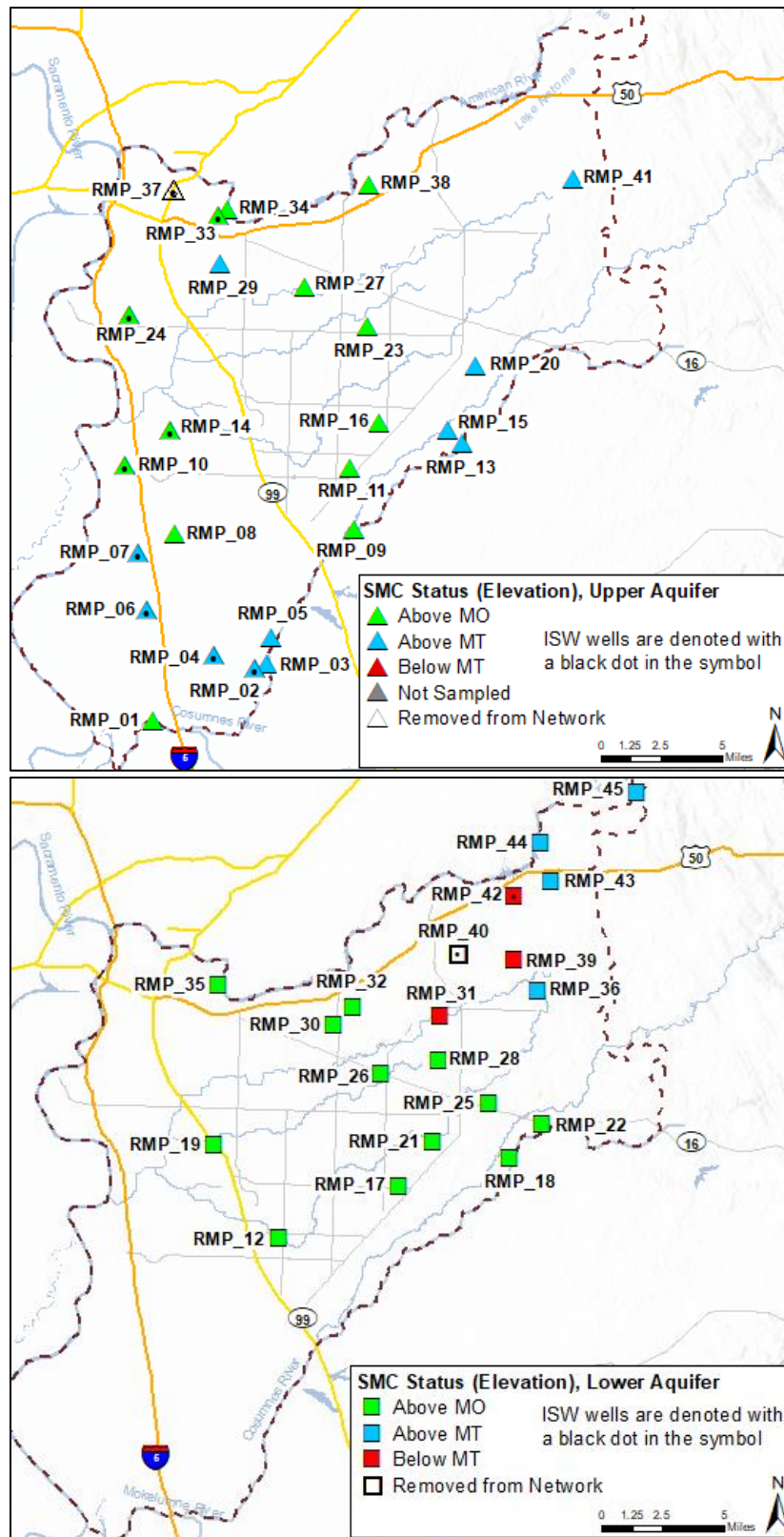
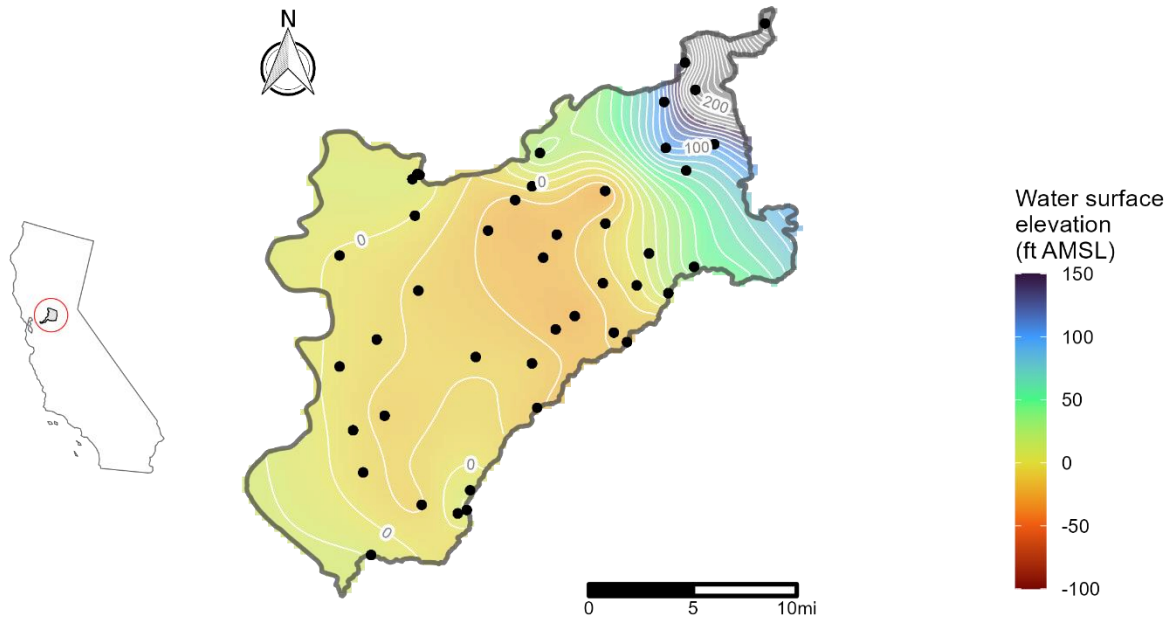


Figure 2-2: Water Year 2024 Measured Groundwater Elevations Compared to Sustainability Criteria, Upper Aquifer (above image) and Lower Aquifer (below image)

Average groundwater elevation, spring 2024



Average groundwater elevation, fall 2024

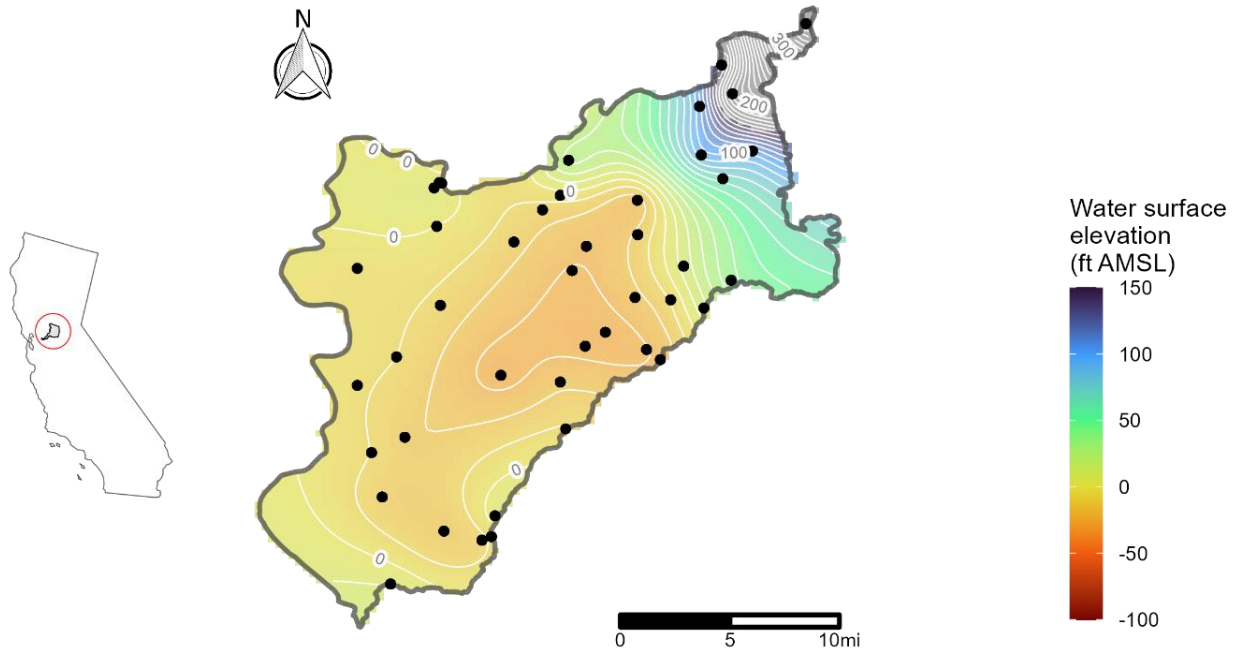


Figure 2-3: Spring (upper plot) and fall (lower plot) seasonal high and low groundwater elevation contours for water year 2024 in the South American Subbasin (ft AMSL). Black dots indicate wells within the basin with measured groundwater elevation data used to create the groundwater elevation contours.

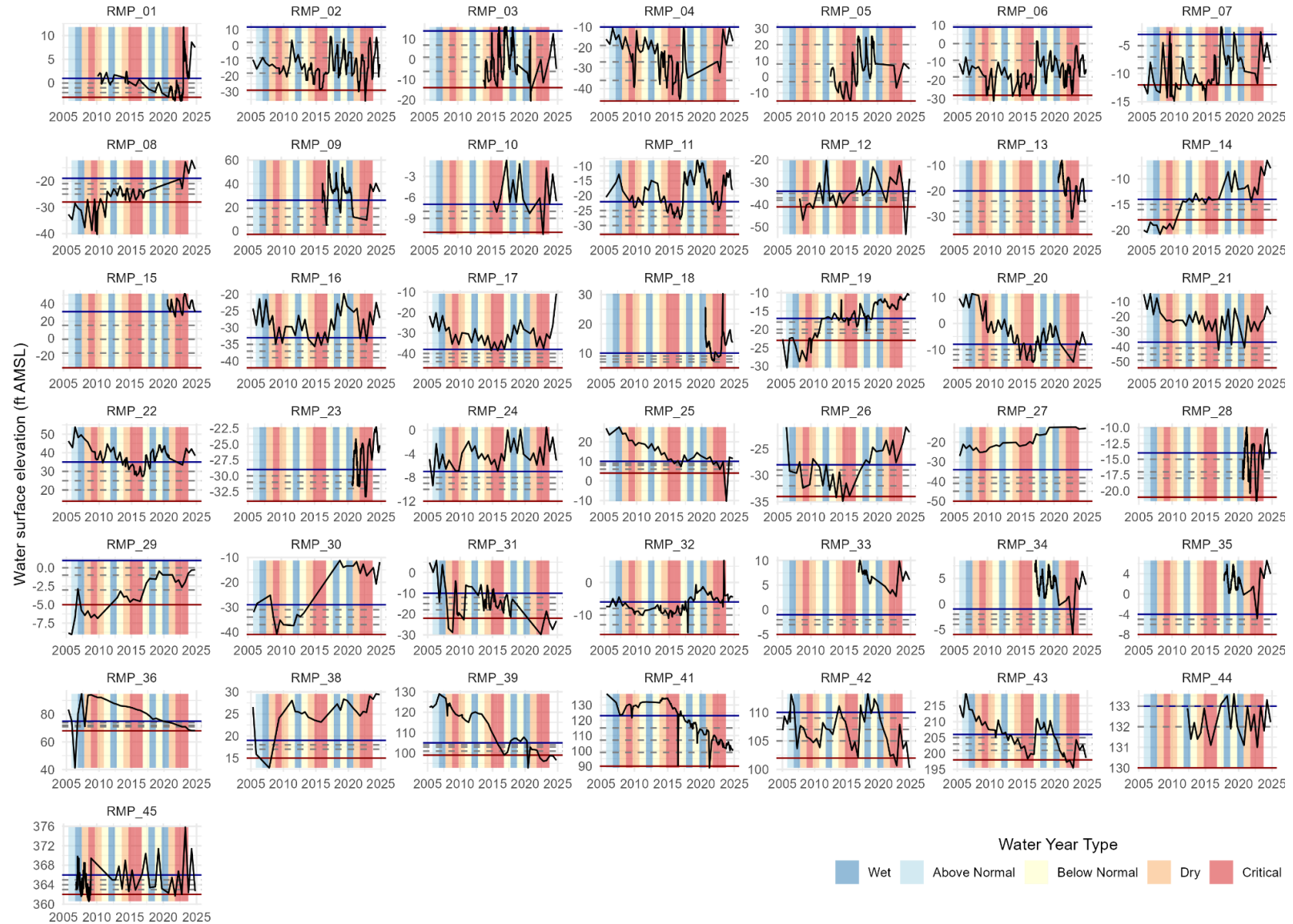


Figure 2-4: Groundwater elevation at RMPs in the SASb. SMC levels are drawn as horizontal dashed lines and indicate the MO (dark blue), IMs (light grey), and MT (dark red). Larger images are presented in Appendix A.

2.2 Groundwater Extractions

Table 2-2 summarizes monthly groundwater extractions for water year 2024 by water use sector. Groundwater extraction data for municipal and industrial, and remediation uses were obtained from the following entities located in the SASb:

- Aerojet
- California American Water Company
- City of Sacramento
- Elk Grove Water District
- Golden State Water Company
- Kiefer Landfill
- Sacramento County Water Agency
- Tokay Park Water Company

Groundwater extractions for agricultural and agricultural residential water users were estimated using the Cosumnes-South American-North American (CoSANA) model based on factors including land use, evapotranspiration, and precipitation. CoSANA is a fully integrated surface and groundwater flow model covering all three subbasins. Details about CoSANA can be found in the CoSANA model documentation report that is included as Appendix 2-B to the GSP. For the Annual Report, CoSANA was extended to include the 2024 water year by extending the model input data, including land use, evapotranspiration, precipitation, surface water flows, surface water deliveries, and groundwater extractions.

For the 2024 water year, total groundwater extractions are estimated to be 178,000 AF. This is less than the sustainable yield of 235,000 AF estimated in the GSP. **Figure C-1** in *Appendix C* displays the general locations of groundwater extractions as modeled by CoSANA in the SASb during the 2024 water year.

Table 2-2: Monthly Groundwater Extractions (AF) by Water Use Sector, Water Year 2024

Month	Municipal & Industrial (AF)	Agricultural (including Ag Res) (AF)	Remediation (AF)	Total Groundwater Extractions (AF)
Oct-23	3,600	8,600	2,200	14,400
Nov-23	2,700	4,400	2,100	9,200
Dec-23	2,200	1,200	2,500	5,900
Jan-24	1,900	1,000	2,600	5,500
Feb-24	2,700	1,500	2,200	6,400
Mar-24	2,400	3,100	2,600	8,100
Apr-24	2,900	7,300	2,300	12,500
May-24	4,000	12,000	2,300	18,300
Jun-24	4,600	15,500	2,300	22,400
Jul-24	5,300	19,400	2,500	27,200
Aug-24	4,900	20,400	2,300	27,600
Sep-24	4,600	13,600	2,300	20,500
Total	41,700	108,000	28,300	178,000

2.3 Surface Water Supply

SGMA requires that the GSP annual report tabulate “*Surface water supply used or available for use...*” (emphasis added, CCR §356.2 [b] [3]). **Table 2-3** summarizes total monthly surface water available for use for water year 2024, broken down by water use sector. The table reports total surface water diversions and not surface water used, which is difficult to parse out by sector. Direct measurements were provided by the following water agencies:

- California American Water Company
- City of Folsom
- City of Sacramento
- Golden State Water Company
- Rancho Murieta Community Service District
- Sacramento County Water Agency

In addition, surface water diversions were estimated using data from the State Water Resource Control Board’s eWRIMS datasets for Omoichumne Hartnell Water District and Sloughhouse Resource Conservation District.

For the 2024 water year, total surface water diversions are estimated to be 138,300 AF.

Table 2-3: Monthly Surface Water Diversions (AF) by Water Use Sector, Water Year 2024

Month	Municipal & Industrial (AF)	Agricultural (AF)	Total Surface Water (AF)
Oct-23	8,800	300	9,100
Nov-23	5,900	-	5,900
Dec-23	5,000	-	5,000
Jan-24	4,800	-	4,800
Feb-24	3,700	-	3,700
Mar-24	4,900	100	5,000
Apr-24	5,800	400	6,200
May-24	8,800	4,600	13,400
Jun-24	10,600	11,600	22,200
Jul-24	12,200	15,700	27,900
Aug-24	11,700	9,900	21,600
Sep-24	10,300	3,300	13,600
Total	92,400	45,900	138,300

2.4 Total Water Use

In this Annual Report, total water use is assumed to equal the total combined applied water and precipitation from all sources in the SASb, including all consumptive water use (evapotranspiration) and non-consumptive water use (other water uses, e.g. deep percolation and runoff).

Table 2-4 summarizes monthly combined groundwater and remediation extractions (**Table 2-2**) and surface water available for use (**Table 2-3**) for water year 2024 by water source. Total water use by water source in water year 2024 is estimated to be 316,200 AF.

Table 2-5 summarizes the total monthly water use by water use sector. Total water use by water use sector (which does not include remediation water) is estimated to be 287,900.

Table 2-4: Monthly Total Water Use (AF) by Water Source, Water Year 2024

Month	Groundwater (AF)	Surface Water (AF)	Remediation (AF)	Total Water Use (AF) - by Source
Oct-23	12,200	9,100	2,200	23,500
Nov-23	7,100	6,000	2,100	15,200
Dec-23	3,400	5,000	2,500	10,900
Jan-24	2,900	4,800	2,600	10,300
Feb-24	4,200	3,700	2,200	10,100
Mar-24	5,500	5,000	2,600	13,100
Apr-24	10,200	6,200	2,300	18,700
May-24	16,000	13,400	2,300	31,700
Jun-24	20,100	22,200	2,300	44,600
Jul-24	24,700	27,900	2,500	55,100
Aug-24	25,200	21,500	2,300	49,000
Sep-24	18,200	13,500	2,300	34,000
Total	149,700	138,200	28,300	316,200

Table 2-5: Monthly Total Water Use (AF) by Water Use Sector, Water Year 2024

Month	Municipal & Industrial (AF)	Agricultural (AF)	Refuge, Native and Riparian (AF) ¹	Total Water Use (AF) - by Sector ²
Oct-23	12,400	8,900	N/A	21,300
Nov-23	8,600	4,400	N/A	13,000
Dec-23	7,200	1,200	N/A	8,400
Jan-24	6,600	1,100	N/A	7,700
Feb-24	6,400	1,500	N/A	7,900
Mar-24	7,300	3,200	N/A	10,500
Apr-24	8,700	7,700	N/A	16,400
May-24	12,800	16,600	N/A	29,400
Jun-24	15,200	27,100	N/A	42,300
Jul-24	17,500	35,100	N/A	52,600
Aug-24	16,600	30,200	N/A	46,800

Month	Municipal & Industrial (AF)	Agricultural (AF)	Refuge, Native and Riparian (AF) ¹	Total Water Use (AF) - by Sector ²
Sep-24	14,800	16,900	N/A	31,700
Total	134,100	153,800	N/A	287,900

¹ Refuge, native and riparian water uses are not explicitly modeled in CoSANA

² Total water use by water use sector does not include remediation water

2.5 Change in Groundwater Storage

The CoSANA model was used to estimate historical change in storage of the SASb from water years 1995-2019 for the South American GSP. The model was extended through water year 2024 in advance of development of this annual report.

Figure 2-5 shows the historical annual groundwater budget by year and water year type (according to the Sacramento River index). The figure shows the annual value for each water budget component – including groundwater pumping and change in storage – in each year, as well as the cumulative water volume change in storage each year for the period from 1995 through 2024. As noted above, groundwater extractions in the 2024 water year were significantly lower than the sustainable yield (178,000 AF versus 235,000 AF). Due to the relatively low groundwater extractions and the relatively high recharge into the aquifer during the above normal water year, it is estimated that there was an increase in subbasin storage of about 29,800 AF during the water year. During the 30-year period from 1995-2024, there has been an estimated cumulative increase in groundwater storage of 171,200 AF, reflecting an average annual increase of about 5,700 AF per year.

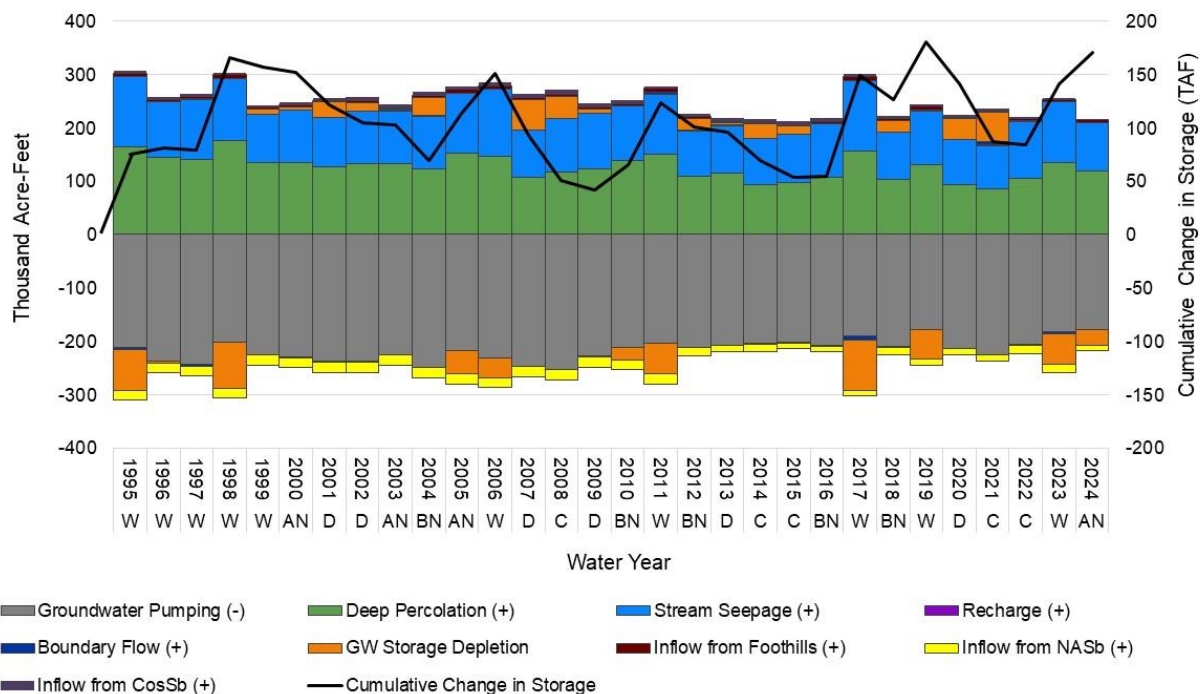


Figure 2-5: Historical Annual Groundwater Budget by Year, Water Year Type, and Cumulative Water Volume ⁽⁴⁾

Note: Groundwater storage depletion equals the net amount removed from storage in a given year. Therefore a negative storage depletion reflects a net increase in storage for that year.

Figure C-2 in *Appendix C* displays the total change in groundwater storage, in units of inches, in the principal aquifer of the SASb for water year 2024 in a spatial format as estimated by outputs from CoSANA. The principal aquifer is divided into the upper aquifer and the lower aquifer.

2.6 Land Subsidence

Land subsidence is the lowering of the ground surface elevation. Typically caused by natural compaction, sinkholes, or pumping groundwater from below thick clay layers, land subsidence can be elastic or inelastic. Inelastic subsidence is generally irreversible whereas elastic subsidence refers to usually small, reversible decreases of the ground surface that correspond to seasonal changes in groundwater elevation, and which rebound to pre-subsidence elevations. The minimum threshold for land subsidence in the Basin is set at no more than 0.1 foot in any single year and a cumulative 0.5 feet in any five-year period, resulting in no long-term permanent subsidence. This is set at the same magnitude of estimated error in the InSAR data (+/- 0.1 foot). As found in the adopted SASb GSP, land subsidence is not known to be historically or currently significant in the Subbasin. These trends persist in the 2024 Water Year; measured land subsidence is within instrument measurement error.

⁴ Source: Water year types based on the Sacramento Valley Water Year Index, but 2024 has been assumed to be above normal while waiting for DWR to publish a final 2024 value.

2.7 Groundwater Quality

The groundwater quality monitoring network is described in Section 3.5.2 of the GSP and is designed to capture sufficient spatial and temporal detail to understand groundwater quality in the basin. The groundwater quality monitoring network includes 21 wells as shown in **Figure 2-6**. The monitoring network includes one domestic well, seventeen municipal wells, and three monitoring wells. The Sacramento Regional County Sanitation District (Regional San) Harvest Water Project is in the process of developing a groundwater monitoring network for the Harvest Water Project area. Once that network is complete, it is anticipated that wells for the area will be added to the SASb's water quality monitoring network during the GSP's 5-year periodic evaluation.

Groundwater quality SMCs were established in the GSP for nitrate (as nitrogen) and specific conductance (a measure of salinity). The minimum threshold concentration for each of the constituents of concern is their associated regulatory threshold. For nitrate this corresponds to the Title 22 Primary Maximum Contaminant Level (MCL) of 10 mg/L, and for specific conductance this corresponds to the Title 22 Secondary Maximum Contaminant Level (SMCL) of 1600 micromhos/cm. The measurable objective for each RMP is to maintain the concentration below the maximum concentration observed at the RMP prior to May 2020. In addition, no measurable objective shall exceed 90% of the minimum threshold (9 mg/L for nitrate, 1440 micromhos/cm for specific conductance).

Significant and undesirable results for groundwater quality are defined to occur when the number of RMPs experiencing exceedances above the minimum threshold is greater than the number of RMPs with exceedances as of May 22, 2020 (two for nitrate, and two for specific conductance). It is important to note that this threshold relies on the *number* of RMPs experiencing exceedances above the minimum threshold, and not necessarily the *same* RMPs.

Available groundwater quality data for water year 2024 were downloaded for each RMP from the Groundwater Ambient Monitoring and Assessment (GAMA) Groundwater Information System for both constituents on January 21, 2025. Some monitoring entities do not report specific conductance data to GAMA; this information was obtained either from the State Water Resources Control Board's GeoTracker or directly from the monitoring entity. For each RMP, the measurable objective as well as the maximum measured concentration during water year 2024 is presented in **Table 2-6**.

Table 2-6 substitutes the reporting limit for the nitrate result in instances where GAMA denoted the value was below the reporting limit, but above the method detection limit (i.e., the result is an estimated value). The substitution of the reporting limit in these instances documents that water quality is at least as good as the reporting limit. These instances are noted in the table. Additionally, the nitrate graphs in *Appendix D* substitute non-detect (ND) values with one half the reporting limit, and substitute estimated values with the reporting limit. This does not change the evaluation of water quality SMCs.

As shown, measured groundwater quality concentrations during water year 2024 do not indicate the occurrence of undesirable results. One RMP exceeded the minimum threshold for specific conductance, and no RMPs exceeded the minimum threshold for nitrate. Two RMPs exceeded the measurable objective for specific conductance, and none exceeded the measurable objective for nitrate. Nitrate was not monitored at two RMPs, and specific conductance or TDS was not monitored at thirteen RMPs. *Appendix D: Water Quality Time Series* presents time series beginning in 2005 for nitrate and specific conductance at each RMP.

Section 3.3.3 of the GSP identifies trigger values for nitrate of 50% (5 mg/L) and 90% (9 mg/L) of the Title 22 MCL, and for specific conductance of 90% the upper limit or the 90th percentile value for a calendar year (900 micromhos/cm). The trigger values are intended to identify RMPs to

proactively avoid the occurrence of undesirable results. One RMP, L10005519750-MW-G(S), is above the 5 mg/L trigger for nitrate and above the 900 micromhos/cm trigger for specific conductance. During water year 2024 the RMP's nitrate concentration was 6.1 mg/L and the specific conductance was 1,091 micromhos/cm (the specific conductance is also above the RMP's MO). Time series for both constituents are shown on page D-7 of Appendix D. The RMP is a monitoring well for the Florin-Perkins Landfill, a municipal solid waste landfill.

One additional RMP, 3901216-001, is above the trigger for specific conductance. During water year 2024 the RMP's specific conductance was 2,180 micromhos/cm (the value is also above the RMP's MT). Time series for this well is shown on page D-12 of Appendix D. The RMP serves the Santos Ranch Public Water System #5-CSA #35 (Water System No. CA3901216).

The initial evaluation of groundwater quality conducted for the GSP identified elevated concentrations of arsenic, iron, and manganese in some wells in the SASb. These constituents were not assigned SMCs, but their concentrations at the water quality RMPs are monitored to track potential mobilization or exceedances of the primary MCLs or secondary MCLs, which are measured as averages. Arsenic has a primary MCL of 10 µg/L, iron has an SMCL of 300 µg/L, and manganese has an SMCL of 50 µg/L.

Table 2-7 presents summary statistics of concentration data collected at the water quality RMPs during the period January 1, 2005 to September 30, 2024 (non-detect values are substituted with one half the reporting limit, and estimated values are substituted with the reporting limit). For each RMP, the table provides the average value of measurements, as well as the minimum, and maximum values. The number of measurements is also provided. As shown, 20 of the 21 RMPs were sampled for each constituent during the period of analysis. Two of the 20 resulted in an exceedance of the arsenic MCL, 7 of the 20 resulted in an exceedance of the iron SMCL, and 11 of the 20 resulted in an exceedance of the manganese SMCL. Results will be updated in subsequent annual reports. Additional information, including a review of previous studies in the basin, discussion of the numeric regulatory thresholds, and results of the groundwater quality analysis performed for the GSP can be found in Appendix 2-D of the GSP.

2.7.1 Groundwater Quality Monitoring Network Status Update

During GSP development, wells were selected for inclusion in the water quality monitoring network due to the spatial location of the well, and the long term publicly available record of nitrate and specific conductance (or TDS) data. The analysis presented in this Annual Report represents water year 2024 which spans October 1, 2023 to September 30, 2024. At the time groundwater quality data was obtained from GAMA and Geotracker (January 2025), some wells were lacking data and the monitoring entities were contacted directly to obtain the information.

Though much of the missing data was acquired, nitrate data was unavailable for two wells and specific conductance or TDS data was unavailable for thirteen wells. Information regarding the missing measurements, and planned action for follow up, is as follows:

- RMPs 3410029-002, 3410029-016, 3410029-029, 3410029-024, 3410029-025, and 3410029-027 are missing specific conductance or TDS. All are part of the SCWA – Laguna/Vineyard water system. A contact for the water system communicated that the wells are sampled on a 3-year sampling period for specific conductance and sampled annually for nitrate. An inquiry was made to determine if specific conductance can be monitored and reported annually in the future. A response has not yet been received.
- RMP 3410033-006 is missing specific conductance or TDS. A contact for the water district, Florin County Water District, communicated that the well is currently offline, and a filtration unit is needed before the well will be brought online. An inquiry was made to

determine if specific conductance can be monitored and reported annually in the future. A response has not yet been received.

- RMP 3400101-001 is missing specific conductance or TDS. A contact for the water system, the Hood Water Maintenance District, communicated that specific conductance measurements are performed every three years, with the next scheduled sampling in August 2026. An inquiry was made to determine if specific conductance can be monitored and reported annually in the future. A response has not yet been received.
- RMP 3400375-001 is missing specific conductance or TDS. The monitoring entity, Slavic Missionary Church, stopped this measurement due to a change in management. An inquiry was made to determine if specific conductance can be monitored and reported annually in the future. A response has not yet been received.
- RMPs 3410015-020 and 3410015_022 are missing specific conductance or TDS. A contact for the water system, Golden State Water Company, communicated that specific conductance measurements are scheduled every three years. An inquiry was made to determine if specific conductance can be monitored and reported annually in the future. A contact for the water system responded that specific conductance will be sampled and recorded during future nitrate sampling, which occurs annually.
- RMP 3410023-015 is missing nitrate and specific conductance or TDS. A contact for the water system, Cal Am Fruitridge Vista, communicated that the well is a standby well on a 9-year sampling period. An inquiry was made to determine if nitrate and specific conductance can be monitored and reported annually in the future. A response has not yet been received.
- RMP S7-SAC-SA10 is missing nitrate and specific conductance or TDS. The well is a domestic well and no information exists online regarding the well owner. The well was last sampled in 2017. It is recommended that this well be removed from the water quality monitoring network as no contact with the owner can be made. Additionally, this well is located directly north of the Harvest Water project area. Once new wells from that network are added to the GSP's water quality monitoring network, this region will have sufficient spatial coverage for this area.

As noted, communication is ongoing to facilitate the monitoring of wells with missing data. The GSP Determination letter, received from DWR on July 27, 2023, includes recommended corrective actions that should be considered for the first Periodic Evaluation, due in late January 2027. One of the recommended corrective actions is to define the data collection frequency for the water quality monitoring network. To satisfy this request, the monitoring entities responsible for each of the water quality RMPs will be contacted to determine their willingness and ability to conduct monitoring and reporting of nitrate and specific conductance. This will ensure that a scheduled monitoring and reporting plan is followed. If monitoring entities are unwilling or unable to conduct monitoring, a plan for the continued collection of representative water quality data will be developed. Options may include alternate monitoring entities for the wells, or inclusion of different wells in the network.

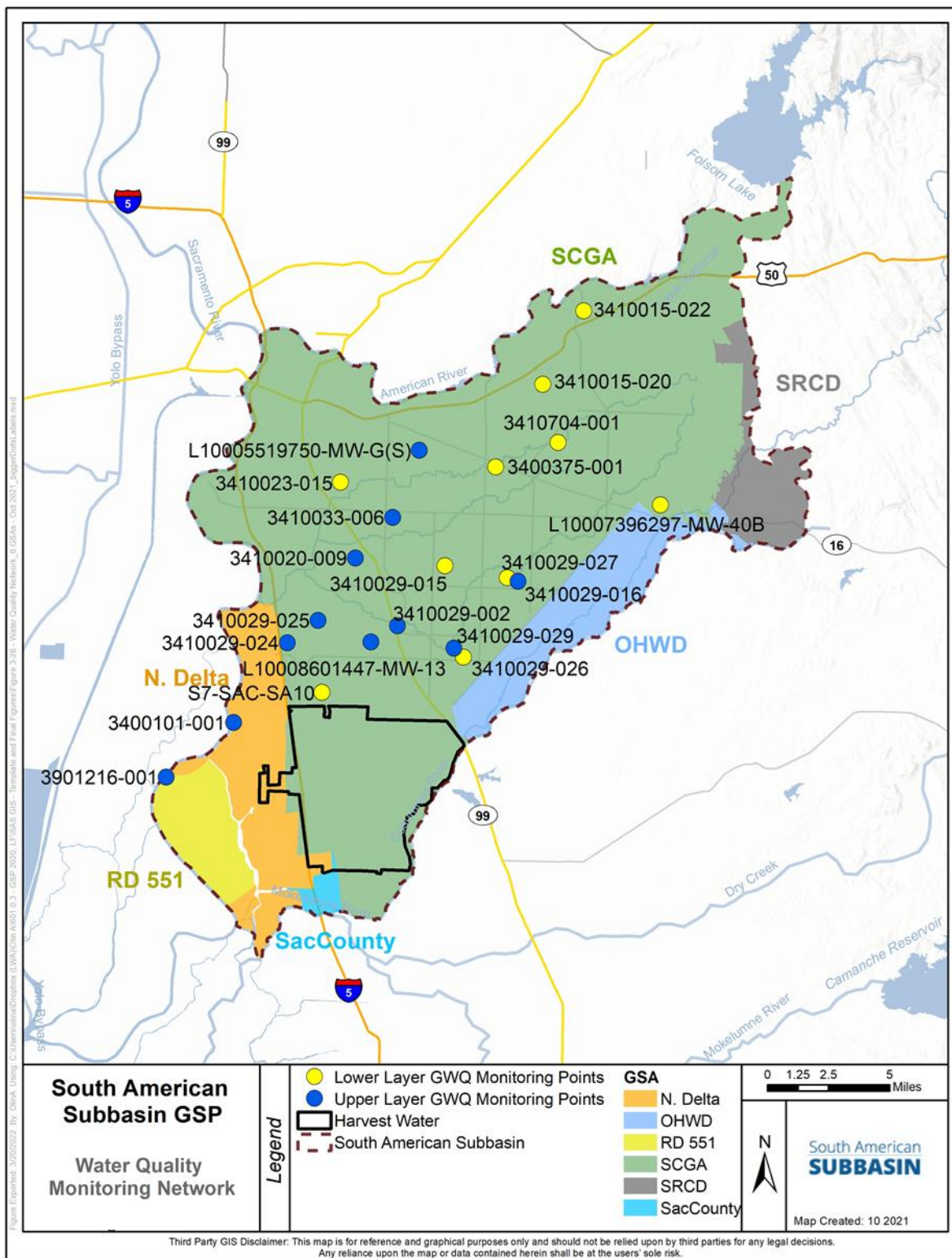


Figure 2-6: Groundwater Quality Monitoring Network

Table 2-6: Water Year 2024 Groundwater Quality (Nitrate MT is 10 mg/L; Specific Conductance MT is 1600 micromhos/cm)

Aquifer Zone	RMP	Nitrate as Nitrogen (mg/L)		Specific Conductance (micromhos/cm)	
		Measurable Objective	Maximum Concentration, WY 2024	Measurable Objective	Maximum Measurement, WY 2024
Upper	3410020-009	3.8	3.7	492	507
Upper	3410029-002	3.0	3.5	470	not monitored
Upper	3410029-016	1.1	0.57	246	not monitored
Upper	3410029-029	2.0	2.0	494	not monitored
Upper	3410033-006	7.2	3.7	520	not monitored
Upper	L10005519750-MW-G(S)	9.0	6.1	967 ⁽¹⁾	1,091
Upper	L10008601447-MW-13	4.2	0.35	640 ⁽¹⁾	450
Upper	3400101-001	0.5	0.23 ⁽²⁾	1,200	not monitored
Upper	3410029-024	0.9	0.23 ⁽²⁾	595	not monitored
Upper	3410029-025	0.5	0.1 ⁽²⁾	1,440	not monitored
Upper	3901216-001	1.3	0.4 ⁽²⁾	1,440	2,180
Lower	3400375-001	5.0	0.45	180	not monitored
Lower	3410015-020	2.1	1.4	240	not monitored
Lower	3410015-022	1.6	0.4 ⁽²⁾	340	not monitored
Lower	3410023-015	1.0	not monitored	915	not monitored
Lower	3410029-015	0.5	0.23 ⁽²⁾	670	200
Lower	3410029-026	0.5	0.06 ⁽²⁾	232	230
Lower	3410029-027	0.5	0.06 ⁽²⁾	230	not monitored
Lower	3410704-001	0.5	0.23 ⁽²⁾	170	160
Lower	L10007396297-MW-40B	1.9	1.7	359 ⁽¹⁾	284
Lower	S7-SAC-SA10	1.7	not monitored	404	not monitored

Minimum threshold and measurable objective both exceeded

Minimum threshold not exceeded, measurable objective exceeded

Measurable objective not exceeded

1. Specific conductance data previously unavailable for this well; MO value determined from conversion of TDS to specific conductance using a conversion factor of 1.56 (UCANR, 2023).
2. Value detected at a concentration below the reporting limit (RL) and above the method detection limit (MDL), value of the RL is reported

Table 2-7. Summary Statistics for Arsenic, Iron, and Manganese During the Period January 1, 2005 to September 30, 2024

Representative Monitoring Point	Arsenic (µg/L)				Iron (µg/L)				Manganese (µg/L)			
	Avg.	Min.	Max.	Count	Avg.	Min.	Max.	Count	Avg.	Min.	Max.	Count
3410020-009	4.0	3.1	5.8	7	94	11	144	7	20 ⁽¹⁾	20	20	7
3410029-002	5.5	4.4	7.7	9	84 ⁽¹⁾	30	100	9	18 ⁽¹⁾	10	20	9
3410029-016	3.1	2	4.3	8	90 ⁽¹⁾	30	100	7	19 ⁽¹⁾	10	20	7
3410029-029	4.0	2.3	4.8	9	84 ⁽¹⁾	30	100	9	18 ⁽¹⁾	10	20	9
3410033-006	2.7	2	3.2	7	90 ⁽¹⁾	30	100	7	19 ⁽¹⁾	10	20	7
L10005519750-MW-G(S)	2.3	2	2.8	4	80	50	170	4	14	10	26	4
L10008601447-MW-13	4.8	2.1	10	18	2571	26.9	5000	18	556	94	1080	18
3400101-001	3.7	2	5.3	7	787	100	1200	7	319	280	370	7
3410029-024	47.1	7.3	85	92	690	0	3700	89	297	20	460	89
3410029-025	9.6	2	28	254	308	100	2400	189	660	20	1000	195
3901216-001	3.7	3	4	9	113	50	240	7	27	20	50	7
3400375-001	2.8	2	3.6	2	100 ⁽¹⁾	100	100	2	65	20	110	2
3410015-020	2.3	2	3.3	8	131	30	420	8	15	1	23	8
3410015-022	2.5	1.1	4.5	7	104	89	130	7	35	10	110	68
3410023-015	6.4	4.4	8.5	3	453	450	460	3	453	440	470	4
3410029-015	2.0 ⁽¹⁾	2	2	6	96	40	130	8	92	81	120	13
3410029-026	2.0 ⁽¹⁾	2	2	8	112	100	160	10	197	27	240	14
3410029-027	2.0 ⁽¹⁾	2	2	7	143	42	250	8	139	38	170	10
3410704-001	2.0 ⁽¹⁾	2	2	7	196	0	950	8	125	95	180	12
L10007396297-MW-40B	NS ⁽²⁾											
S7-SAC-SA10	9.0	9	9	1	17	17.1	17.1	1	0.76	0.76	0.76	1

1. All results during the sampling period were either non-detect or estimated values.
2. NS, not sampled during the period of analysis.

3 Plan Implementation Progress

3.1 Overview of Implementation Activities

This section of the Annual Report provides updates and describes progress towards implementing the GSP (Plan), including implementation of projects and management actions since adoption of the GSP. **Section 3.2** describes the progress on implementing projects and management actions, with a focus on water year 2024 and on activities planned for water year 2025. **Section 3.3** describes progress made towards addressing the recommended corrective actions that were included in the GSP Determination letter. **Section 3.4** describes the funding sources for the implementation activities that are planned for water year 2025.

3.2 Implementation Progress

3.2.1 Current Condition for Each Sustainability Indicator

Quantifiable sustainability indicators from WY2024 were used to determine the occurrence of undesirable results using monitoring data. **Table 3-1** contains a summary of the status of the sustainable management criteria relative to sustainability indicators.

3.2.2 Projects and Management Action Progress and Anticipated Activities for the Coming Year

The progress of projects and management actions that are described in the SASb GSP are summarized in this section. **Table 3-2** provides a summary of projects, including project description, implementation date and project mechanism. **Table 3-3** includes the accomplishments in the recently completed water year for the projects mentioned in **Table 3-2** and the plans for the upcoming water year 2025.

Minor fixes and corrections of the SASb Data Management System (DMS)⁵ were completed in 2024 and data from the DMS have been used for stakeholder and board presentations. The SASb GSP was implemented with local funding to support the SASb monitoring, Well Protection Program, and other projects. The following subsections describe GSP projects and management actions activities in the fourth year of plan implementation.

⁵ <https://opti.woodardcurran.com/southamericansubbasin/login.php>

Table 3-1. Summary of Sustainable Management Criteria

Sustainability Indicator	Minimum Threshold (MT)	Measurable Objective (MO)	Occurrence of Undesirable Results	Water Year 2024 Annual Report Status
Groundwater Levels	Set at historical minimum elevations to protect sensitive uses and users and avoid undesirable results.	Average groundwater levels observed from January 2015 to June 2021. MOs are higher in the Harvest Water area to account for recharge over time.	More than 25% of representative monitoring wells fall below MTs for three consecutive years.	<u>No occurrence of undesirable results</u>
Groundwater Storage	Groundwater levels used as a proxy for this sustainability indicator.			<u>No occurrence of undesirable results</u>
Seawater Intrusion	This sustainability indicator is not applicable in the SASb.			
Degraded Groundwater Quality	Nitrate = 10 mg/L Specific Conductance = 1600 micromhos/cm	Maintain concentration at each RMP below the maximum concentration observed at the RMP prior to May 2020. No MO shall exceed 90% of the MT (9 mg/L for nitrate, 1440 micromhos/cm for specific conductance).	More than 2 RMPs exceeding the MT for Nitrate or for Specific Conductance.	<u>No occurrence of undesirable results</u>
Land Subsidence	No more than 0.1 foot in any single year and a cumulative 0.5 foot in any five-year period, resulting in no long-term permanent subsidence.	Maintain current ground surface elevations	When subsidence substantially interferes with beneficial users of groundwater and surface land uses.	<u>No occurrence of undesirable results</u>
Depletions of Inter-connected Surface Waters	Groundwater levels used as a proxy for this sustainability indicator.			<u>No occurrence of undesirable results</u>

Table 3-2. Project and Management Action Summary

GSA	Project	Project Mechanism	First Year Facilities Available for Use	Status	Project Description
SCGA and Northern Delta	Harvest Water Project	Increased Recharge and Reduced Groundwater Pumping	2027	Implementing	Treated recycled water will provide up to 50,000-acre-feet per year (AFY) to irrigate more than 16,000 acres of agricultural and improve the groundwater conditions of over 5,000 acres of riparian and wetland habitats. For additional information, see https://www.sacsewer.com/harvest-water/
OHWD	OHWD Groundwater Recharge Project	Increased Recharge	2020	Implementing	Up to 4,000 AF diverted from the Cosumnes River to 1,168-acres of agricultural land between Cosumnes River and Deer Creek.
SCGA	Regional Conjunctive Use Program	Increased Recharge and Reduced Groundwater Pumping	2000	Implementing	Increase conjunctive use amongst both SASb and NASb and municipal water purveyors. Planned projects will utilize existing infrastructure through water transfers, groundwater recharge projects, wholesale agreements, or wheeling agreements.
SCGA	Vineyard ASR well (part of Regional Conjunctive Use Program)	Increased Recharge	2020	Implementing	Construction of VSWTP was completed in 2011. ASR program is continuing, including the installation of ASR wells and existing system adaptation.
SCGA, SRCD and OHWD	Sacramento Area Flood Control Agency (SAFCA) Flood-MAR	Increased Recharge	2030	Planned	To safely contain floods with a 1-in-500 annual probability of occurrence, release water from Folsom Dam down the Folsom South Canal for recharge in the SASb and Cosumnes subbasins.
All	Shallow/Vulnerable Well Protection Program	Outreach and collaboration	2022	Implementing	Program assists qualifying shallow well users impacted by groundwater level decline.
All	Sacramento County Environmental Management Wells Program	Outreach and collaboration	2022	Implementing	GSAs coordinate with Program to establish revised requirements for well construction to avoid future impacts on shallow well users, GDEs and the GSP monitoring network.
All	GSP Monitoring Network Data Gaps	Data Collection	2023	Implementing	GSAs to plan, implement and fund efforts to fill data gaps including: refine information regarding wells in GSP Monitoring Network, understand surface water and groundwater interactions along Cosumnes River

Table 3-3. Project and Management Action Implementation Summary

GSA	Project	Project Mechanism	First Year Facilities Available for Use	Status	WY2024 Accomplishments	WY2025 Proposed Activities
SCGA and North Delta	Harvest Water Project	Increased Recharge and Reduced Groundwater Pumping	2027	Implementing	Construction has begun on segment 2 of the Elk Grove Transmission Pipeline, the Franklin Eschinger Pipelines, Central/South Pipelines and West Pipelines. See https://www.sacsewer.com/harvest-water/	Complete planning early implementation EcoPlan projects with targeted landowners. Construction is anticipated to continue in 2025. Construction for the Harvest Water Pump Station and Elk Grove transmission pipeline segment 1 is anticipated to begin in 2025. See https://www.sacsewer.com/harvest-water/
OHWD	OHWD Groundwater Recharge Project	Increased Recharge	2020	Implementing	Five-year temporary permit from State Water Board granted in January 2023. A net 343.5 acre-feet from the Cosumnes River was recharged.	Continued operation per five-year temporary permit conditions for diversions from the Cosumnes River obtained from the SWRCB.
SCGA	Regional Conjunctive Use Program	Increased Recharge and Reduced Groundwater Pumping	2000	Implementing	Work on developing water bank and ASR well at Vineyard SWP continued.	Continue work on developing water bank and ASR well at Vineyard SWP.
SCGA	Vineyard ASR well (part of Regional Conjunctive Use Program)	Increased Recharge	2020	Implementing	Initiated 3-cycle ASR pilot test during late 2023 and completed early April 2024.	Continue work on the development of a strategic plan for the implementation of the ASR program, including the potential use of the three Excelsior Road supply wells.
SCGA, SRCD and OHWD	Sacramento Area Flood Control Agency (SAFCA) Flood-MAR	Increased Recharge	2030	Planned	Two exploratory borings completed in water year 2023 in coordination with SAFCA and DWR TSS. Boring results used to calibrate the geophysical tTem results for use in siting vadose zone recharge wells. Results are available to support developing a pilot recharge program.	Coordinate with SAFCA, RWA and SASb GSAs to determine approvals needed to develop a pilot program.

GSA	Project	Project Mechanism	First Year Facilities Available for Use	Status	WY2024 Accomplishments	WY2025 Proposed Activities
All	Shallow/Vulnerable Well Protection Program	Outreach and collaboration	2022	Implementing	The Domestic Well Advisory Group (DWAG), formed in water year 2023, continued to coordinate outreach through the Volunteer Monitoring Program (VMP) and other methods. Regular water level measurements were collected and reported through the DMS and to DWR in spring and fall seasons. Continued engagement with domestic well owners through outreach.	Improve domestic well inventory through outreach and coordination with VMP. Evaluate voluntary monitoring data.
All	Sacramento County Environmental Management Wells Program	Outreach and collaboration	2022	Implementing	Implementation of Governor's Executive Order and approved well permits.	GSAs intend to continue discussions with the Sacramento County Environmental Management Department (SCEMD) to develop ordinance modifications pertaining to wells in the jurisdiction of SCEMD in WY2025.
All	GSP Monitoring Network Data Gaps	Data Collection	2023	Planned	The DWAG members were selected, and a charter was developed in 2023. The DWAG is intended to facilitate coordination with the VMP to help fill data gaps ongoing in 2025. Plans were developed to collect missing well construction information from RMPs with incomplete information. A group charter was formed and the first DWAG meeting was held in January 2024 and a second meeting in October 2024.	Spatial data gaps in the monitoring network potentially filled by continuing the development of the Voluntary Monitoring Network (VMN). Well construction information for RMPs will be collected to address data gaps.

3.2.3 Projects

In WY2024, progress was made for the following projects planned for implementation in the SASb GSP. The planned projects are described by group following the GSP structure and include projects planned for near-term implementation (Group 2) and supplemental projects (Group 3).

3.2.3.1 Group 2

Harvest Water Project

The Harvest Water project, sponsored by the Sacramento Area Sewer District (formerly Sacramento Regional County Sanitation District), will provide a supply of disinfected tertiary-treated recycled water, up to 50,000-acre feet per year (AFY) to irrigate more than 16,000 acres of agricultural land and improve the groundwater conditions of over 5,000 acres of riparian and wetland habitats. This project will reduce the need for groundwater pumping, support habitat protection efforts, restore depleted groundwater levels by up to 35 feet within 15 years, and increase groundwater storage by approximately 370,000 AF. It will also provide approximately 30,000 AFY for conjunctive use during droughts.

The Harvest Water team worked with staff from the Department of Fish & Wildlife to complete the program's Ecosystem benefits and develop an ecosystem Public Benefits contract and Adaptive Management Plan. The Groundwater Accounting and Conjunctive Use Projects developed a groundwater monitoring plan and collection of baseline groundwater measurements.

Harvest Water has a community-based approach and focuses on building relationships with growers. Over 100 growers have signed letters of intent to receive water from the project.

Harvest Water was awarded \$291.8 million in grant funding under California's Water Storage Investment Program (WSIP). Additionally, the Harvest Water Project was awarded a \$30 million grant from the U.S Bureau of Reclamation through the Title XVI Water Reclamation and Reuse Program. The project has also received around \$19 million in funding from other sources (SCWA, City of Elk Grove, County Transportation, State Water Board). Further sources of funding are being investigated to assist in covering construction and operational costs.

The Capital Improvements Program progressed with the following accomplishments: The Harvest Water Pumping Station, Elk Grove Transmission Main, Central/South and West Distribution Pipelines almost reached their 100% design milestones in 2023. Franklin/Eschinger reached 100% design. Water rights were secured, CEQA and NEQA environmental documents were completed, and all necessary environmental permits were obtained. Construction has started on the Elk Grove Transmission Pipeline, Franklin/Eschinger Pipelines, Central/South Pipelines and West Pipelines as of 2024. Physical construction completion of the Harvest Water Project is scheduled for 2026, with anticipated start of operation in 2027. For more information, see <https://www.regionalsan.com/harvest-water>.

Omochumne-Hartnell Water District Groundwater Recharge Project

The Omochumne-Hartnell Water District (OHWD) Groundwater Recharge Project will divert up to 4,000 AF per year of surface water from the Cosumnes River to a 1,168-acre spreading area located between the Cosumnes River and Deer Creek to alleviate groundwater storage overdraft in both the SASb and Cosumnes Subbasin. The use of available water during high flow events could allow the watershed to recover and result in Cosumnes River flows to persist during the dry season as the groundwater levels are incrementally increased through recharge (GSP 2022).

In WY2023, OHWD was granted a five-year temporary groundwater recharge permit through the State Water Resources Control Board. The permit was issued in January 2023, authorizing OHWD to divert 2,444 AF from the Cosumnes River in Sacramento County during high flow events for the period December 1st - March 15th, upon installation of fish screens on both the pumps currently available. Construction of fish screens was completed in 2023, and a net 343.5 acre-feet from the Cosumnes River was recharged in water year 2024.

The OHWD will continue to operate the recharge site, implementing the project using the 5-year temporary permit. OHWD is interested in applying for a standard diversion permit for long-term use, and will continue to operate under the 5-year temporary permit to obtain experience and information relevant to the future standard permit application.

Regional Conjunctive Use Program

Efforts to increase operational flexibility and capacity of conjunctive use by construction of system interties, treatment plant improvements, and development of groundwater wells will continue. These efforts have been and are being conducted by California-American Water, City of Sacramento, Sacramento County Water Agency, and the Golden State Water Company (GSP 2022).

The program was initiated after regional entities completed the Sacramento Water Forum Agreement in 2000 (SASb GSP, 2021). Program benefits are achieved through reduced groundwater pumping in wet years by delivery of additional surface water.

The Vineyard Surface Water Treatment Plant (VSWTP) construction was completed in 2011, and a feasibility study for the implementation of an Aquifer Storage and Recovery (ASR) program was completed in 2022. The feasibility study included the conceptual designs for the conversion of one existing supply well to ASR, four additional proposed ASR wells and a cost-benefit analysis for the implementation of the program. A 3-cycle ASR pilot test was initiated in late 2023 and completed in early April 2024. The pilot test results are described in a Technical Addendum to the ASR Feasibility Study. VSWTP staff are working on a strategic plan to implement an ASR program, including the potential use of the three Excelsior Road supply wells.

3.2.3.2 Group 3

Sacramento Area Flood Control Agency's (SAFCA) Flood-MAR Project

The SAFCA project is planned to combine Flood-MAR (Managed Aquifer Recharge) with modifications to the three largest non-federal dams in the American River Basin to safely contain floods with a 1-in-500 annual probability occurrence. The SAFCA Flood-MAR project includes measures to conserve water for environmental, agricultural, and urban use by allowing conditional storage, aquifer recharge, and beneficial use of winter runoff (SASb GSP 2021).

One of the sites under consideration for MAR is located northwest of the intersection of Sunrise Boulevard and Kiefer Boulevard. Tow-TEM was performed on November 30, 2020 and two soil borings were drilled, and the cores logged and interpreted during the last week of September 2022. The results are available to support developing a pilot recharge program. As the next step to developing the SAFCA Flood-MAR project, SAFCA is working on a white paper and reaching out to agencies involved in the American River Basin to begin developing the program and agreements needed.

3.2.4 Management Actions

In WY2024, progress was made for the following four Management Actions considered in the development of the SASb GSP.

3.2.4.1 Management Action No. 1 – Shallow/Vulnerable Well Protection Program

The focus of WY2024 activities was to coordinate with the Domestic Well Advisory Group (DWAG) to collect groundwater level measurements from volunteers and continue to improve the domestic well inventory. The GSAs worked closely with the DWAG and the Volunteer Monitoring Program (VMP) to evaluate data quality and are in an ongoing discussion for the potential for inclusion of voluntary monitoring data into the SASb monitoring program.

The focus of WY2025 GSP implementation activities will be to continue communication with DWAG to further improve information contained in the domestic well inventory. The GSAs will continue to collaborate with DWAG to engage with the community and stakeholders as well as the VMP to better understand water levels of domestic wells. Specific action updates include:

Domestic Well Advisory Group

The DWAG has been formed to coordinate community outreach, engage stakeholders on well construction standards, support the volunteer monitoring effort and support further development of the well protection program. A critical objective of DWAG is to assist in the definition of the scope and administrative details of a potential mitigation element of the well protection program. The group charter was developed and the first DWAG meeting was held in January 2024 and second meeting was held in October 2024.

Improved Well Inventory

The DWAG is assisting with outreach to domestic well owners and working to obtain information to improve the domestic well inventory.

Volunteer Monitoring Program

A volunteer who applied for and was selected as a DWAG member, continued to collect water levels from domestic wells where access was provided, within the subbasin. Water levels have been collected from 29 wells since January 2022. Continued coordination with the VMP is planned for 2025.

3.2.4.2 Management Action No. 2 – Well Permit Coordination

The GSAs have worked with the Sacramento County Environmental Management Department (SCEMD) to implement the Governor's Executive Order for GSAs to review well permit applications. The GSAs are building on this cooperation to discuss ways the SCEMD and GSAs within the SASb, in collaboration with GSAs in the North American Subbasin (NASb) and other subbasins within the SCEMD jurisdiction, can cooperate to achieve the GSP groundwater sustainability goals.

3.2.4.3 Management Action No. 3 – Coordination Activities

The SASb Executive Committee in collaboration with NASb GSA has coordinated with RWA on the regional groundwater banking and accounting framework. Many of the agencies along the Cosumnes River have formed GSAs in both the SASb and in the Cosumnes Subbasin and the same GSA staff are involved in both subbasins, such that separate coordination meetings are needed less between the SASb and the Cosumnes Subbasins.

Model updates that occur every year to support the annual report include incorporation of hydrology data, water supply and operations data, and municipal production records in the model datasets.

The Executive Committee will continue to meet regularly and will coordinate the following activities:

- Discussions with representatives from land use agencies to promote consistency of future plans with the adopted GSP.
- Discussions with representatives of GSAs and stakeholders in North American and Cosumnes Subbasins to track and maintain records of all funding and associated GSP components.
- Continued discussions with the Regional Water Authority (RWA) and other regional partners in: (a) the development of a regional groundwater banking and accounting framework; and (b) understanding the climate change assessment prepared for the American River Basin Climate Resiliency Study.

The Executive Committee will continue to coordinate and communicate with stakeholders and participating GSAs for project coordination, as needed.

3.2.4.4 Management Action No. 4 – Actions to Address Data Gaps

Three specific data gaps were presented in the GSP to be addressed during plan implementation, including the following:

- Collection of well depth and screened interval information for specific wells in the GSP Monitoring Network.
- Collection of surface water and groundwater data and information along the middle reach of the Cosumnes River to help resolve uncertainties regarding surface water/groundwater interactions in this area.
- Analysis of groundwater quality samples collected by domestic well owners under the Domestic Well Protection Program Voluntary Monitoring Network.

Progress towards addressing these data gaps has been slowed by funding limitations. Collaboration with the DWAG to address the above-mentioned data gaps started in 2024. The following activities are ongoing, and will continue through WY2025:

Monitoring Network Update

Additional data collection from the existing SASb Monitoring Network is necessary to obtain missing well construction information, primarily well depth and screened interval information for specific wells in the GSP Monitoring Network. SCGA staff inspected wells with missing construction information to assess the feasibility of obtaining the missing information.

Cosumnes Surface Water Data Collection

Information was gathered and coordination with the Cosumnes Subbasin, the Cosumnes River Project, and The Nature Conservancy was conducted to determine a stream gauge location. Subsequently an application was submitted to the California Stream Gauge Information Program (CALSIP). This information will support interconnected surface water analysis and provide information towards filling a data gap.

Water Quality Sample Collection

Water quality samples will be collected and analyzed from domestic wells where owner consent is obtained. It is anticipated that these wells would likely also consent to participation in the Voluntary Monitoring Network. Samples are anticipated to be collected in collaboration with the VMP.

3.3 Progress Made Towards Addressing Recommended Corrective Actions in GSP Determination

A GSP determination letter was issued to SASb in response to DWR's approval of the submitted plan on July 27, 2023. The letter provided four recommended corrective actions to be considered and addressed by the Plan's first Periodic Evaluation due in late January 2027. The four corrective actions issued by DWR for SASb, include:

- 1) **Recommended Corrective Action 1:** Amend or update the sustainable management criteria for:
 - a. Arsenic: establish SMC or clarify why an SMC was not developed,
 - b. Specific conductivity: provide information regarding specific conductivity, or the relationship between total dissolved solids (TDS) and specific conductivity, and
 - c. Threshold exceedances in a single aquifer zone: account for localized threshold exceedances or provide additional information.
- 2) **Recommended Corrective Action 2:** Revise definition of undesirable results for land subsidence.
- 3) **Recommended Corrective Action 3:** Interconnected surface water assessment and address data gaps.
- 4) **Recommended Corrective Action 4:** Additional information on the monitoring network.

SASb GSAs have initiated the necessary work to address corrective actions in the GSP Periodic Evaluation. Available groundwater water quality data for the SASb monitoring network are being evaluated from the GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) portal. Existing arsenic data has been reviewed and the GSAs are assessing the need for establishing sustainable management criteria for arsenic. A similar evaluation will be conducted to evaluate available specific conductivity (SC) and TDS data for SASb monitoring network wells. Results from this evaluation will be considered to determine the relationship between SC and TDS data. The quantitative definition of undesirable results for the individual aquifer zones will be considered and described in the Periodic Evaluation.

The review and evaluation of the current definition of undesirable results for land subsidence will be performed during preparation of the first Periodic Evaluation. GSAs plan to develop the scope of work for assessing interconnected surface water impacts and data gaps once the DWR guidance is released. Missing monitoring network information noted in the GSP Determination letter will be obtained in the completed Periodic Evaluation.

3.4 Funding Sources

3.4.1 DWR Support

Facilitation support has been provided by DWR for ongoing basin coordination and for ongoing DWAG coordination.

3.4.2 Locally Funded Activities

All the planning and implementation activities described in the previous sections were locally funded in WY2024 except the DWAG related coordination.

3.4.3 Other Support

In addition to local funding, the Harvest Water Project has received funding from California's Water Storage Investment Program, the United States Bureau of Reclamation and the State Water Resources Control Board.

4 References

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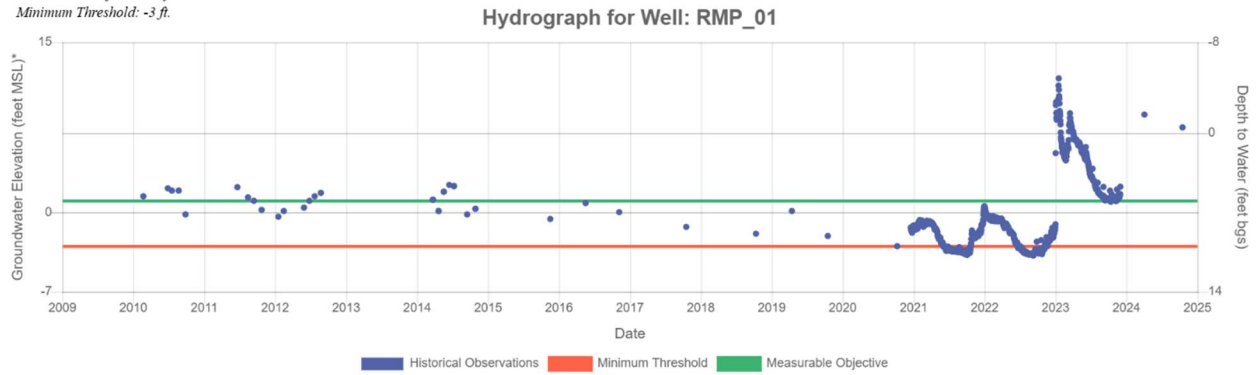
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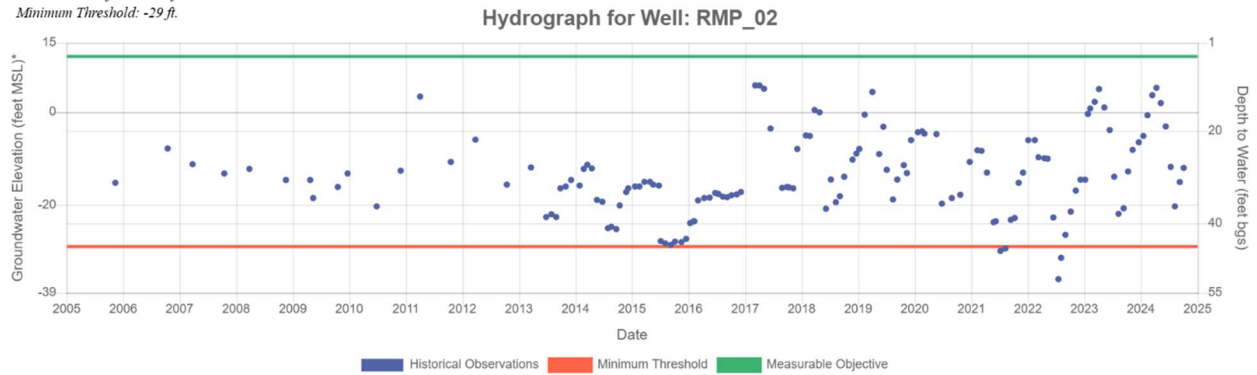
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https://ucanr.edu/sites/Salinity/Salinity_Management/Salinity_Basics/Salinity_measurement_and_unit_conversions/

Appendix A: Groundwater Elevation Hydrographs

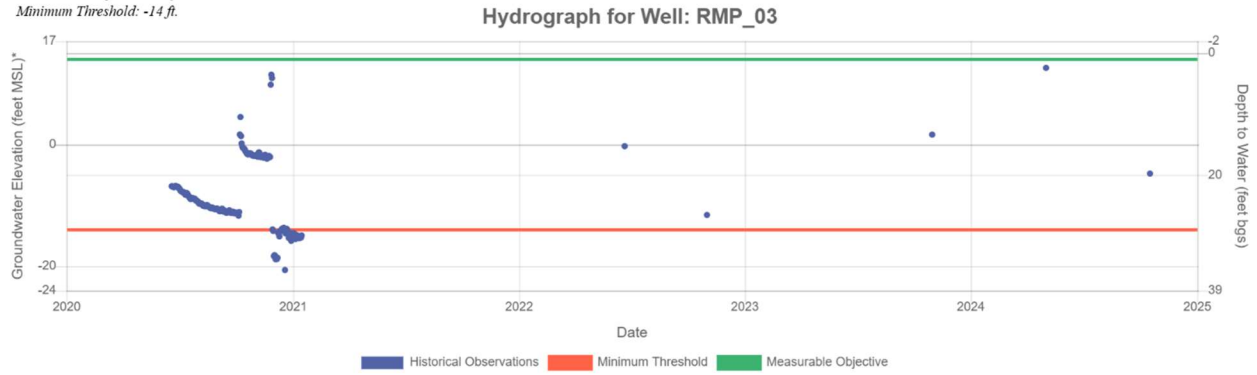
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Minimum Threshold: -3 ft.



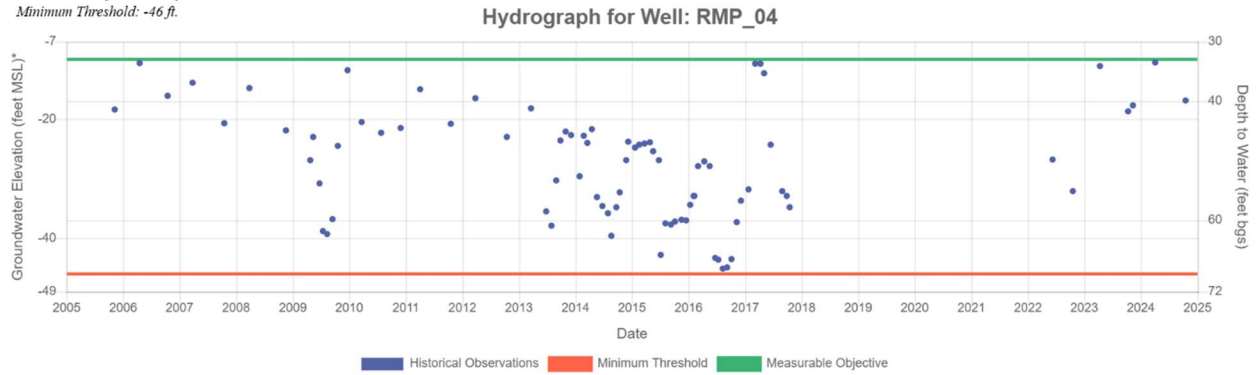
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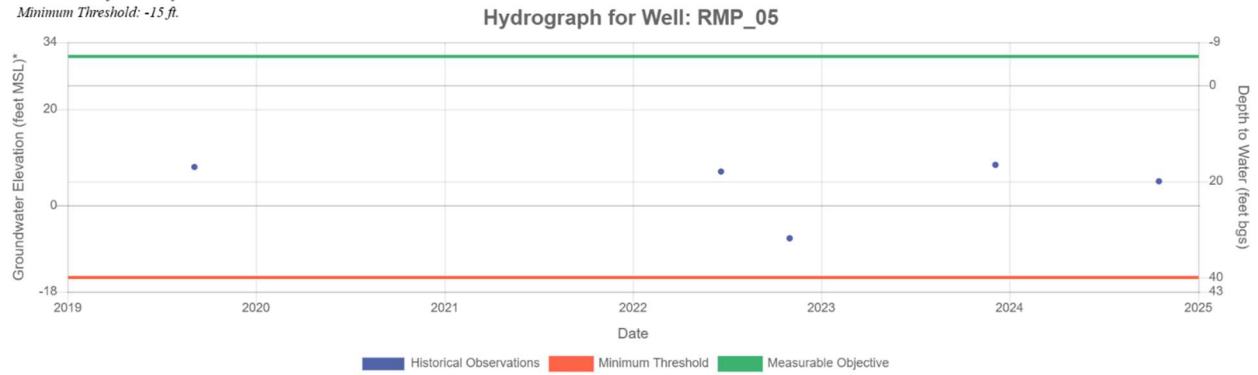
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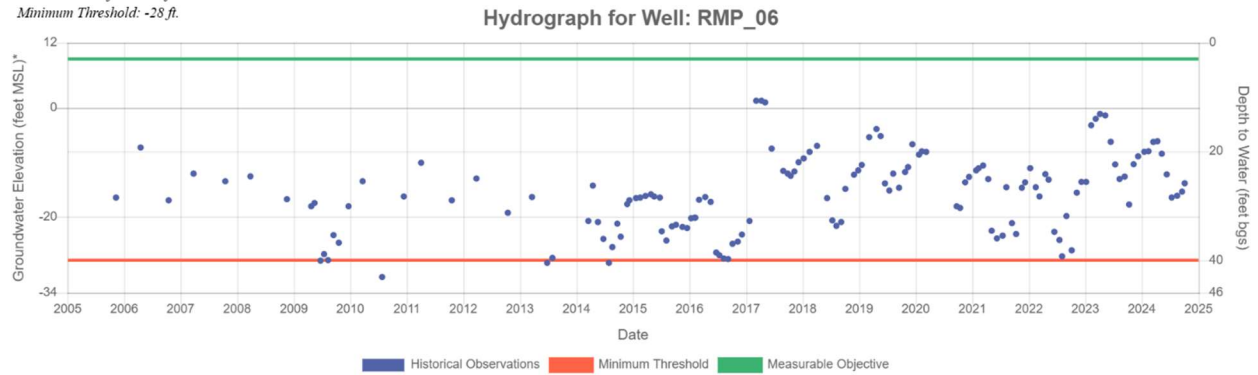
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Minimum Threshold: -46 ft.



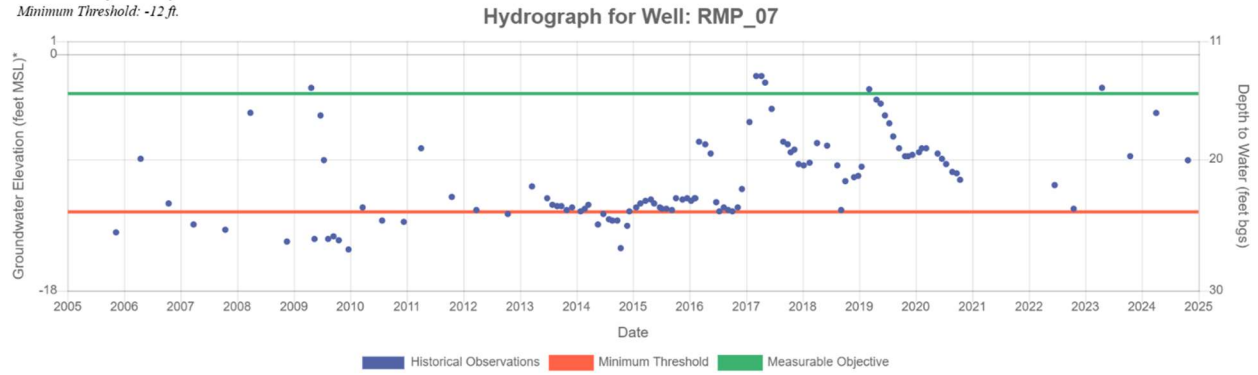
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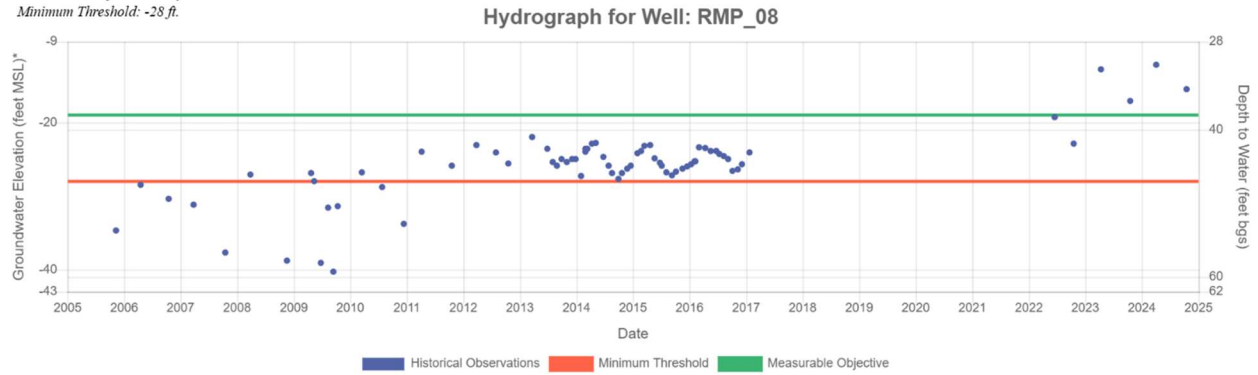
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Measurable Objective: 9 ft.
Minimum Threshold: -28 ft.



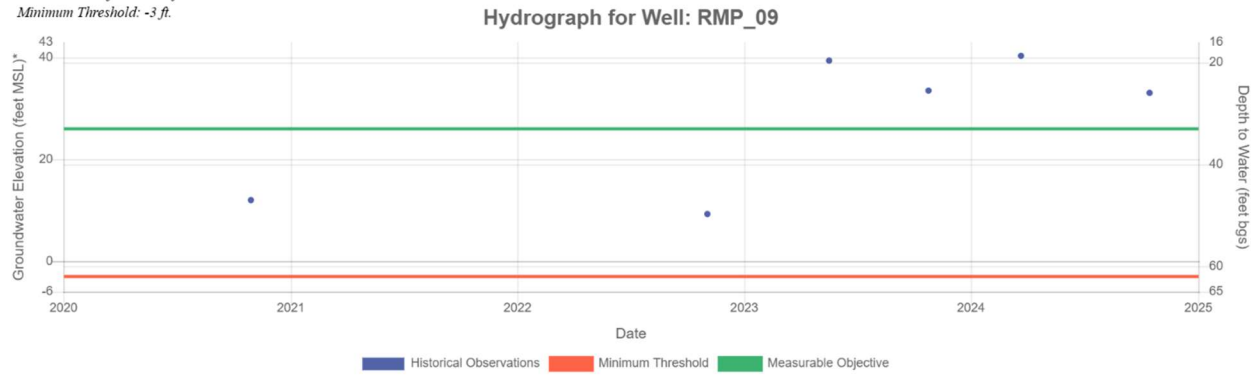
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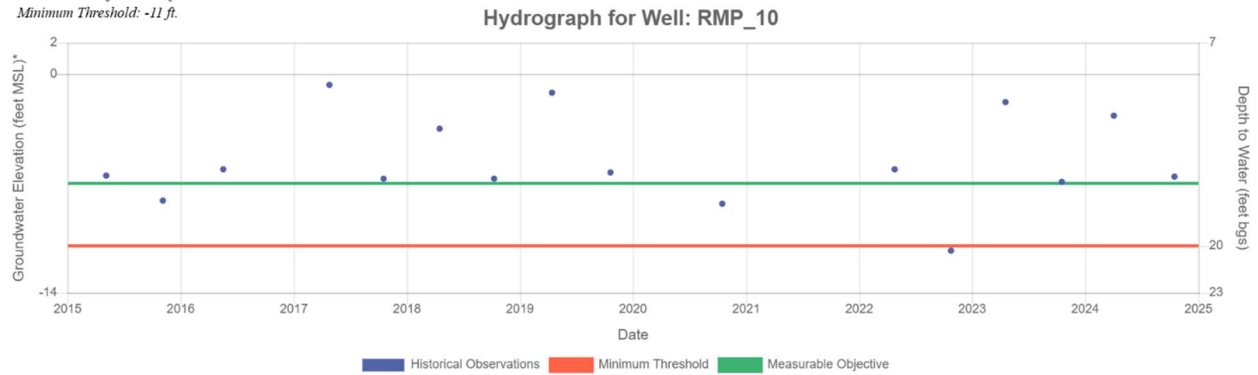
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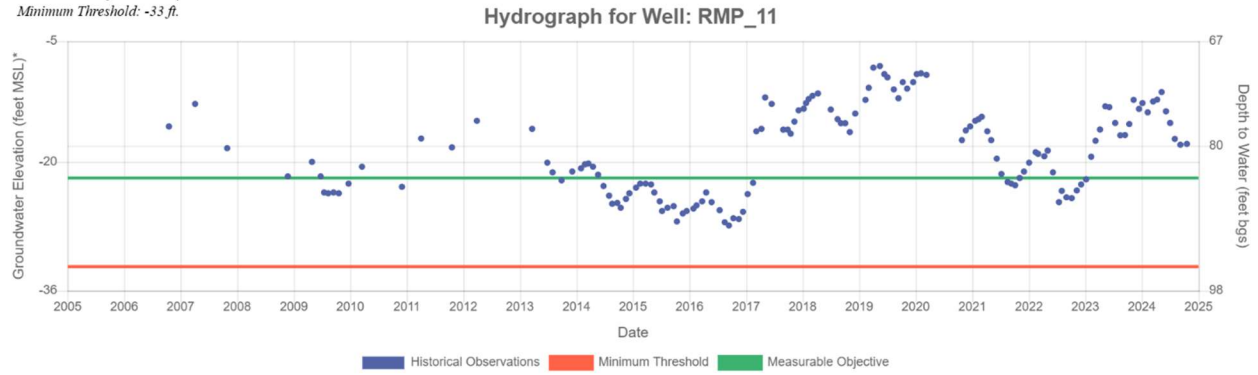
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Minimum Threshold: -3 ft.



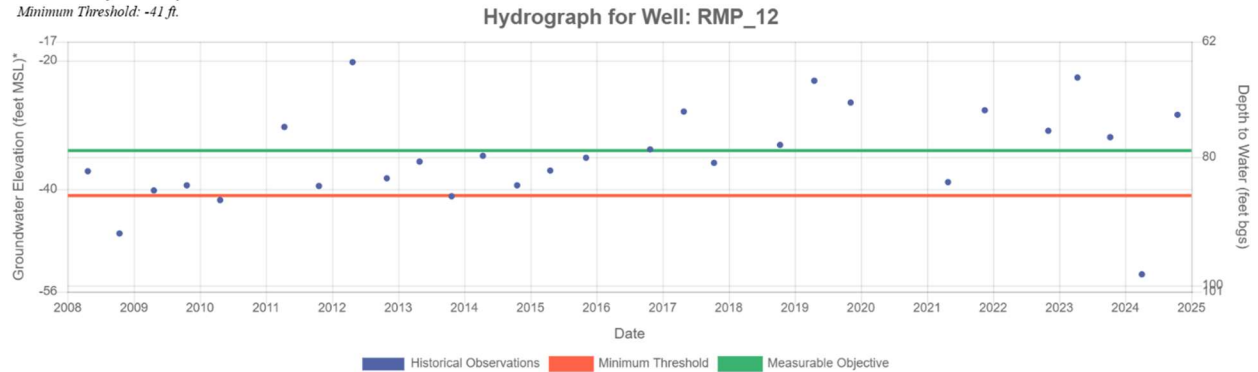
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Measurable Objective: -7 ft.
Minimum Threshold: -11 ft.



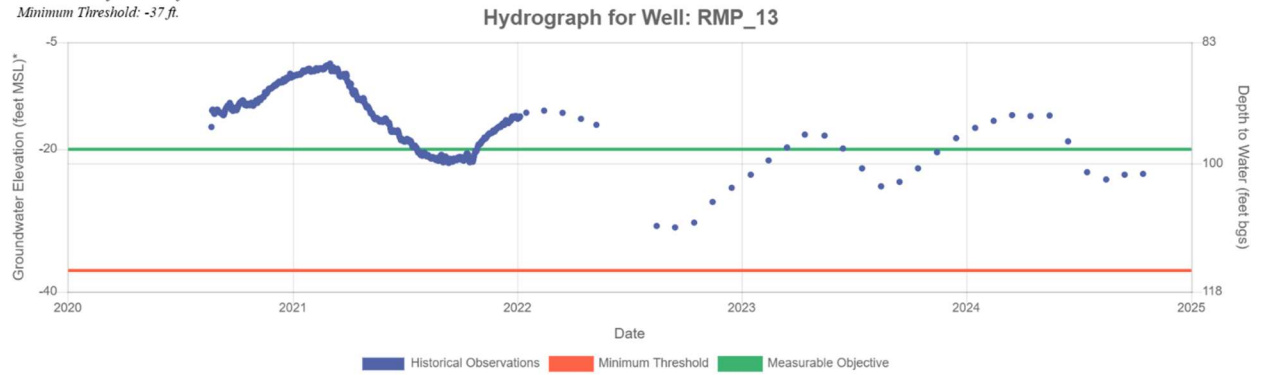
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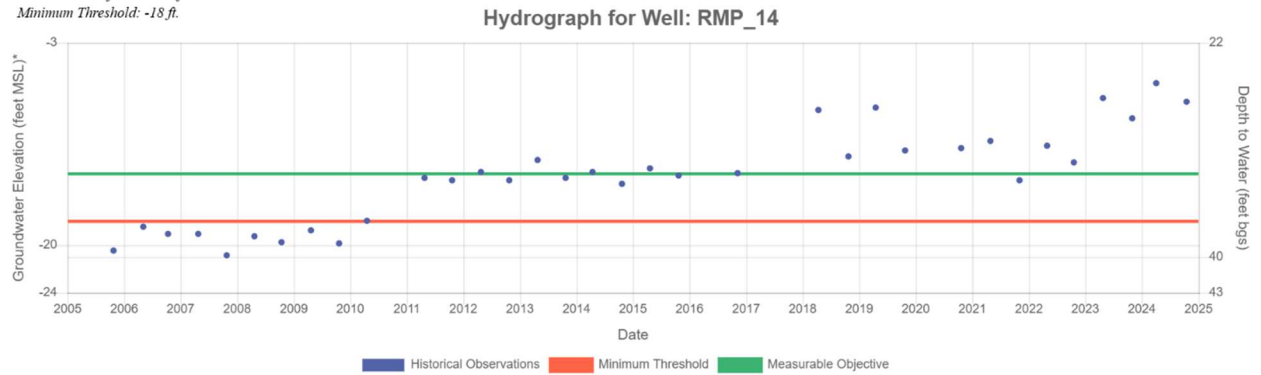
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Minimum Threshold: -41 ft.



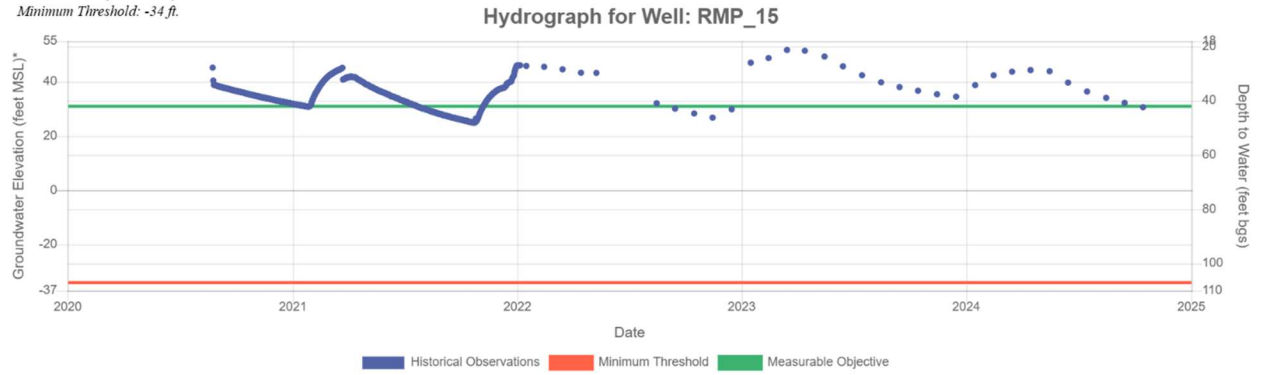
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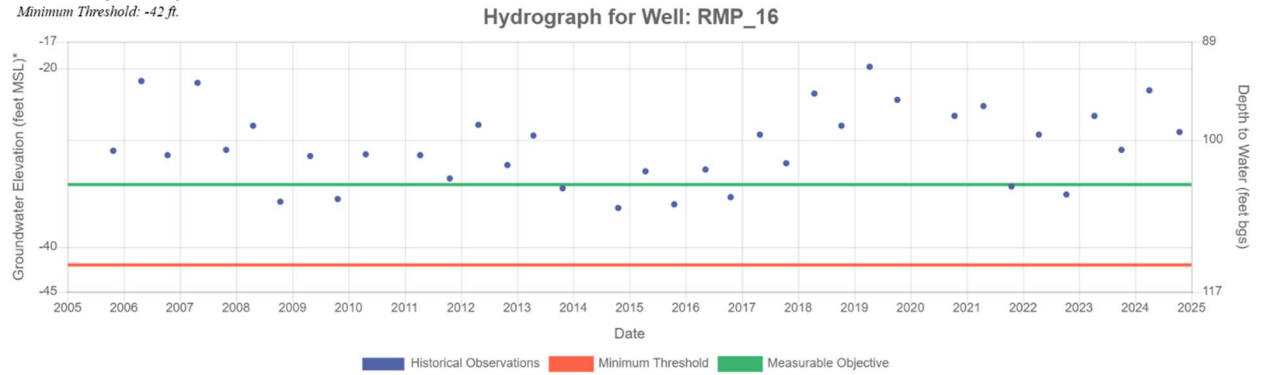
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Minimum Threshold: -18 ft.



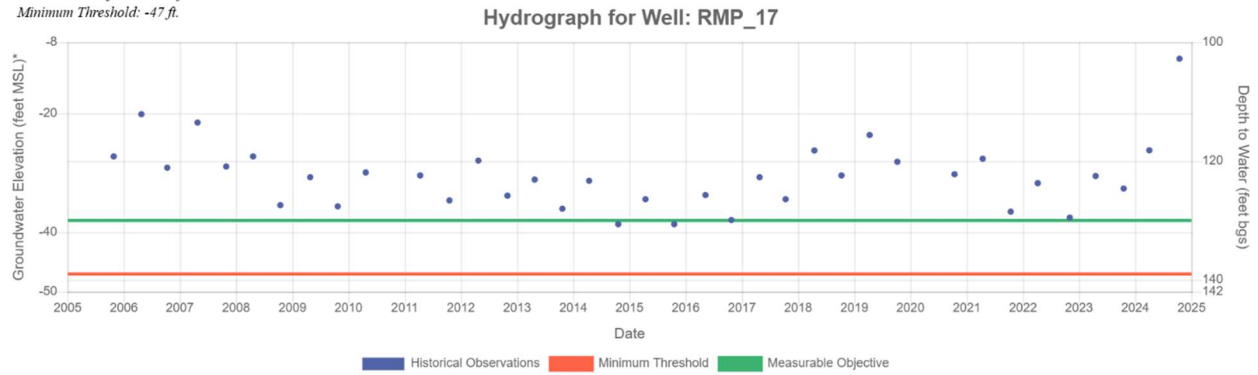
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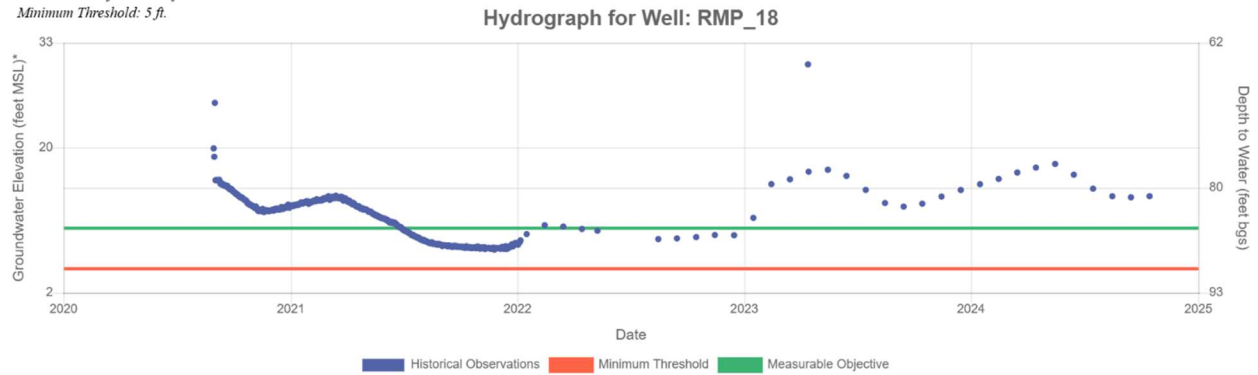
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Minimum Threshold: -42 ft.



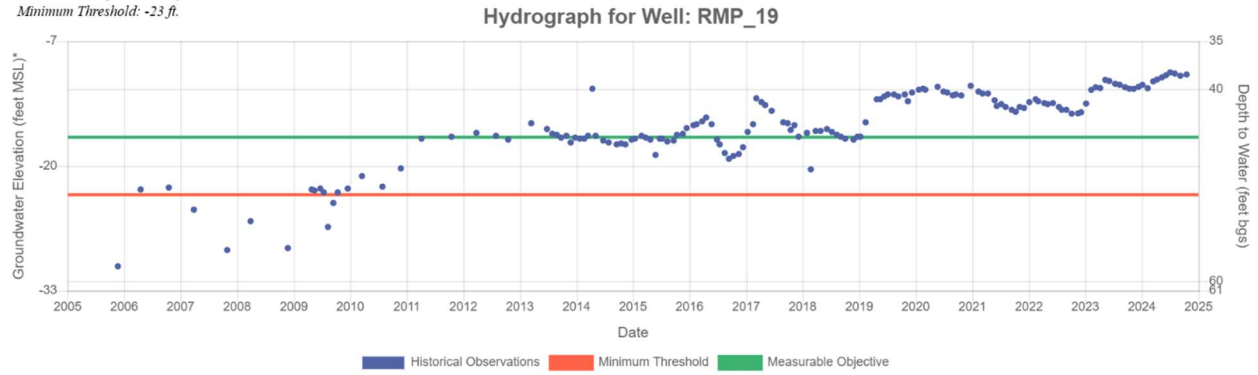
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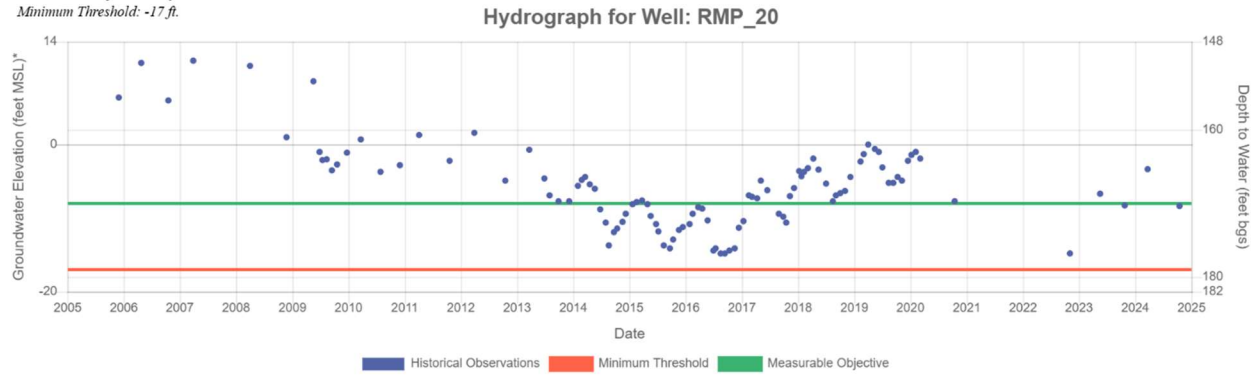
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Minimum Threshold: 5 ft.



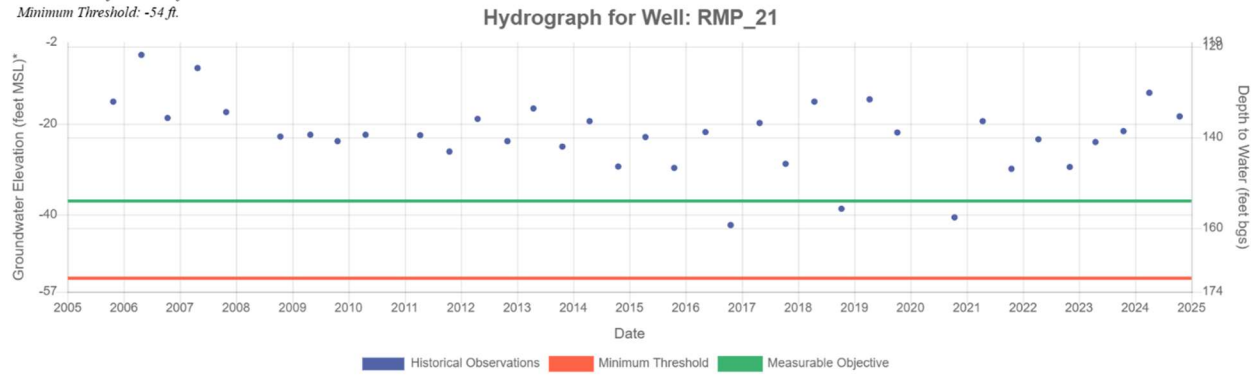
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Minimum Threshold: -23 ft.



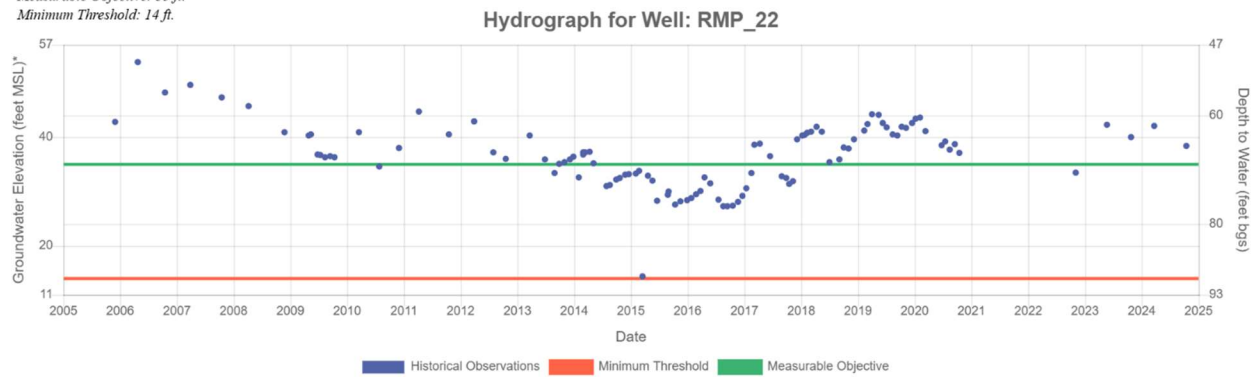
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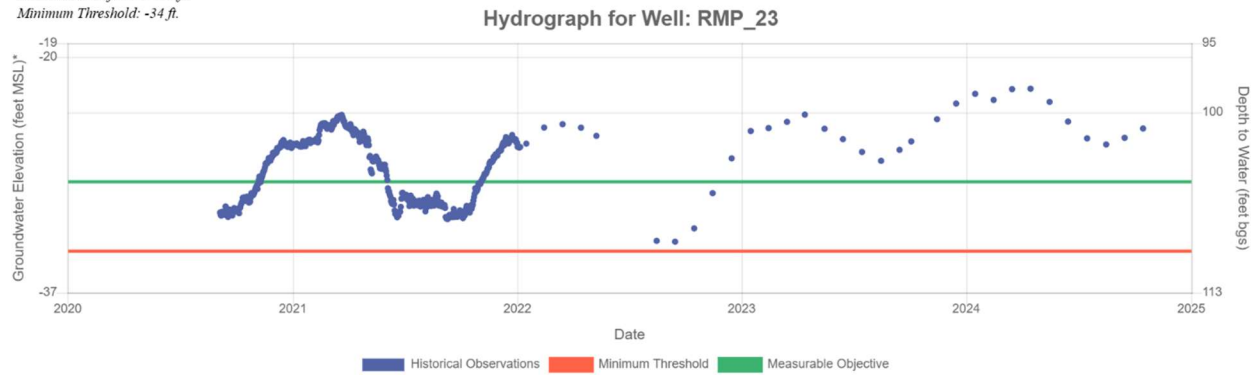
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Minimum Threshold: -54 ft.



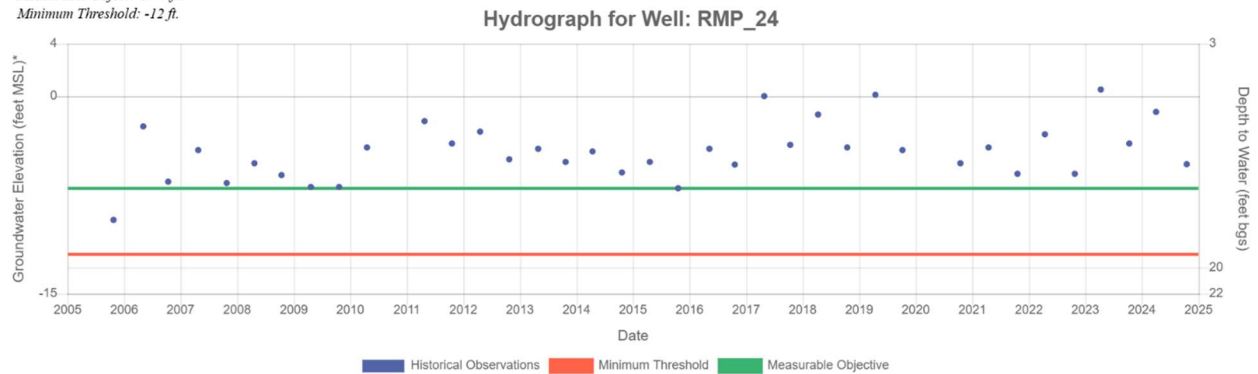
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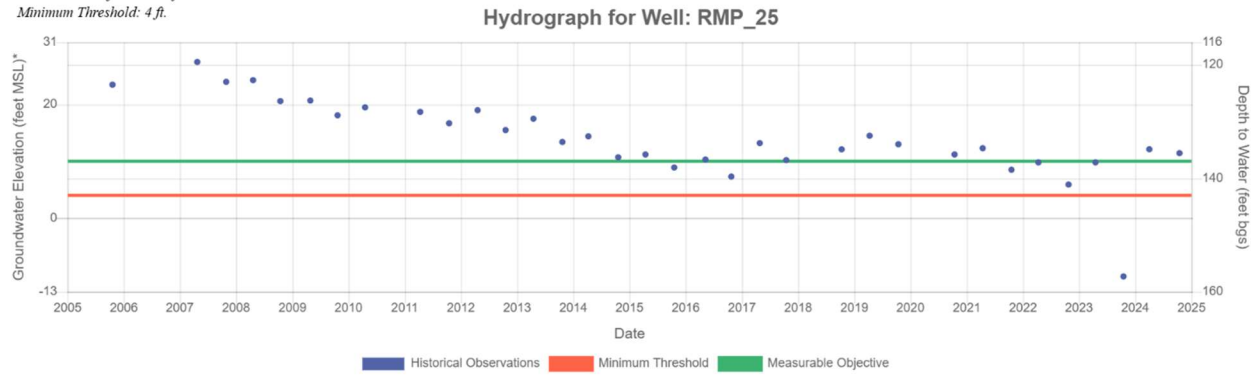
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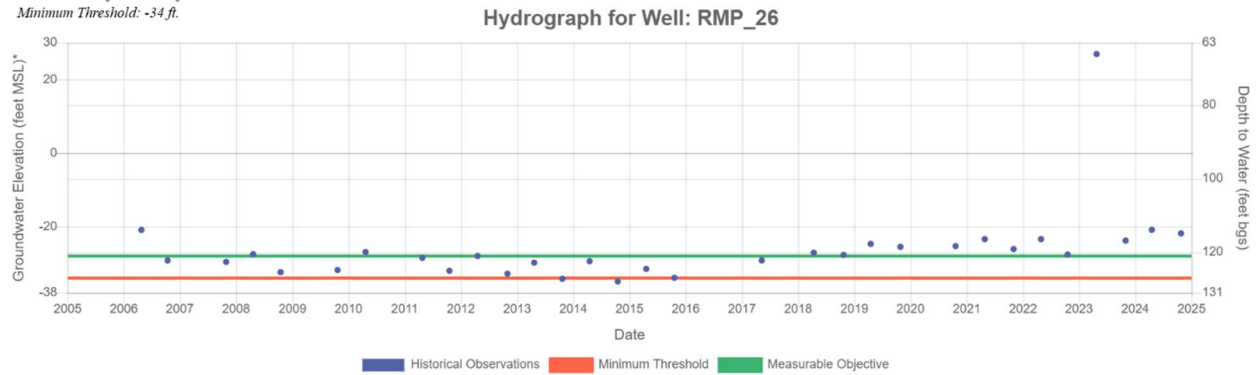
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Minimum Threshold: -12 ft.



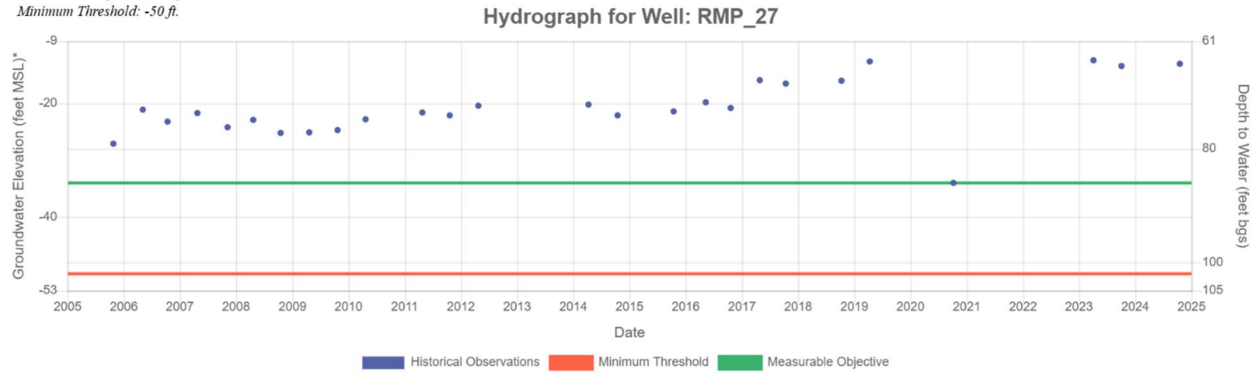
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Minimum Threshold: 4 ft.



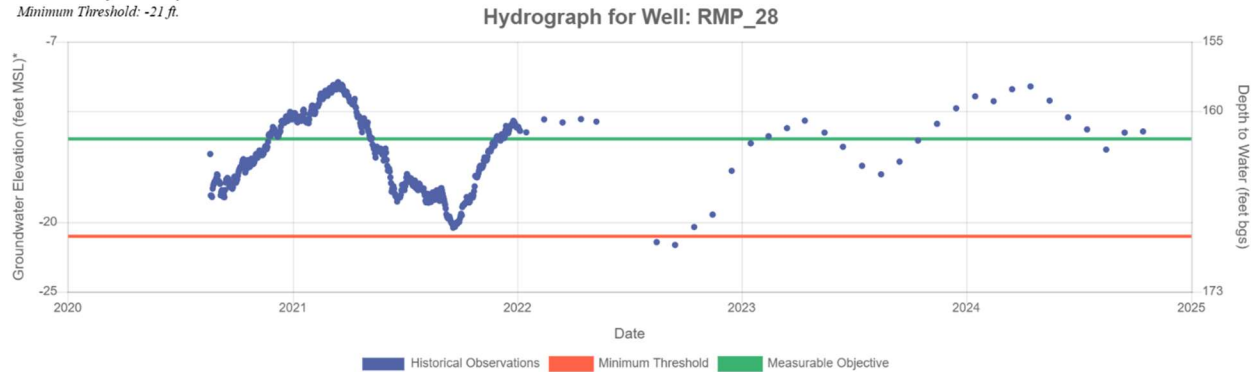
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Minimum Threshold: -50 ft.

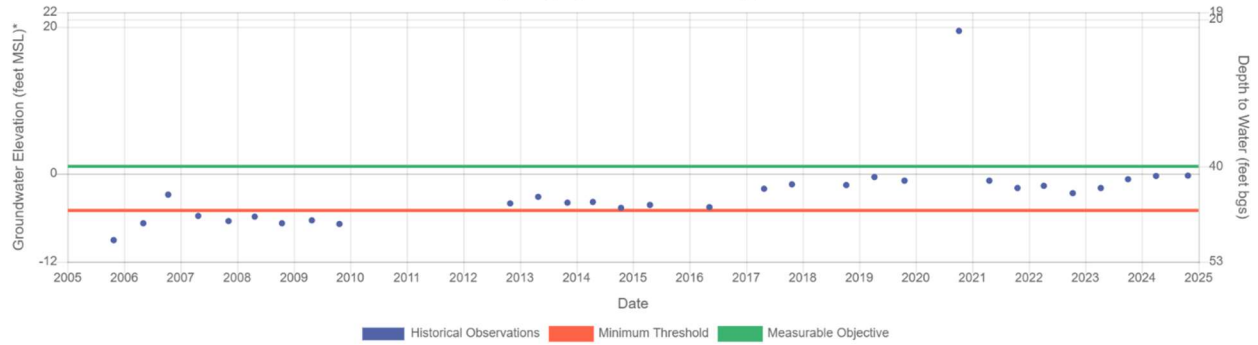


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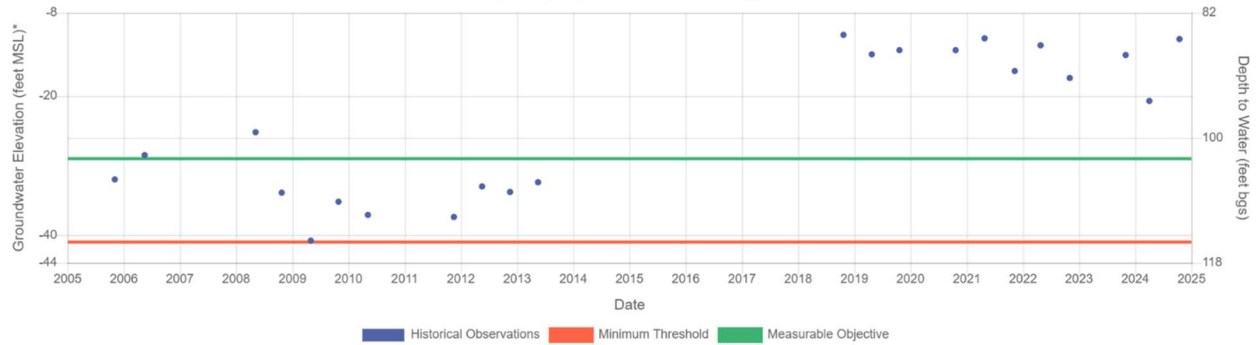
Ground Surface Elevation: 42 ft.
Measurable Objective: 1 ft.
Minimum Threshold: -5 ft.

Hydrograph for Well: RMP_29



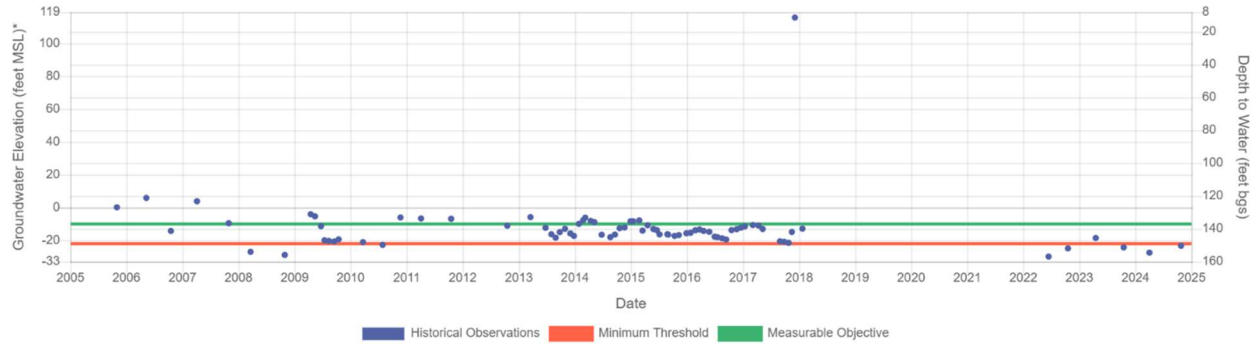
Ground Surface Elevation: 74 ft.
Measurable Objective: -29 ft.
Minimum Threshold: -41 ft.

Hydrograph for Well: RMP_30



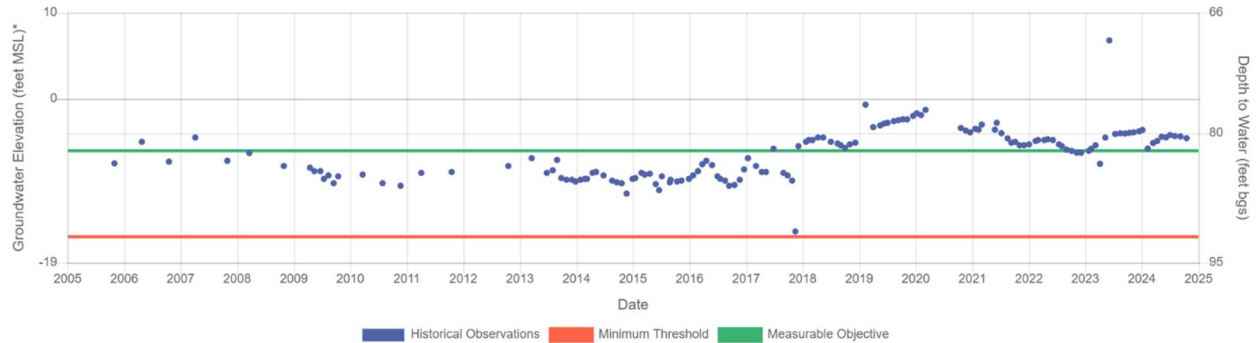
Ground Surface Elevation: 127 ft.
Measurable Objective: -10 ft.
Minimum Threshold: -22 ft.

Hydrograph for Well: RMP_31

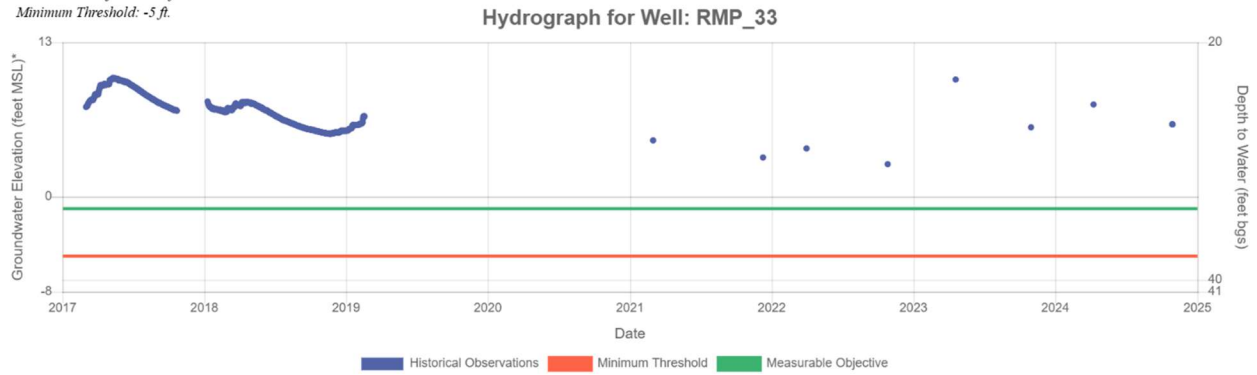


Ground Surface Elevation: 76 ft.
Measurable Objective: -6 ft.
Minimum Threshold: -16 ft.

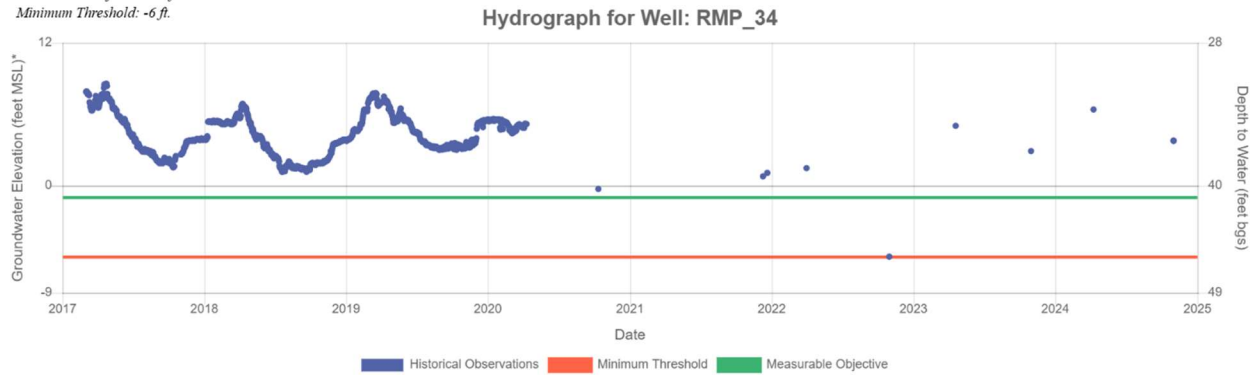
Hydrograph for Well: RMP_32



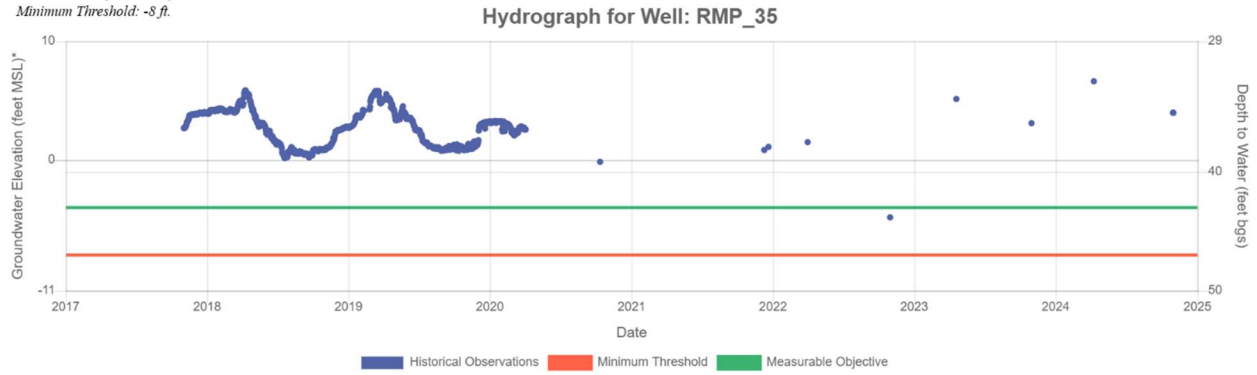
Ground Surface Elevation: 34 ft.
Measurable Objective: -1 ft.
Minimum Threshold: -5 ft.



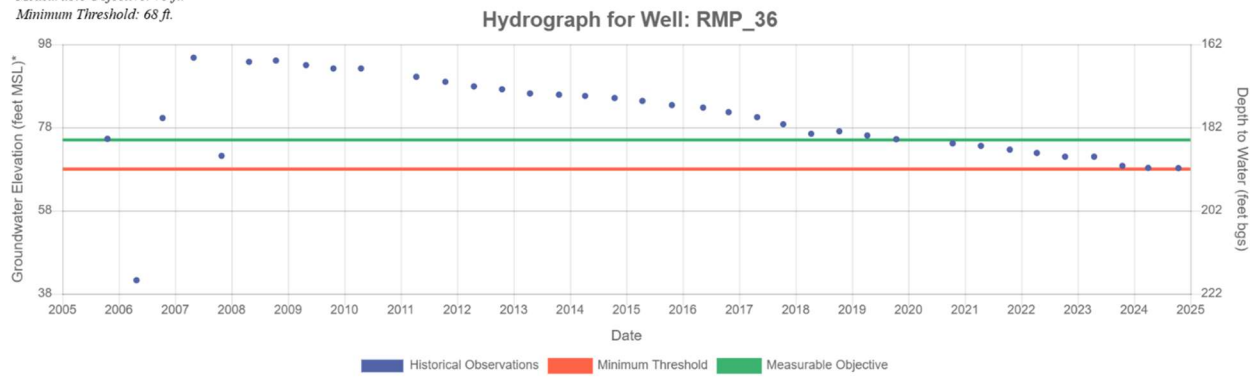
Ground Surface Elevation: 40 ft.
Measurable Objective: -1 ft.
Minimum Threshold: -6 ft.



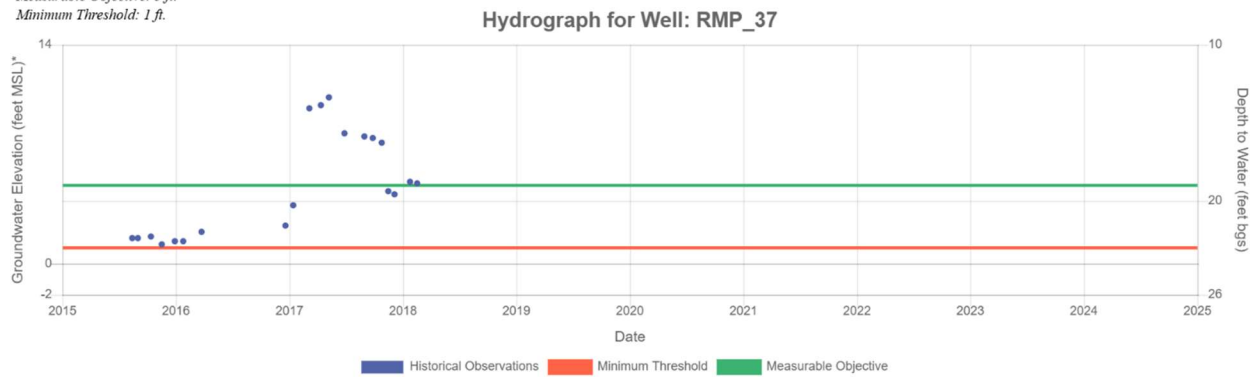
Ground Surface Elevation: 40 ft.
Measurable Objective: -4 ft.
Minimum Threshold: -8 ft.



Ground Surface Elevation: 260 ft.
 Measurable Objective: 75 ft.
 Minimum Threshold: 68 ft.

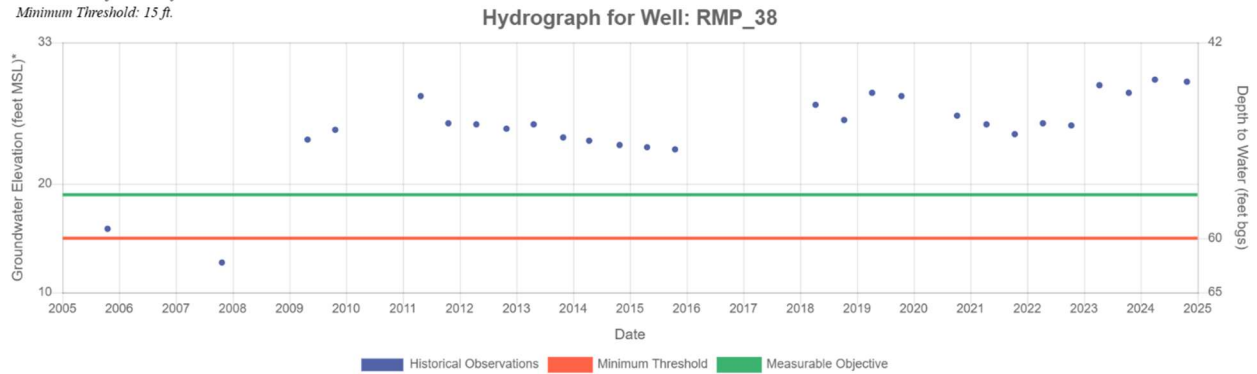


Ground Surface Elevation: 25 ft.
 Measurable Objective: 5 ft.
 Minimum Threshold: 1 ft.

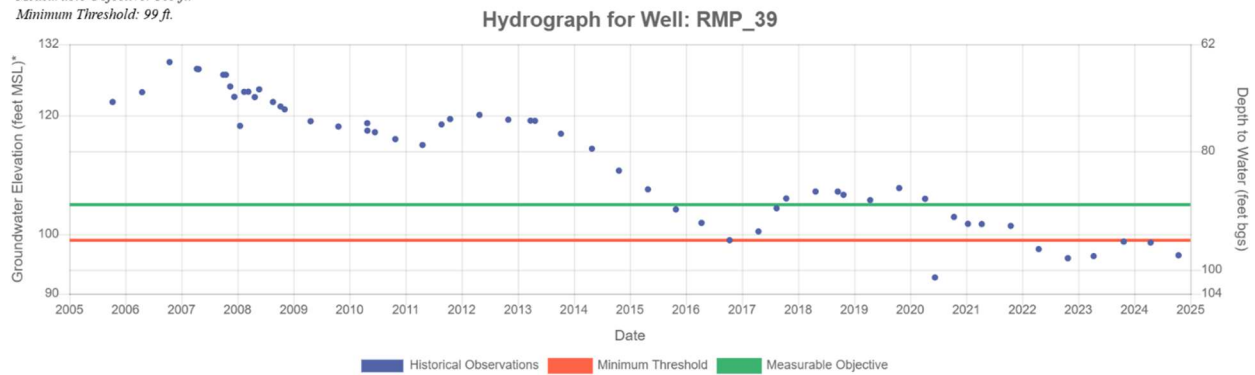


RMP_37 was sealed and is no longer monitored. It will likely be removed at the 5-year update review.

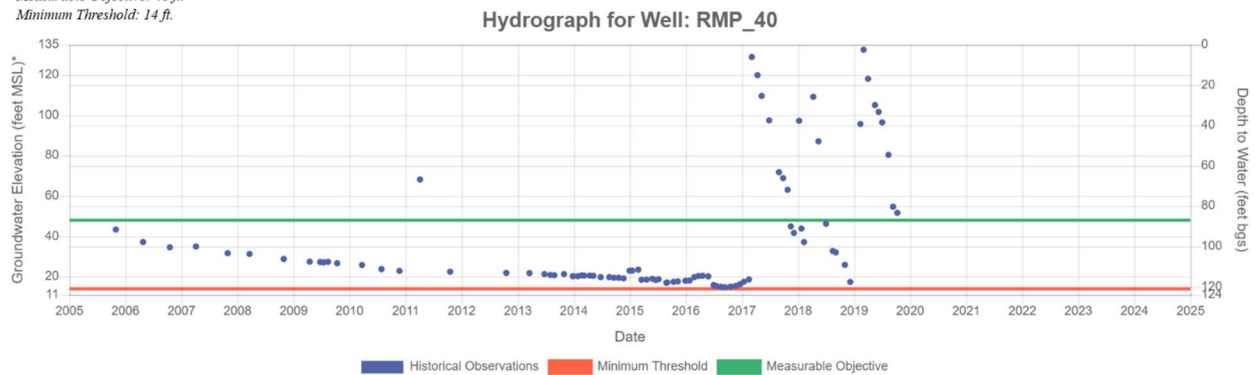
Ground Surface Elevation: 76 ft.
 Measurable Objective: 19 ft.
 Minimum Threshold: 15 ft.



Ground Surface Elevation: 195 ft.
 Measurable Objective: 105 ft.
 Minimum Threshold: 99 ft.

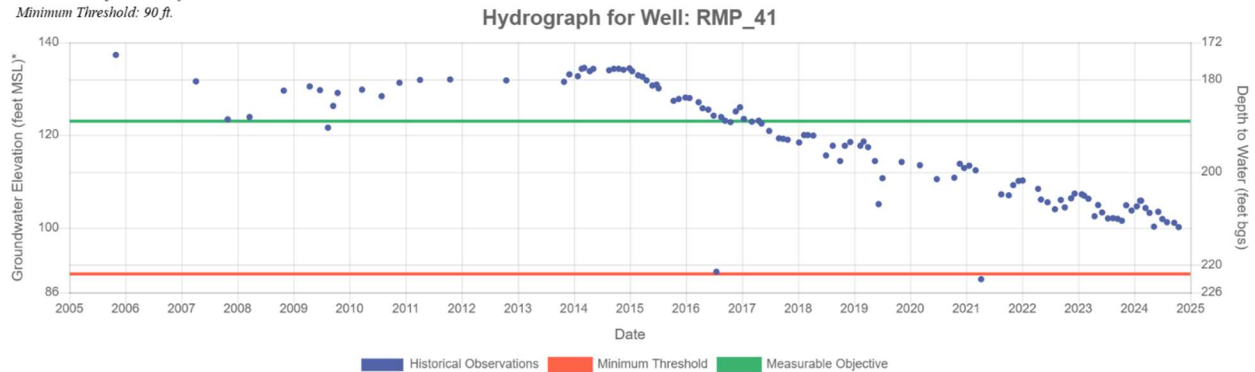


Ground Surface Elevation: 136 ft.
 Measurable Objective: 48 ft.
 Minimum Threshold: 14 ft.

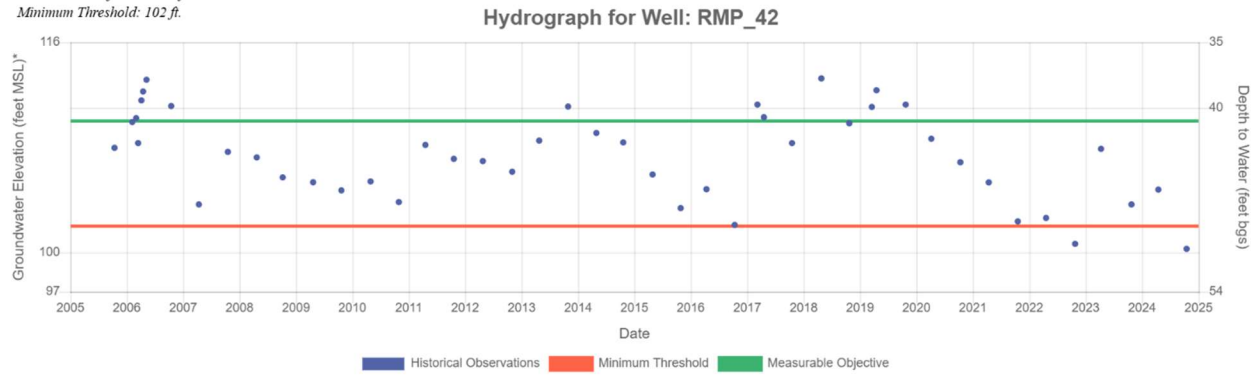


RMP_40 was destroyed and is no longer monitored. It will likely be removed at the 5-year update review.

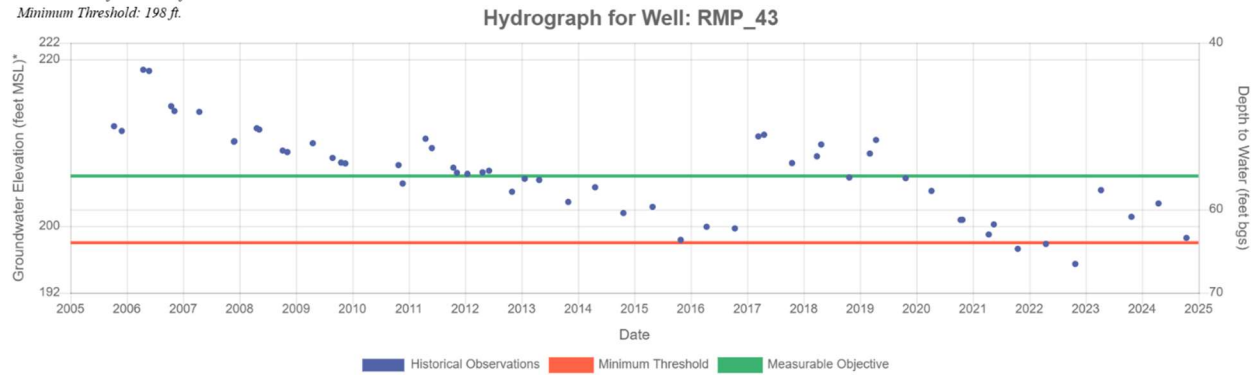
Ground Surface Elevation: 312 ft.
 Measurable Objective: 123 ft.
 Minimum Threshold: 90 ft.



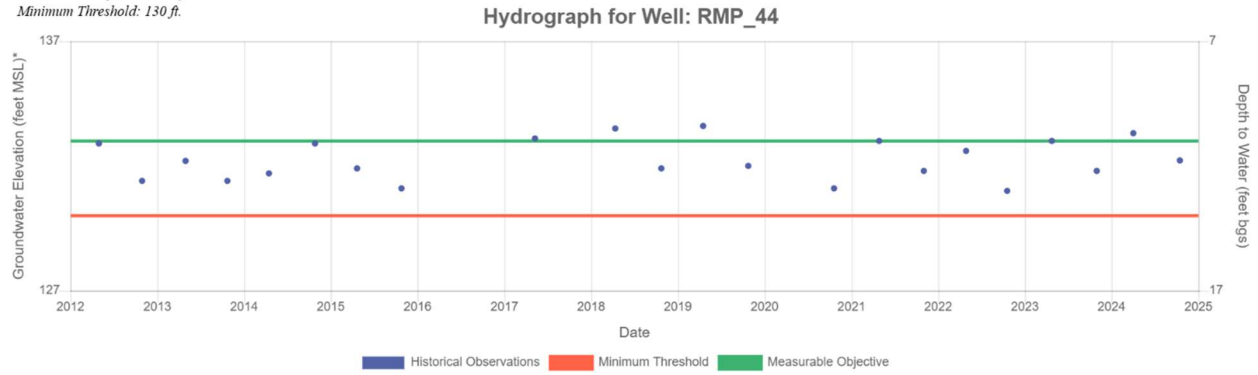
Ground Surface Elevation: 152 ft.
Measurable Objective: 110 ft.
Minimum Threshold: 102 ft.



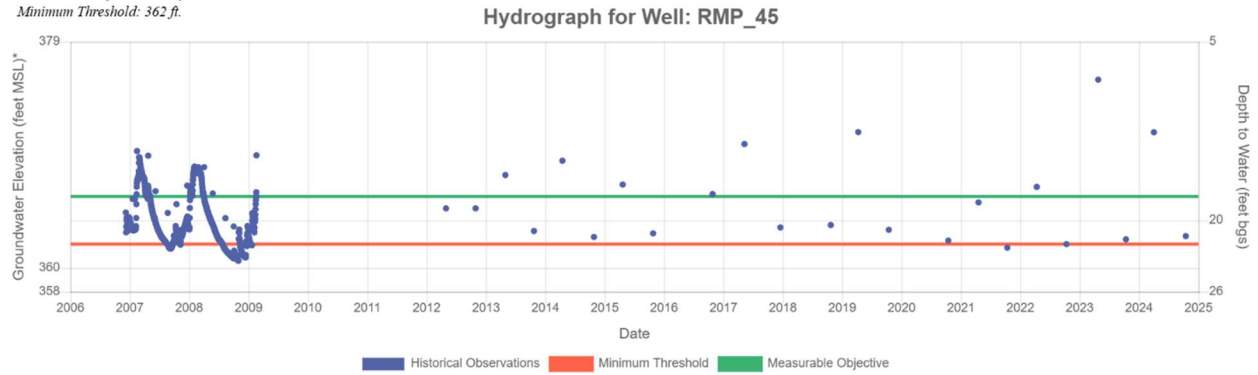
Ground Surface Elevation: 263 ft.
Measurable Objective: 206 ft.
Minimum Threshold: 198 ft.



Ground Surface Elevation: 145 ft.
Measurable Objective: 133 ft.
Minimum Threshold: 130 ft.



Ground Surface Elevation: 385 ft.
Measurable Objective: 366 ft.
Minimum Threshold: 362 ft.



Appendix B: Groundwater Level Monitoring Coordination Plan

A monitoring data collection, communication, and coordination strategy is developed to ensure timely and complete data collection at all RMPs and submittal to DWR's monitoring network module (MNM) to support annual reporting and SMC evaluation. The plan fundamentally hinges on the completion of a monitoring checklist, and includes all parties responsible for data collection, management, submittal, and use. At the time of writing, these parties include:

- **Collectors** (SCGA, OHWD, LWA, Aerojet, Sacramento State)
- **Manager** (SCGA as the plan administrator)
- **Users** (SCGA, OHWD, LWA, Aerojet, Sacramento State, public and DWR)
- **DMS Manager**

The plan is divided into spring and fall periods, with six phases in each period, each representing sequential effort. A flow chart of the six phases is included in Attachment A.

Phase 0. *March 1/September 1:* Managers communicate with **Collectors** to verify schedule and identify any impediments to successful data collection.

Phase 1. *April 1 – April 30 / October 1 – October 31:* spring/fall groundwater level data is measured and input to the spreadsheet (GroundwaterLevelTemplateSASB_RMPs.xlsx) by **Collectors** and transferred to **Manager** who imports the spreadsheets into the DMS. The spreadsheet serves a seasonal tracking effort, thus it is used twice per year: once in spring, and once in fall.

Collectors provide progress updates to **Manager** (SCGA staff) to ensure data is collected from all wells in the monitoring network. List of wells in the monitoring network is provided in Attachment B. **Manager** keeps track of issues with the individual wells as reported by **Collectors** (inaccessibility, etc.). Assigned collectors are summarized below in Table 1.

Table 1. Collectors for SASb.

Organization	Name	Number of Wells
SCGA	SCGA Staff	23
Sacramento State	Dr. Amelia Van Keuren	3
OHWD	OHWD Staff/Andrew Calderwood/LWA	6
SCGA	Andrew Calderwood/Olin Applegate/LWA	2
DWR	Automatic API transfer to DMS	6
Aerojet	SCGA Staff (retrieve from RWA)	3
Total		43

DWR Wells are monitored by DWR staff and data are available for review through CASGEM or the MNM. Data from CASGEM will be uploaded to the DMS via an automatic API transfer, to be performed by April 30 / October 31.

Phase 2. *May 1 – May 15 / November 1 – November 15:* spring/fall groundwater level data is reviewed by **Managers** in the spreadsheet by May 15 / November 15. RMPs without a valid spring/fall sample are identified by **Managers** and communicated to **Collectors** for data collection in Phase 3.

Phase 3. *May 16 – May 31 / November 16 – November 30:* RMPs identified in Phase 2 missing a spring/fall measurement are measured and input to the spreadsheet (GroundwaterLevelTemplateSASB_RMPs.xlsx) by **Collectors**, who then give these data to **Managers**, and Phases 1-3 are iteratively repeated until all data is present, or a decision is made that data cannot be collected during the semi-annual event.

Importantly, Phases 1-3 ensure adequate time for collectors to measure missing RMPs in the late spring or fall, should missing or otherwise inadequate data be collected. Data collection efforts will be tracked.

Phase 4. *June 1 – June 15 / December 1 – December 15:* The spreadsheet with the collected data is imported to the DMS by the **Manager**. After import of groundwater level data to the DMS, hydrographs are reviewed by the **Managers**. **Managers** coordinate with **Collectors** to make corrections or check data for errors. Follow up on missing groundwater levels will be coordinated at this time. **Collectors** provide required corrections by June 15/December 15.

Corrections will be made to the DMS by the **Manager** dependent on findings in Phase 4. The **Manager** will export the data from the DMS and submit the data to DWR's MNM by June 30/December 31.

Phase 5. *July 1 – July 30 / January 1 – January 30:* **Managers** work with **Collectors** to identify opportunities to overcome obstacles to data collection for RMPs that were not monitored during the prior semi-annual event.

Attachment A. Monitoring Phases

Groundwater Level Monitoring Coordination Plan

Spring Water Level Monitoring

Phase 0 - March 1
Manager coordinates with
Collectors on upcoming event

Phase 1 – April 1-30
Collectors monitor wells,
input data to spreadsheet and
report to [Manager](#)

Phase 2 – May 1 - 15
Manager reviews data for
completeness and
communicate missing [RMPs](#)

Phase 3 – May 16-31
Collectors monitor follow-up
wells, input data to
spreadsheet and report to
[Manager](#)

Phase 4 – June 1 – 15
Manager imports
spreadsheet to DMS and
submit to DWR by June 30

Phase 5 – July
Manager and Collectors
discuss obstacles to data
collection in prior [event](#)

Fall Water Level Monitoring

Phase 0 - September 1
Manager coordinates with
Collectors on upcoming event

Phase 1 – October 1-30
Collectors monitor wells,
input data to spreadsheet and
report to [Manager](#)

Phase 2 – November 1 - 15
Manager reviews data for
completeness and
communicate missing [RMPs](#)

Phase 3 – November 16-31
Collectors monitor, input data
to spreadsheet follow-up
wells and report to [Manager](#)

Phase 4 – December 1 – 15
Manager imports
spreadsheet to DMS and
submit to DWR by June 30

Phase 5 – January
Manager and Collectors
discuss obstacles to data
collection in prior [event](#)

Attachment B. Monitoring Wells

Groundwater Level Monitoring Coordination Plan

RMP	SiteCode	SWN	code2	GSA	Monitoring
RMP_01	382604N1214665W001	05N05E30A004M	382604N1214665W001	N. Delta	SCGA Staff
RMP_03	382967N1213820W001		MW_17	SCGA	SCGA Staff
RMP_04	383009N1214224W001	05N05E10C003M	383009N1214224W001	SCGA	SCGA Staff
RMP_05	383126N1213790W001		MW_2	SCGA	SCGA Staff
RMP_07	383610N1214825W001	06N04E24A001M	383610N1214825W001	N. Delta	SCGA Staff
RMP_08	383728N1214548W001	06N05E17F001M	383728N1214548W001	SCGA	SCGA Staff
RMP_10	384125N1214950W001		384125N1214946W001	N. Delta	SCGA Staff
RMP_12	384202N1213738W001	07N05E36A001M	SCGA #4	SCGA	SCGA Staff
RMP_14	384343N1214615W001	07N05E29D001M	SCGA #3	SCGA	SCGA Staff
RMP_16	384425N1213031W001	07N06E22R002M	SCGA #9	SCGA	SCGA Staff
RMP_17	384532N1212856W001	07N06E14Q001M	SCGA #7	SCGA	SCGA Staff
RMP_21	384798N1212614W001	07N06E12A001M	SCGA #6	SCGA	SCGA Staff
RMP_24	385021N1214948W001	08N04E36L001M	SCGA #10	SCGA	SCGA Staff
RMP_25	385038N1212203W001	08N07E33E001M	SCGA #23	OHWD	SCGA Staff
RMP_26	385190N1213015W001	08N06E27H002M	SCGA #15	SCGA	SCGA Staff
RMP_27	385223N1213630W001	08N06E30C001M	SCGA #17	SCGA	SCGA Staff
RMP_29	385343N1214280W001	08N05E21H002M	SCGA #11	SCGA	SCGA Staff
RMP_30	385469N1213389W001	08N06E17H001M	SCGA #12	SCGA	SCGA Staff
RMP_31	385543N1212592W001	08N07E18E002M	385543N1212592W001	SCGA	SCGA Staff
RMP_36	385707N1211868W001	08N07E02N001M	SCGA #20	SCGA	SCGA Staff
RMP_38	385849N1213173W001	09N06E33R001M	SCGA #24	SCGA	SCGA Staff
RMP_44	386578N1211879W001	09N07E02N001M	SCGA #27	SCGA	SCGA Staff
RMP_45	386895N1211169W001	10N08E29J001M	SCGA #29	SCGA	SCGA Staff
RMP_33	385637N1214302W001		SS_MW1	SCGA	Sacramento State
RMP_34	385671N1214239W001		SS_DWR2D	SCGA	Sacramento State
RMP_35	385679N1214258W001		SS_DWR3D	SCGA	Sacramento State
RMP_09	383791N1213194W001		MW_DR1	OHWD	OHWD
RMP_20	384783N1212311W001	07N07E08B003M	384783N1212311W001	OHWD	OHWD
RMP_22	384931N1211797W001	07N07E02C001M	384931N1211797W001	OHWD	OHWD
RMP_13	384322N1212396W001		ACR_13	OHWD	LWA for OWHD
RMP_15	384399N1212512W001		ACR_14	OHWD	LWA for OWHD
RMP_18	384717N1212029W001		ACR_16	OHWD	LWA for OWHD
RMP_23	385003N1213139W001		ACR_76	SCGA	LWA for OWHD
RMP_28	385279N1212587W001		ACR_77	SCGA	LWA for OWHD
RMP_02	382939N1213904W001	05N05E12N003M	382939N1213904W001	SCGA	DWR - API
RMP_06	383270N1214736W001	06N05E31L003M	383270N1214736W001	SCGA	DWR - API
RMP_11	384150N1213239W001	07N06E33K001M	384150N1213239W001	SCGA	DWR - API
RMP_19	384738N1214249W001	07N05E10M001M	384738N1214249W001	SCGA	DWR - API
RMP_32	385578N1213240W001	08N06E09Q004M	385578N1213240W001	SCGA	DWR - API
RMP_41	385923N1211621W001	09N07E36F001M	385923N1211621W001	SRCD	DWR - API
RMP_37	385784N1214655W001	08N05E06H001M	385784N1214655W001	SCGA	Destroyed
RMP_40	385914N1212475W001	09N07E31G001M	385914N1212475W001	SCGA	Destroyed
RMP_39	385889N1212051W001		ARJ1256	SCGA	Aerojet
RMP_42	386260N1212065W001		ARJ188	SCGA	Aerojet
RMP_43	386358N1211788W001		ARJ3390	SCGA	Aerojet

Appendix C: Spatial Representation of Groundwater Extractions and Change in Groundwater Storage as Estimated by CoSANA

Figure C-1 displays the general locations of groundwater extractions in the SASb during the 2024 water year. This figure represents the normalized extraction rates per unit area by CoSANA model elements for municipal and industrial, agricultural (including agricultural residential) and remediation extractions. The municipal and industrial and remediation extractions are reported by well, while the agricultural and ag res extractions are estimated by area using the CoSANA model.

Figure C-2 displays the total change in groundwater storage in the principal aquifer of the SASb for water year 2024 in a spatial format as estimated by outputs from CoSANA. The principal aquifer is divided into the upper aquifer and the lower aquifer. The change in storage is shown in units of inches. CoSANA calculates a change in volume per area of model element. Since the model elements vary in size, visually displaying a map of volume change per model element is not spatially intuitive, so the results have been normalized to show change in depth by dividing the volume by area per model element. Consistent with the increase in overall subbasin storage during the 2024 water year, the figures below relative increases in storage (positive change in depth shown in yellow and tan colored shades) in most areas of the basin, with only small areas with relative decreases in storage (negative change in depth shown in shades of brown). Note that the results shown are modeled changes in storage and may not reflect changes in groundwater levels at individual wells during the water year.

Overall, the groundwater storage is relatively constant in most parts of the basin for the 2024 water year. The most significant increases in groundwater storage occur along the American River and Cosumnes River corridors. Slight decreases in storage are seen in the eastern central half of the basin.

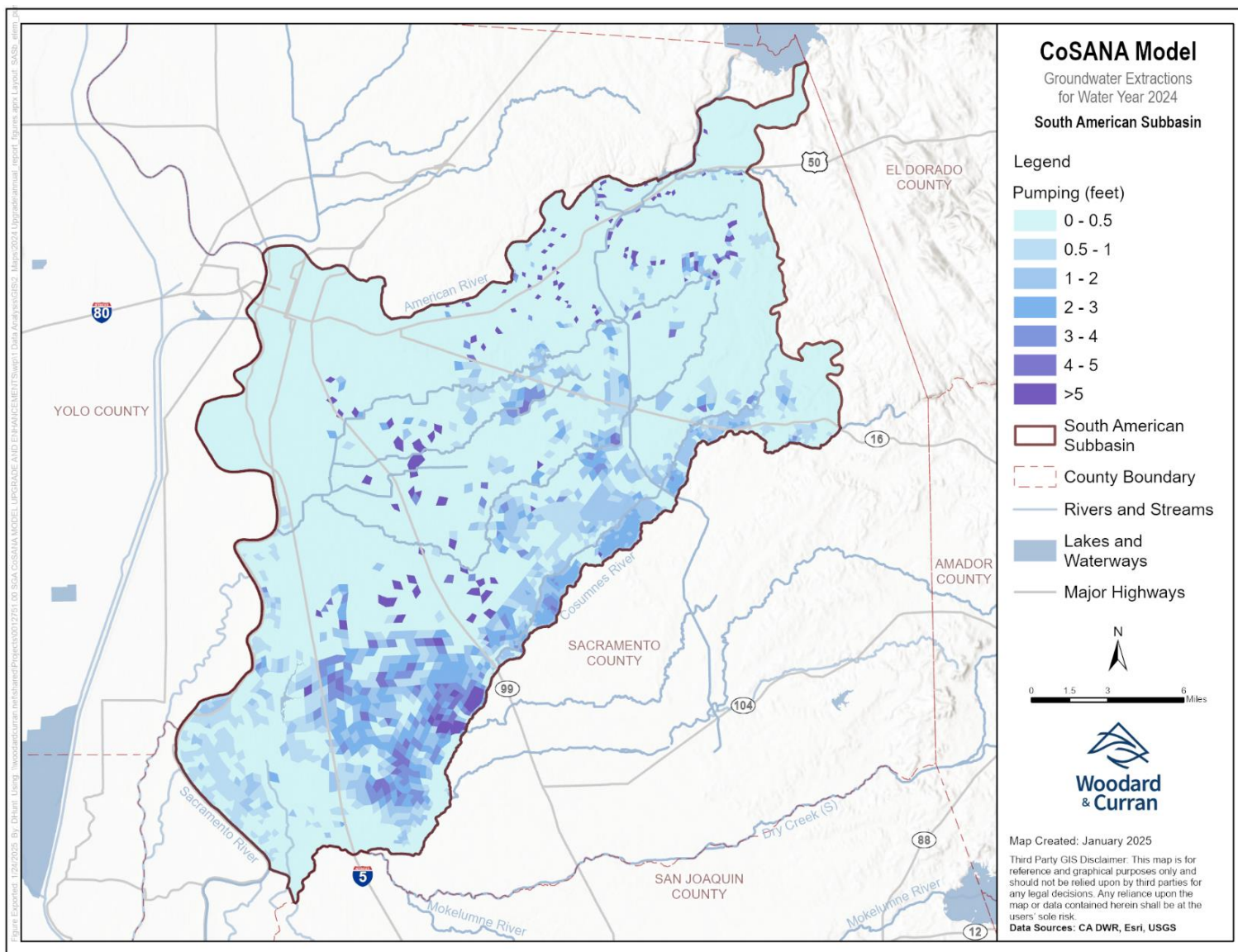


Figure C-1: General Location of Groundwater Extractions in WY 2024 in the South American Subbasin

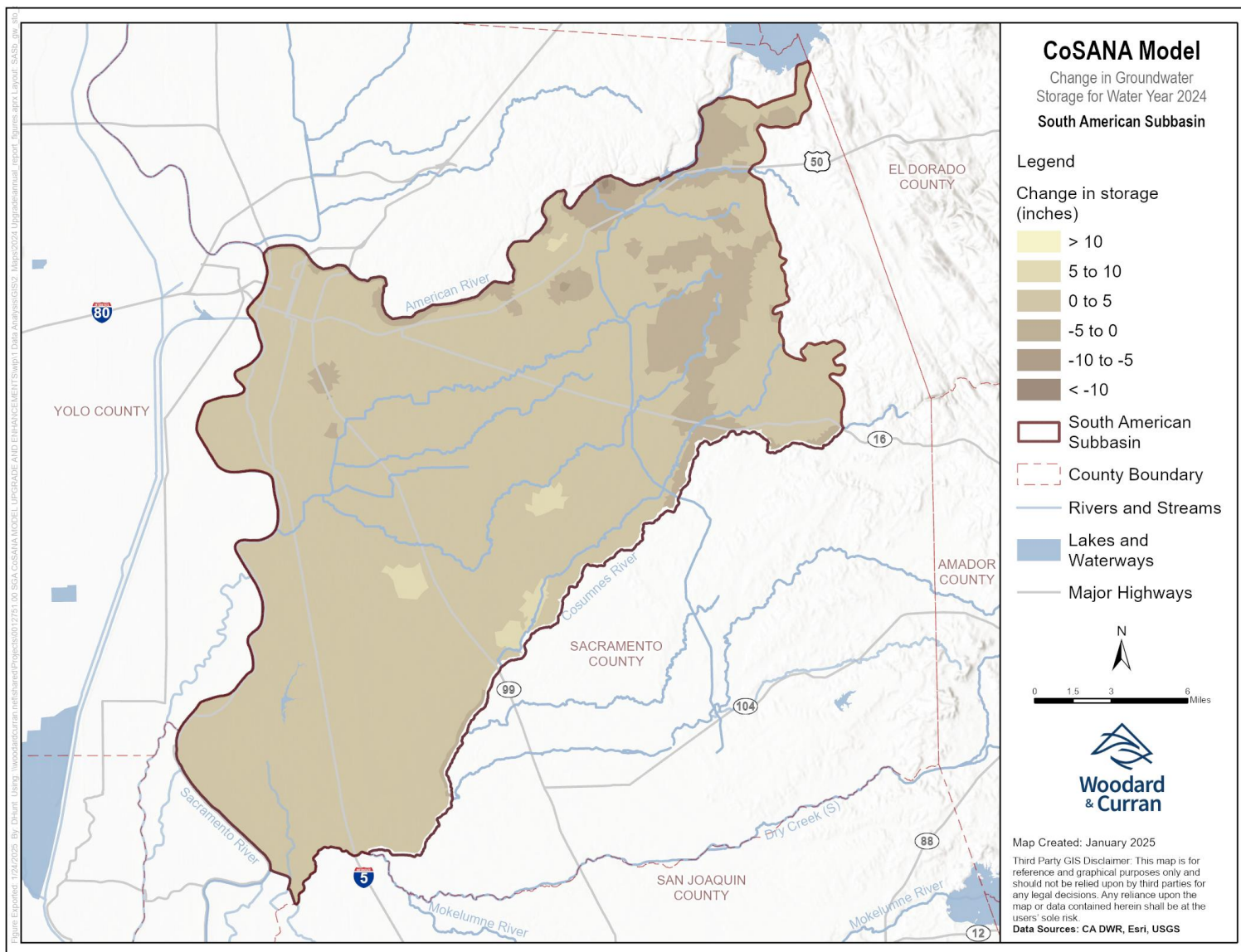
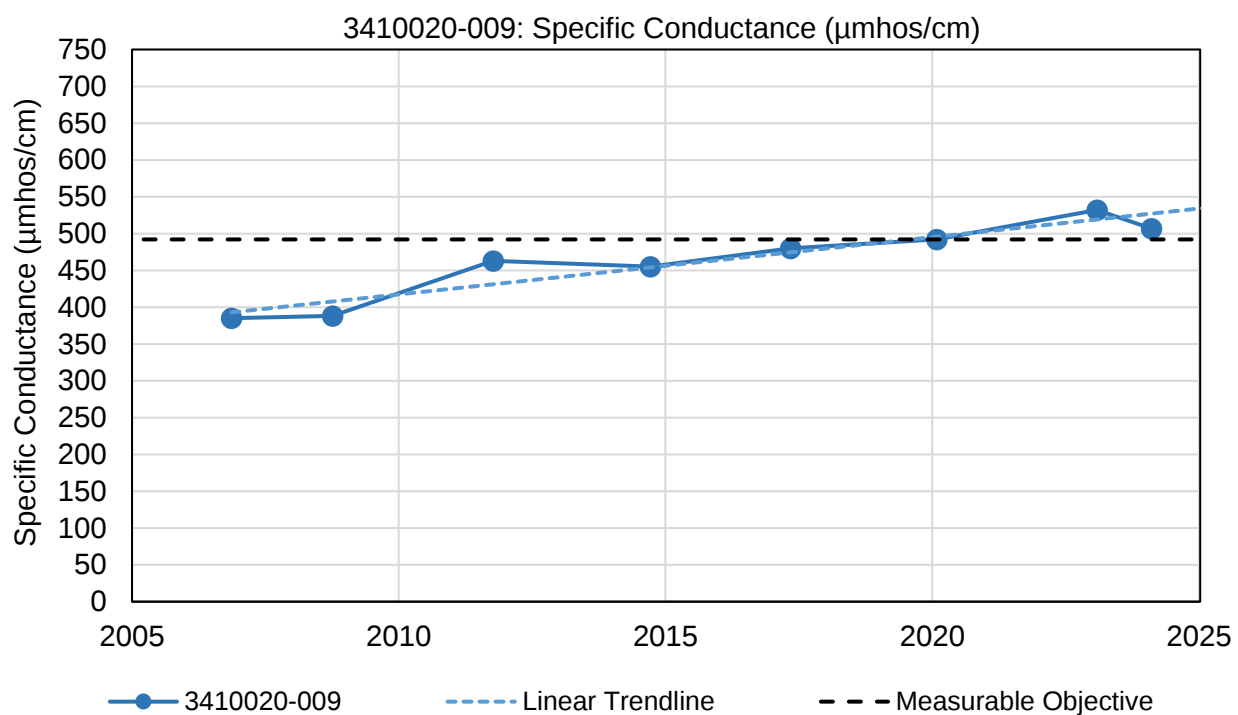
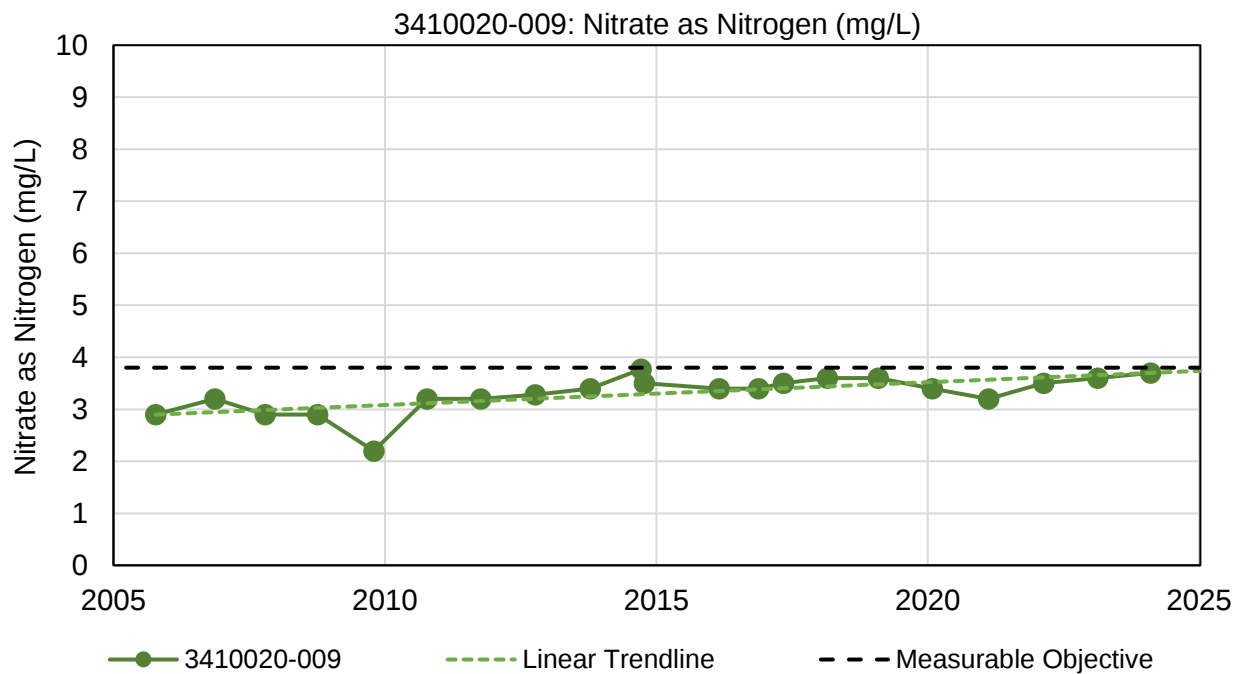
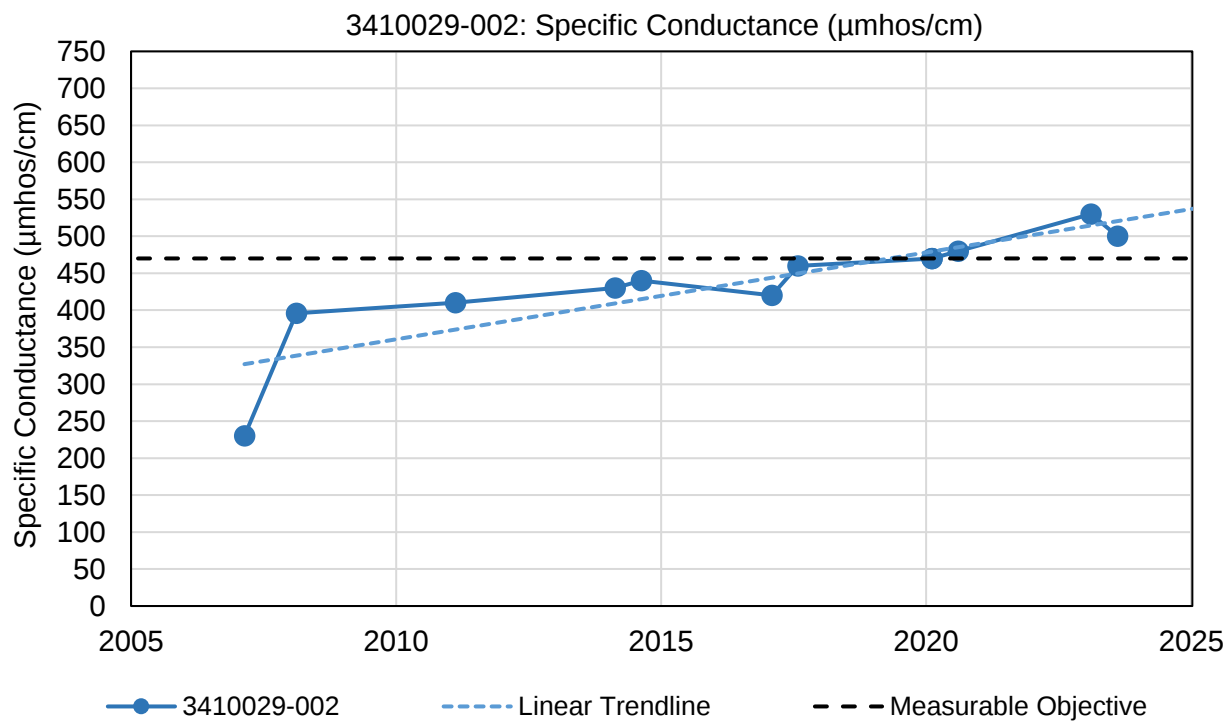
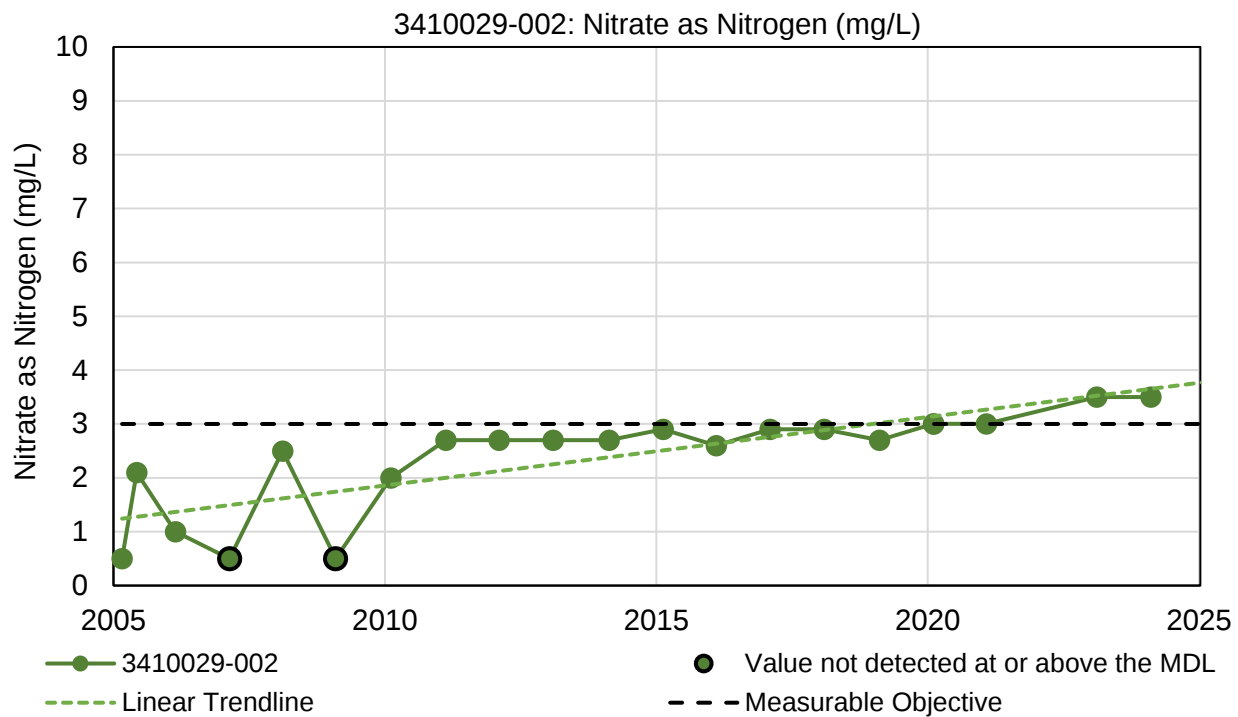


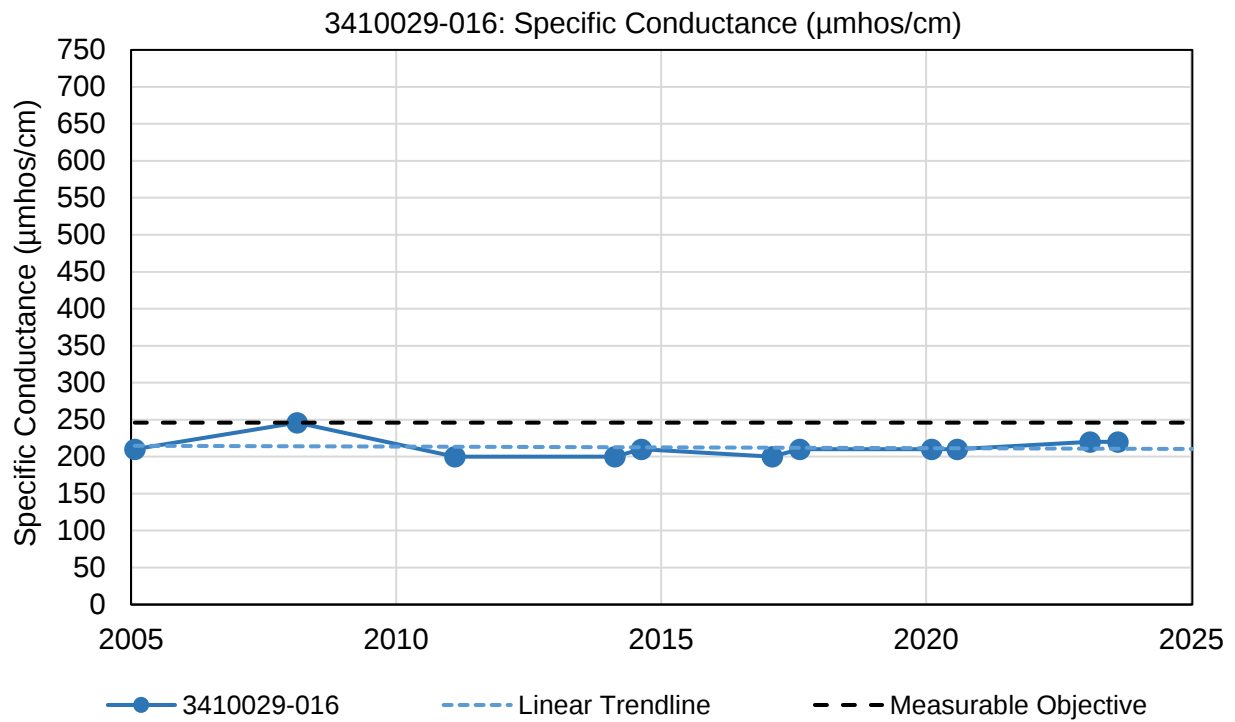
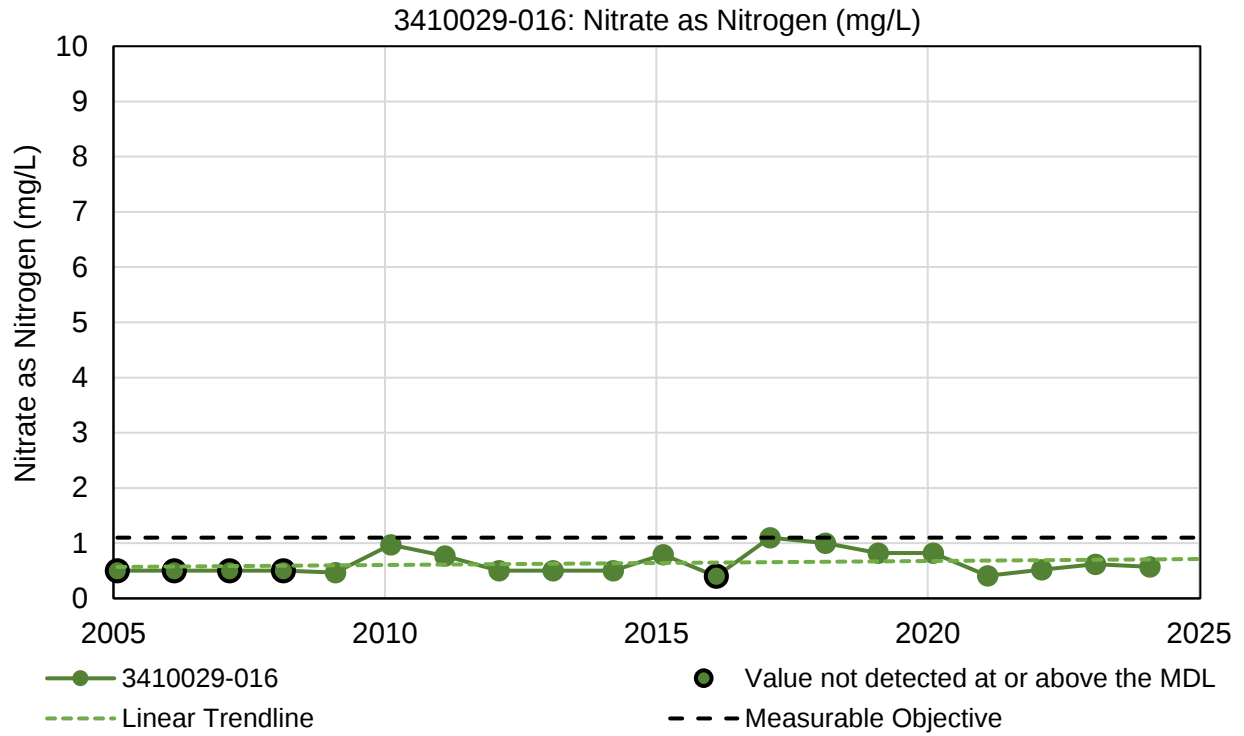
Figure C-2: Estimated Spatial Change in Groundwater Storage (inches) in the South American Subbasin over the 2024 Water Year

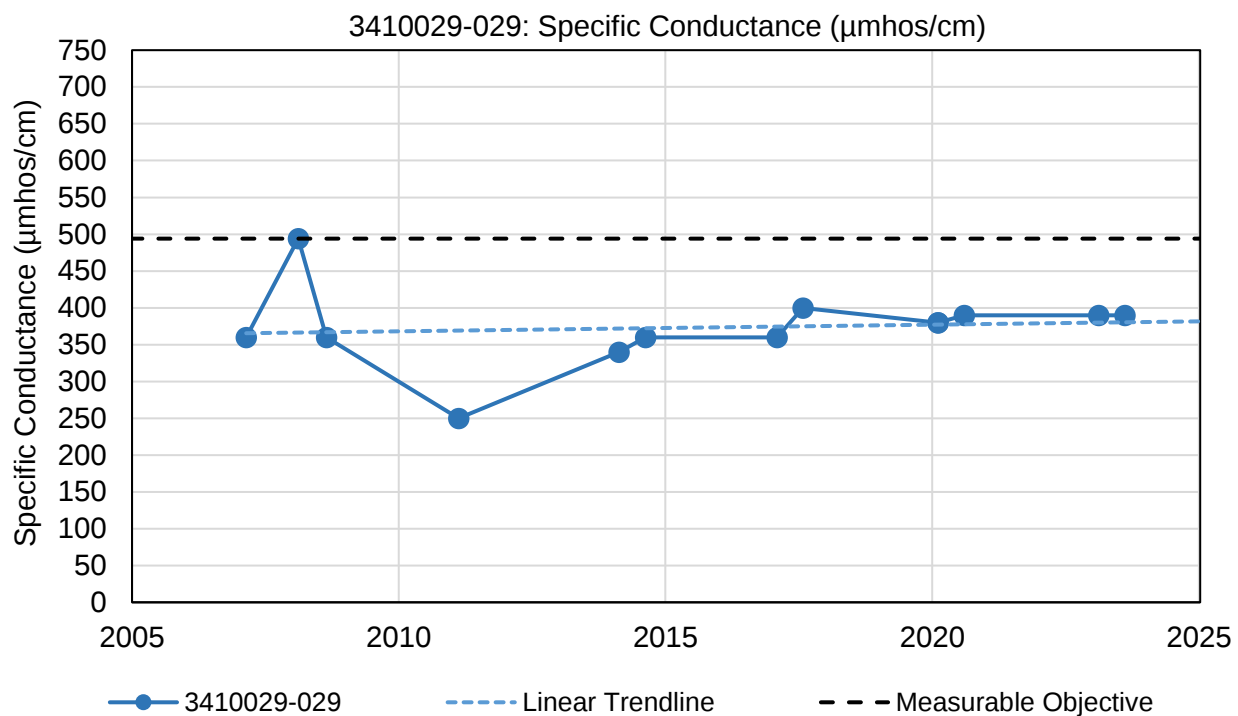
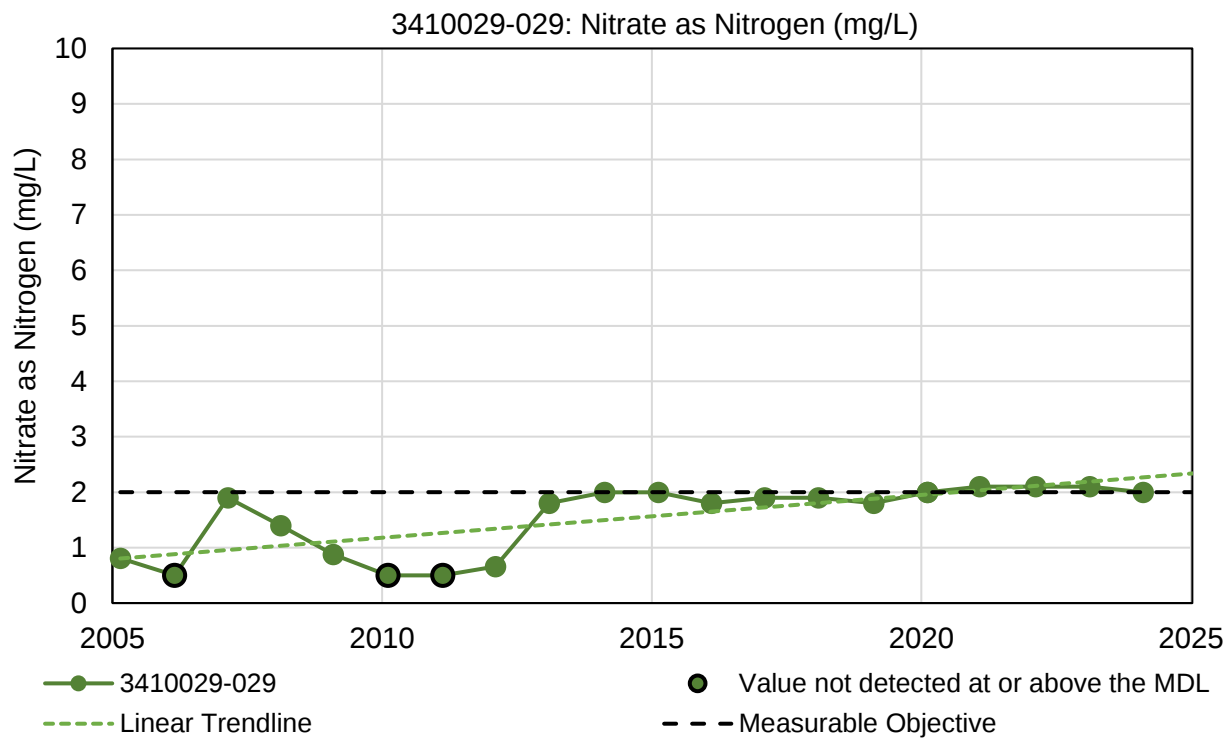
Appendix D: Water Quality Time Series

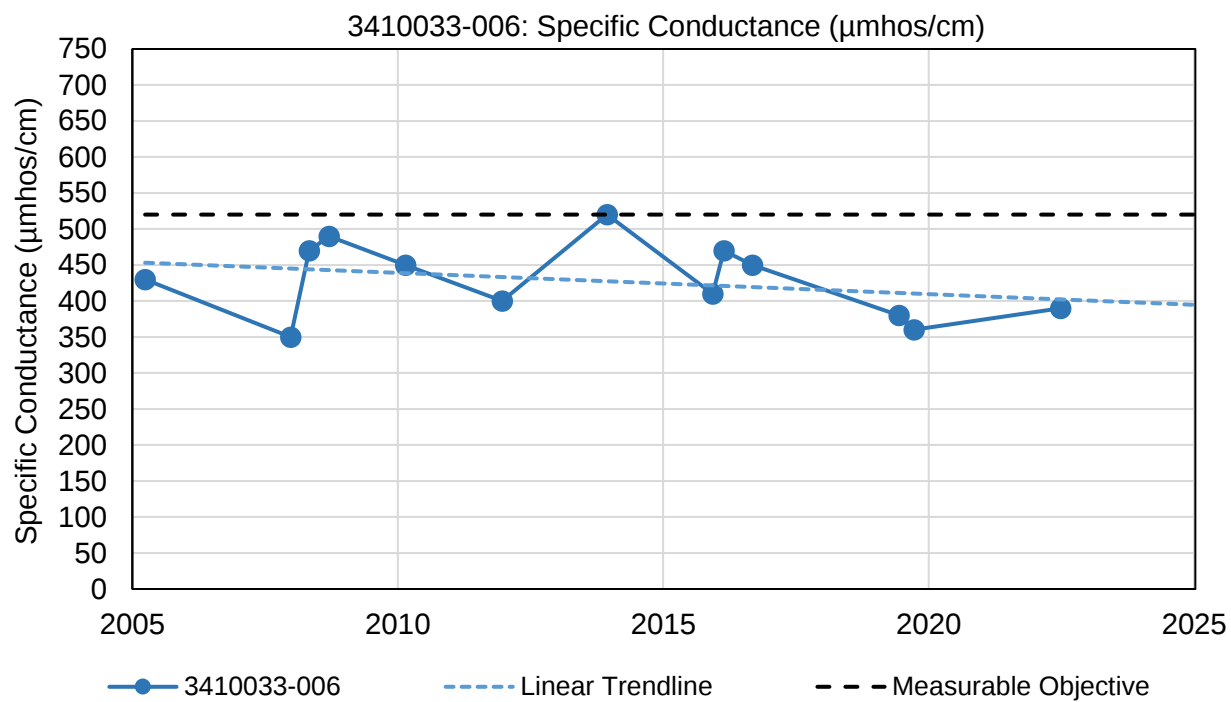
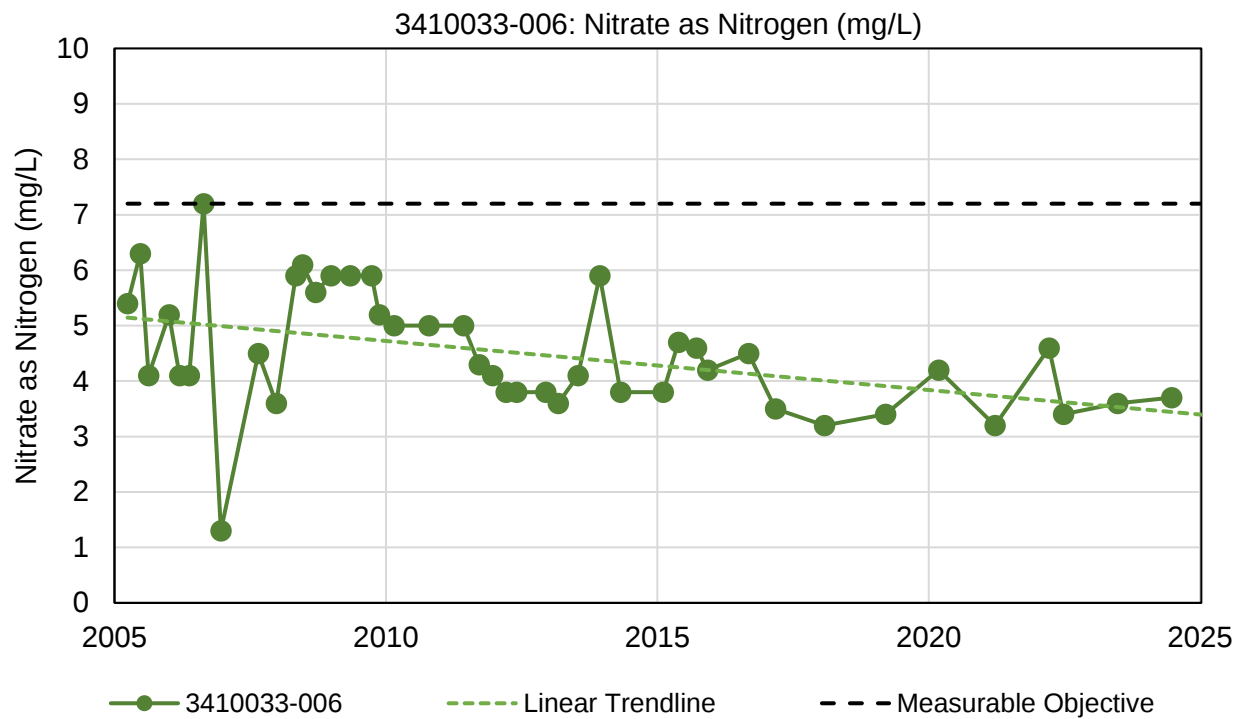
This appendix provides time series of nitrate as nitrogen and specific conductance for wells included in the groundwater quality monitoring network. The maximum threshold concentration for nitrate is the Title 22 Primary Maximum Contaminant Level of 10 mg/L, and for specific conductance is the Title 22 Secondary Maximum Contaminant Level of 1600 micromhos/cm. The measurable objective for each well is displayed on each chart. The Y-axis displays the same maximum value of 10 mg/L for nitrate and 750 μ mhos/cm for specific conductance, with the exception of red Y-axis values which denote a higher maximum value of 15 mg/L for nitrate, and 2200 μ mhos/cm for specific conductance. The nitrate graphs substitute non-detect values with one half the reporting limit, and substitute estimated values with the reporting limit. The substitution of the reporting limit in these instances documents that water quality is at least as good as the reporting limit. These instances are denoted on the graphs. This does not change the evaluation of water quality SMCs.

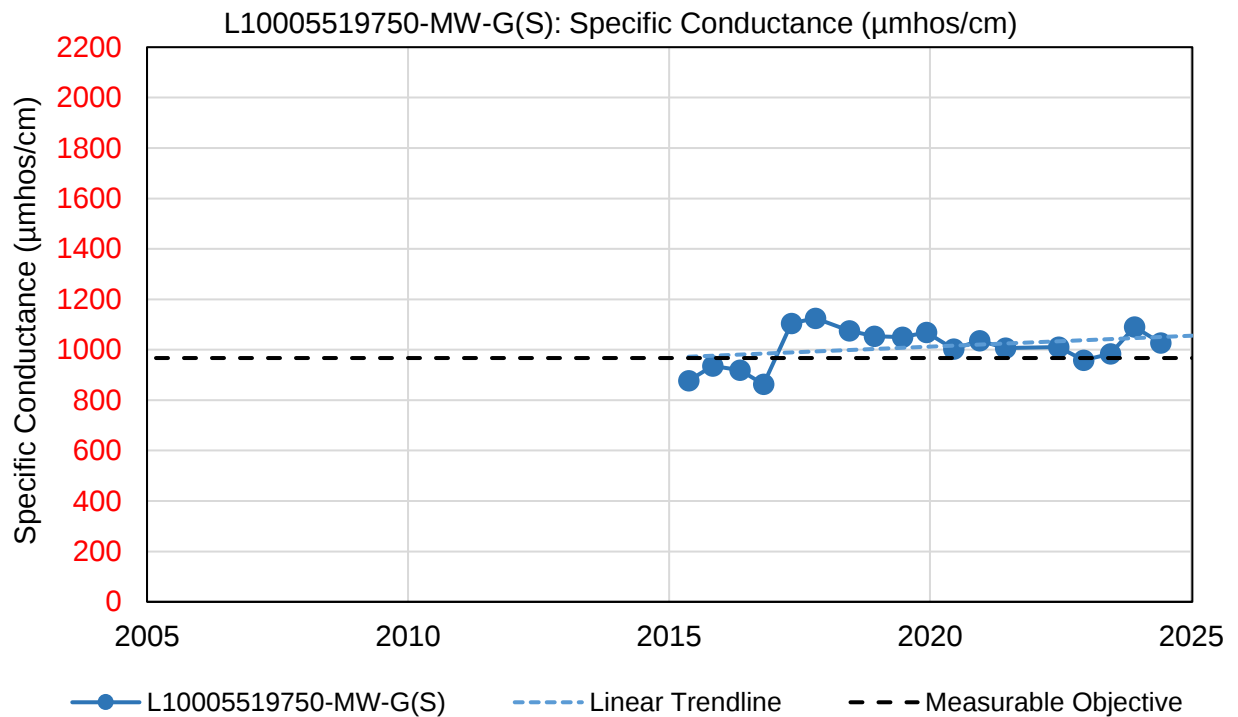
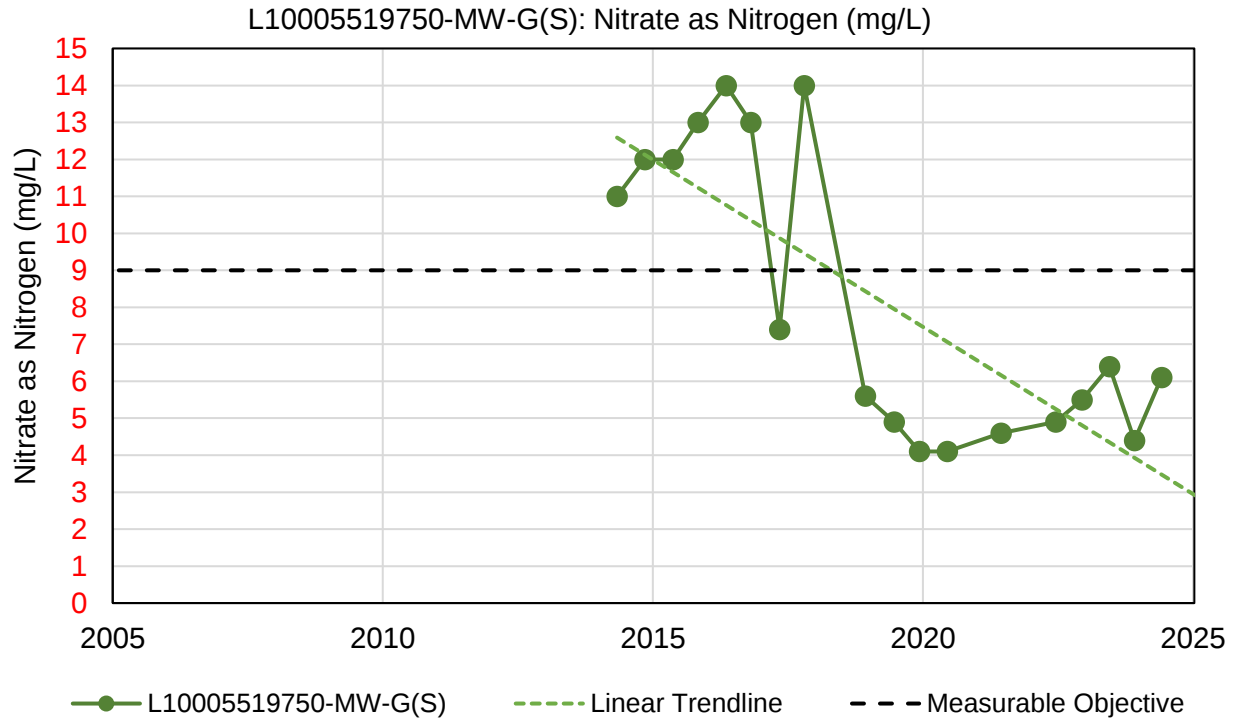


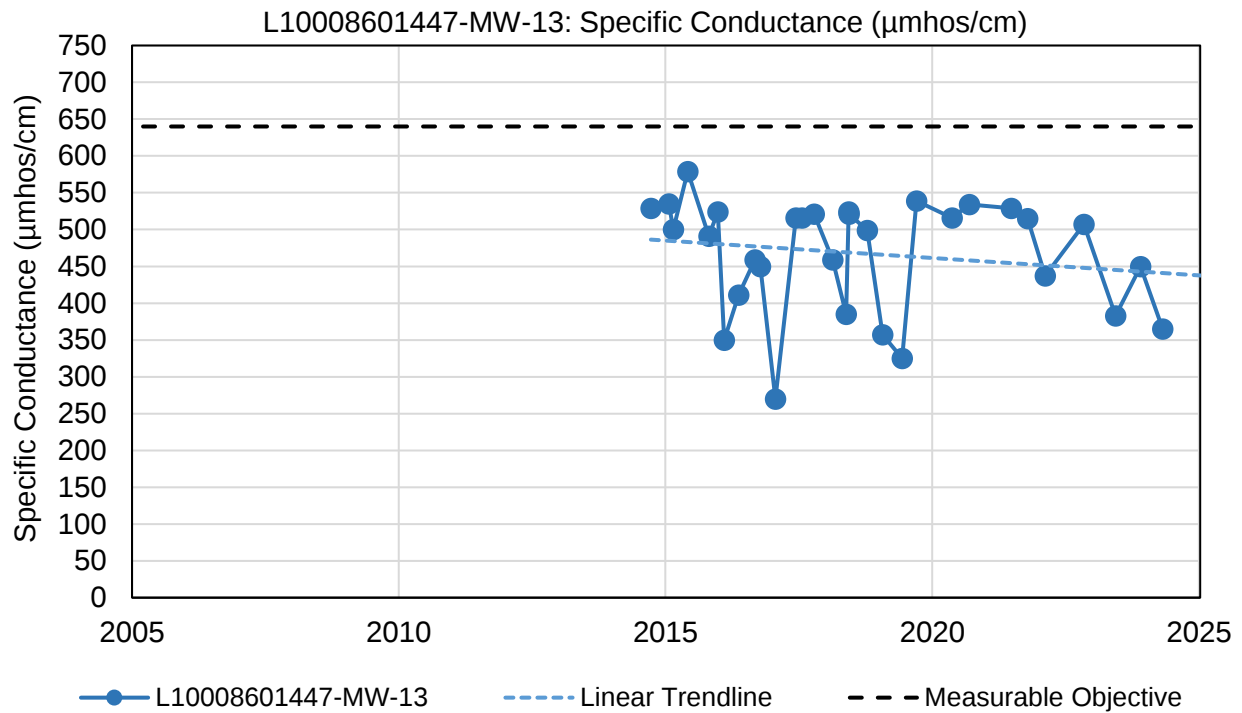
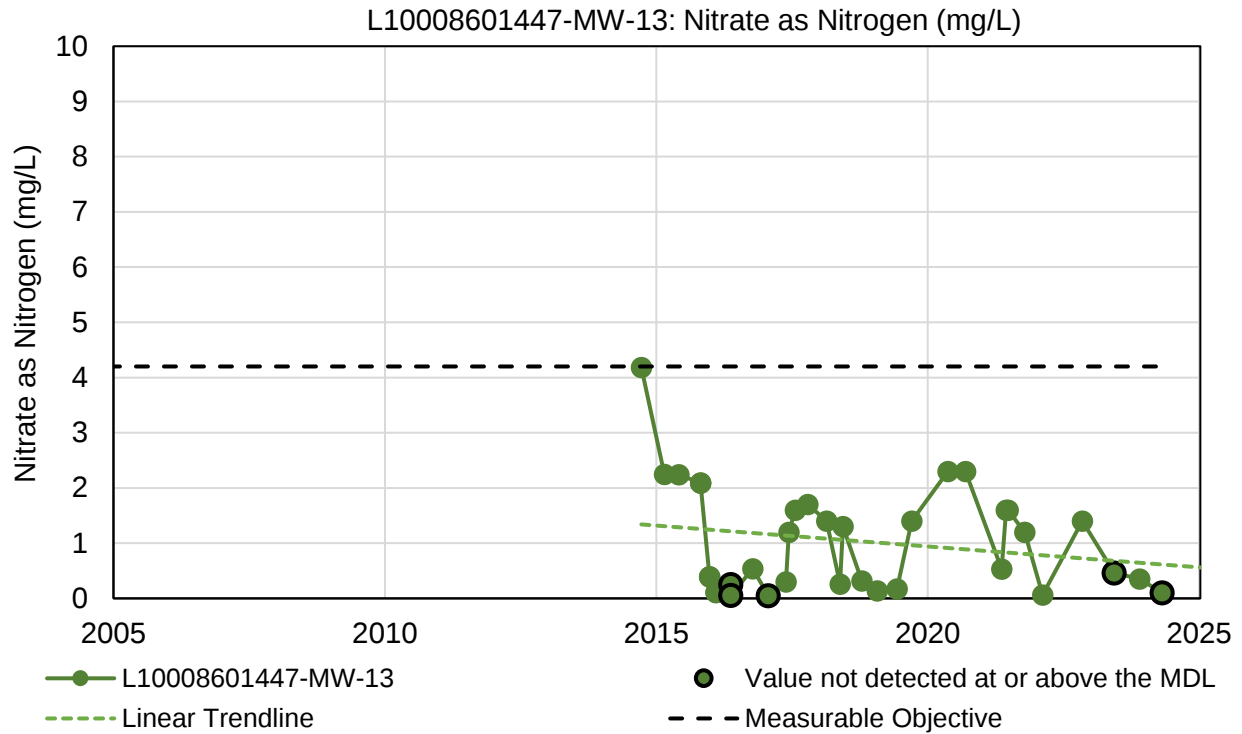


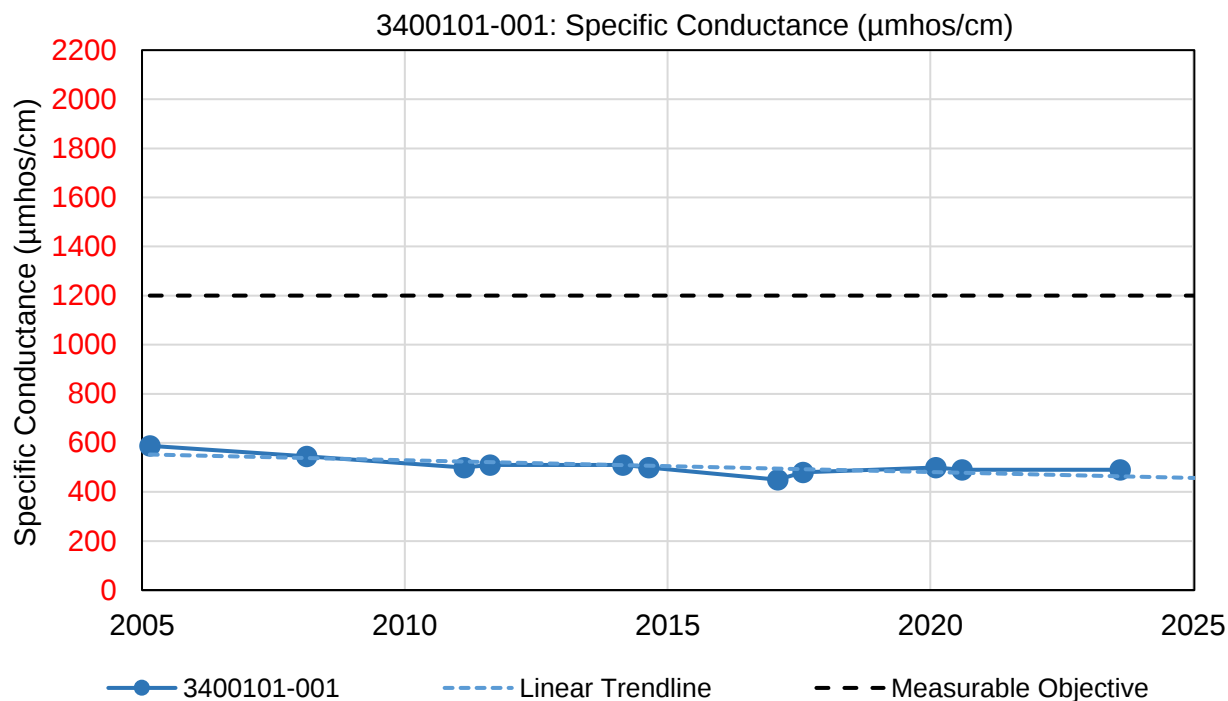
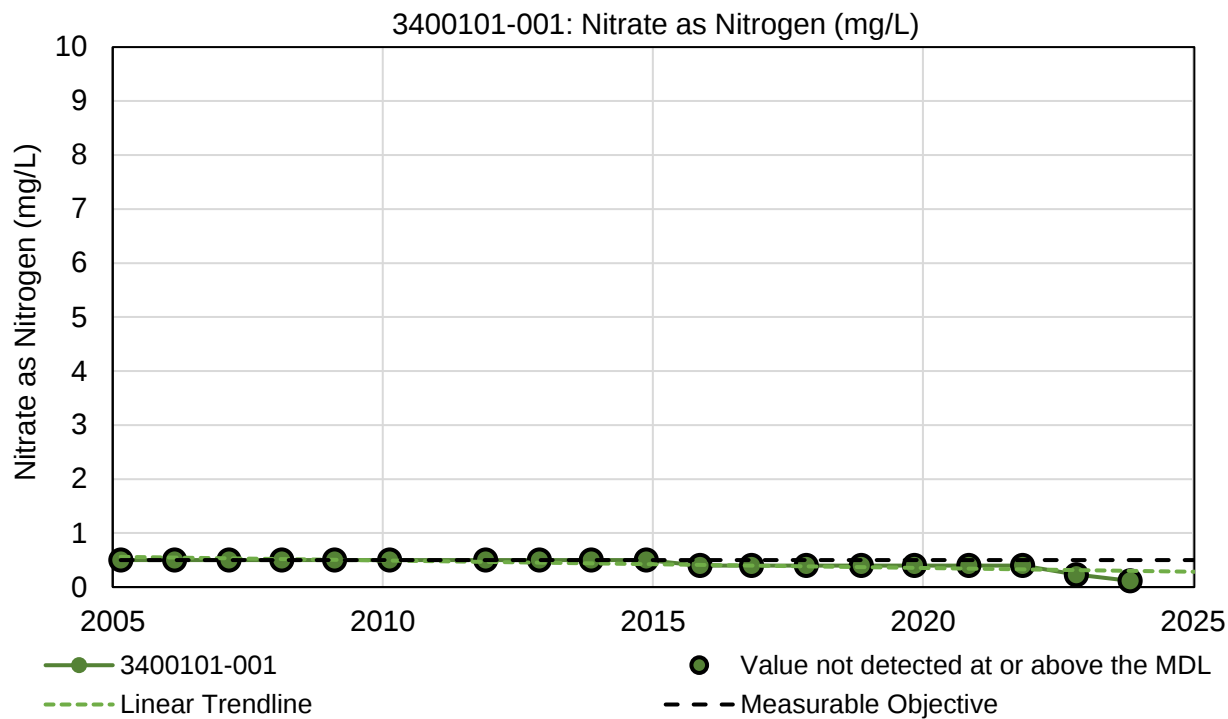


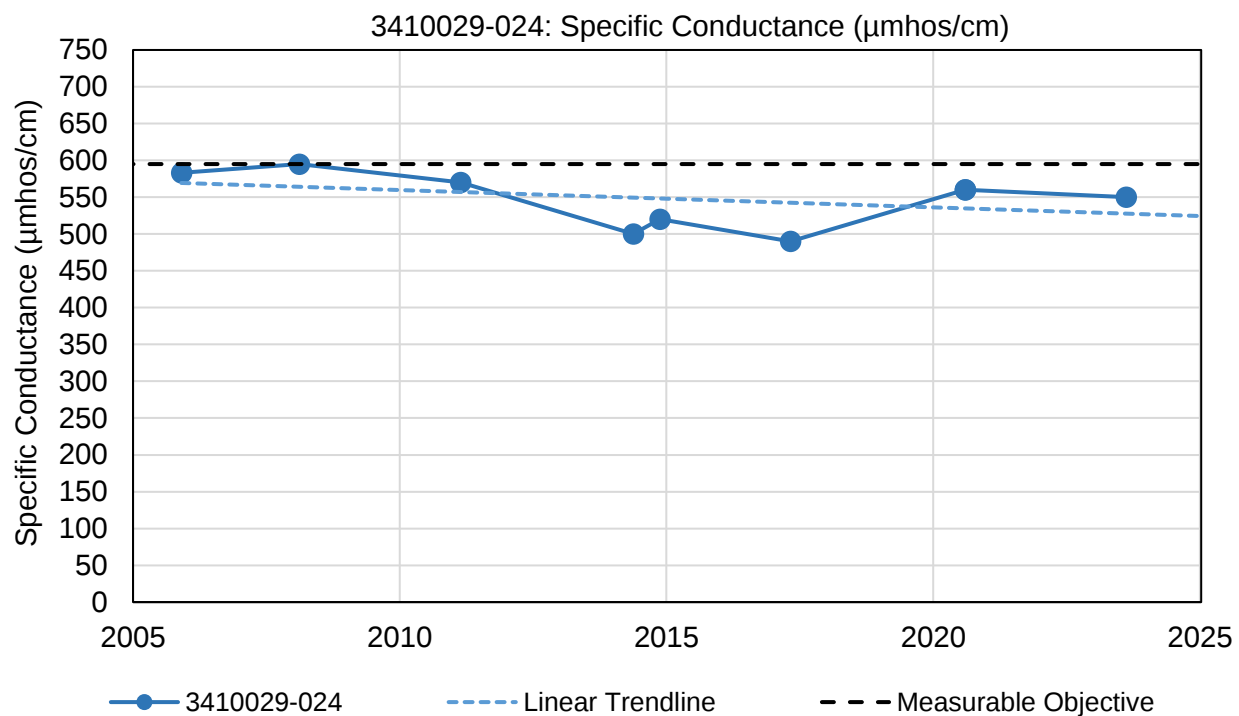
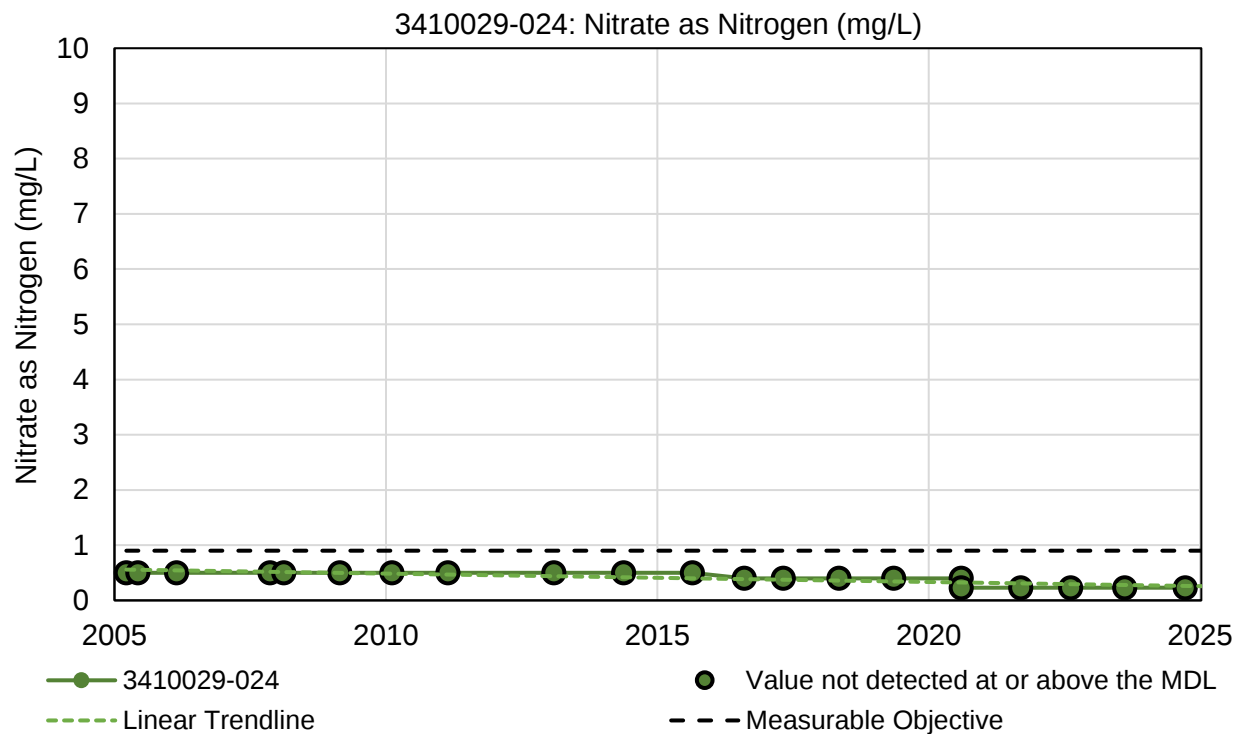


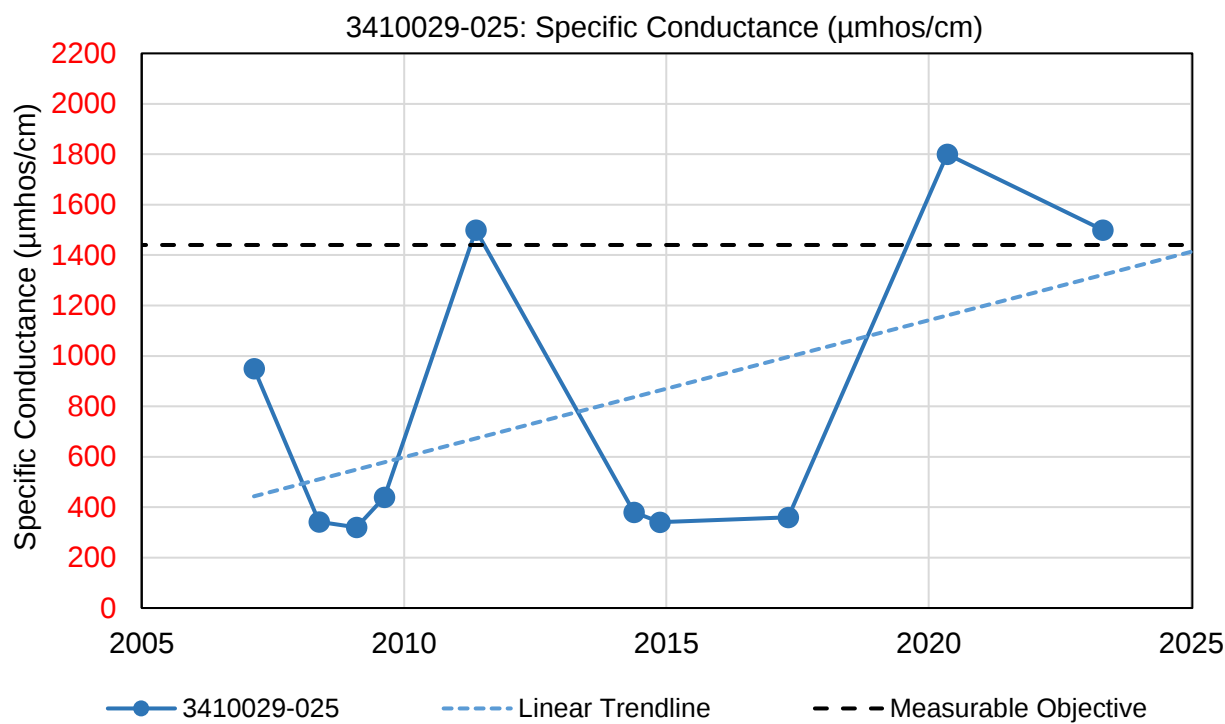
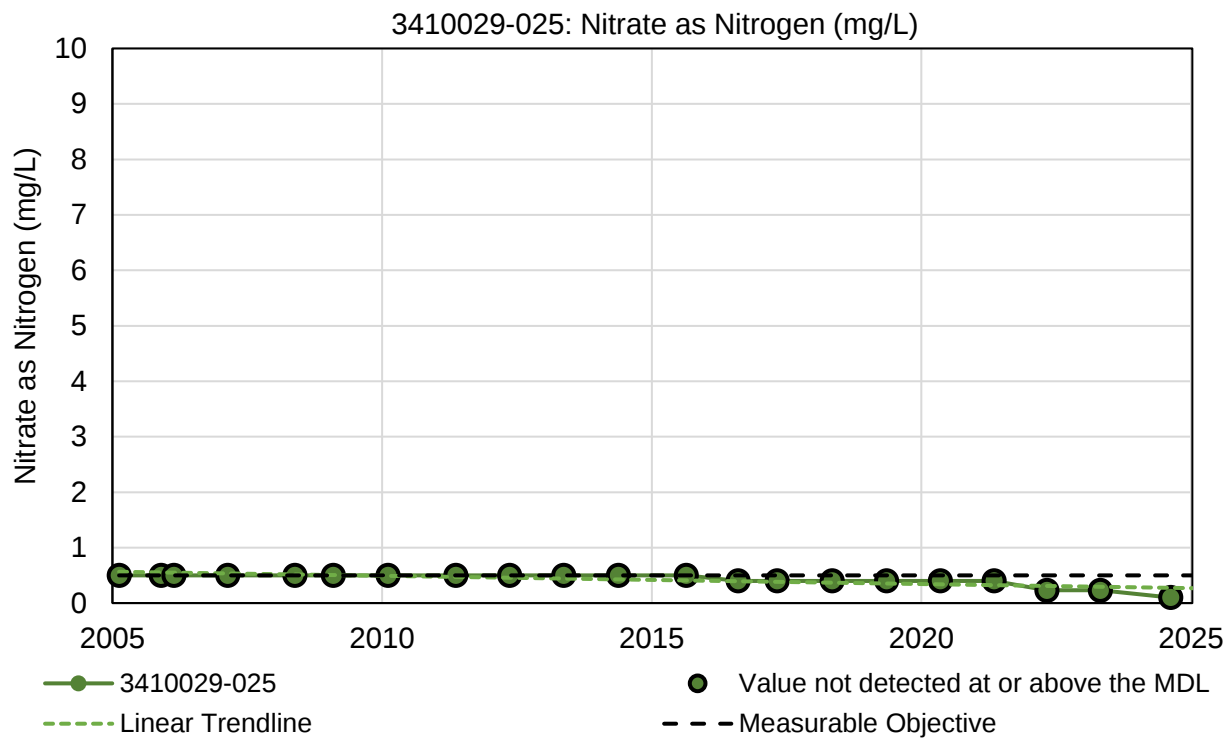


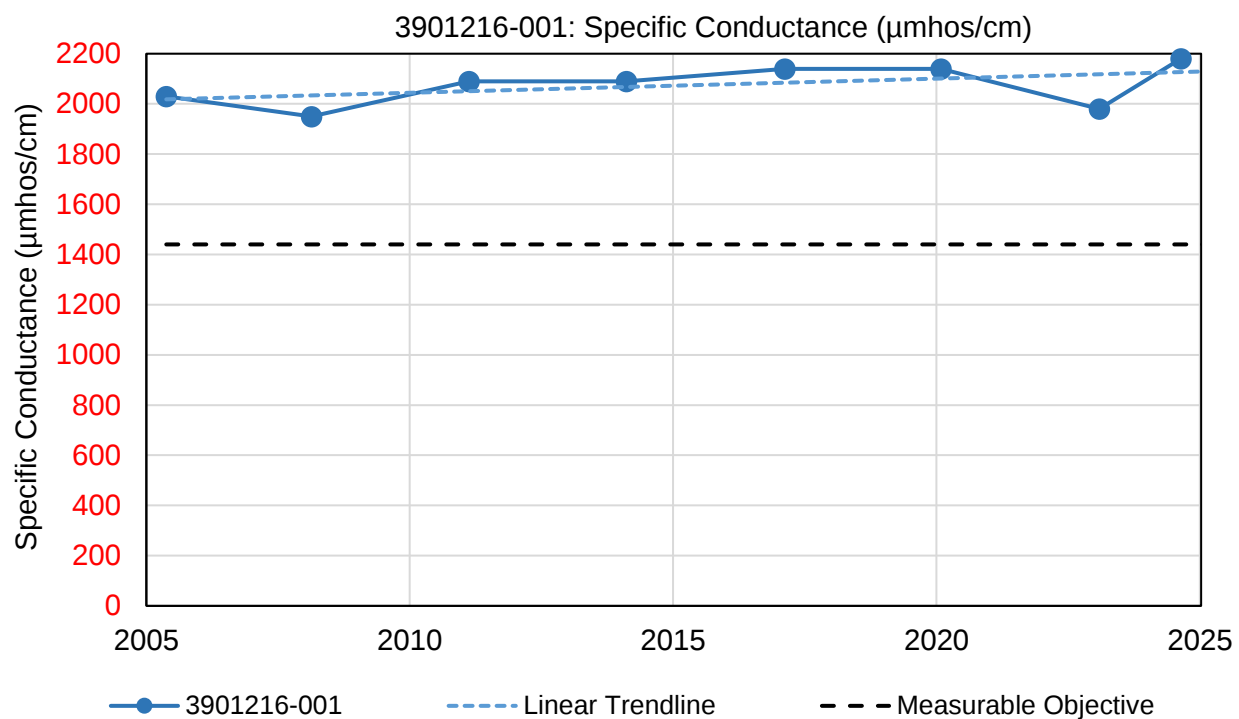
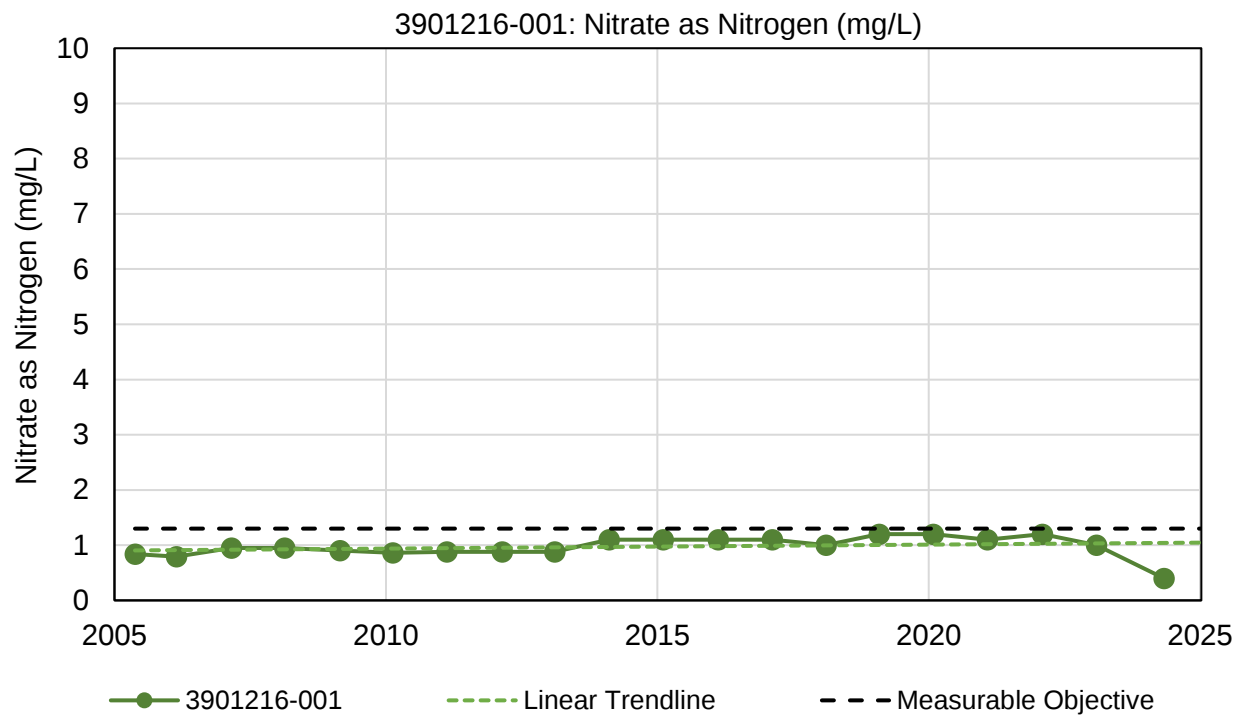


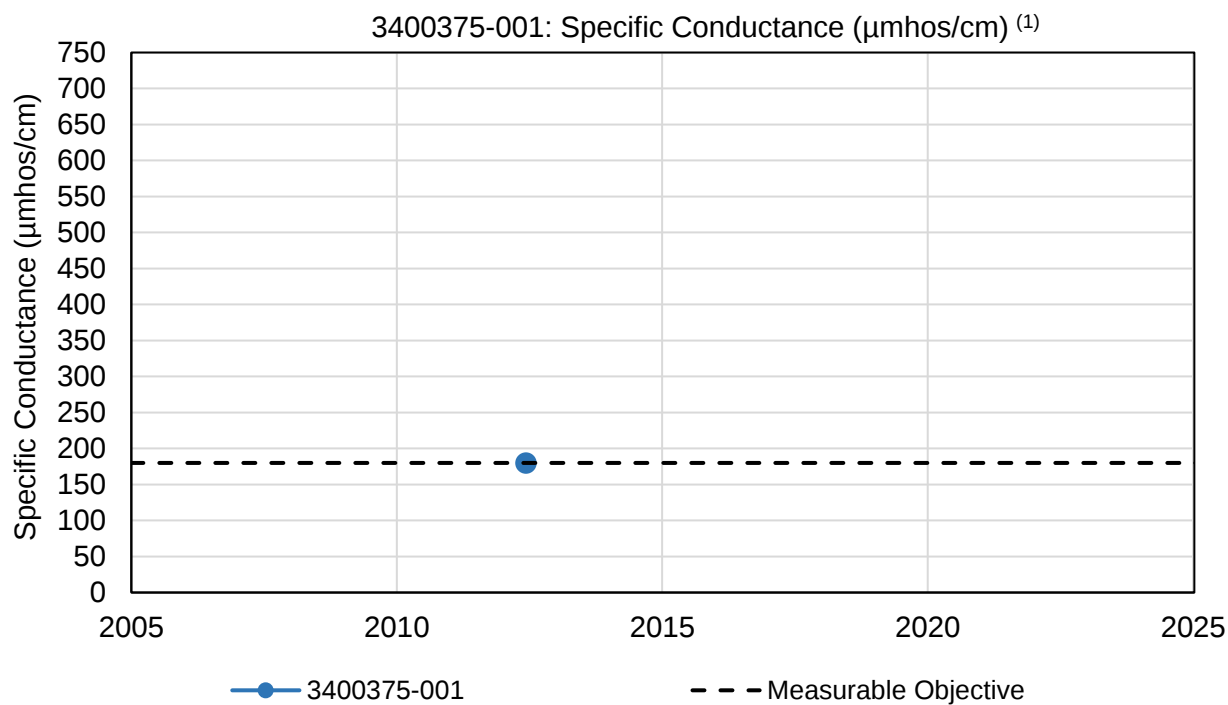
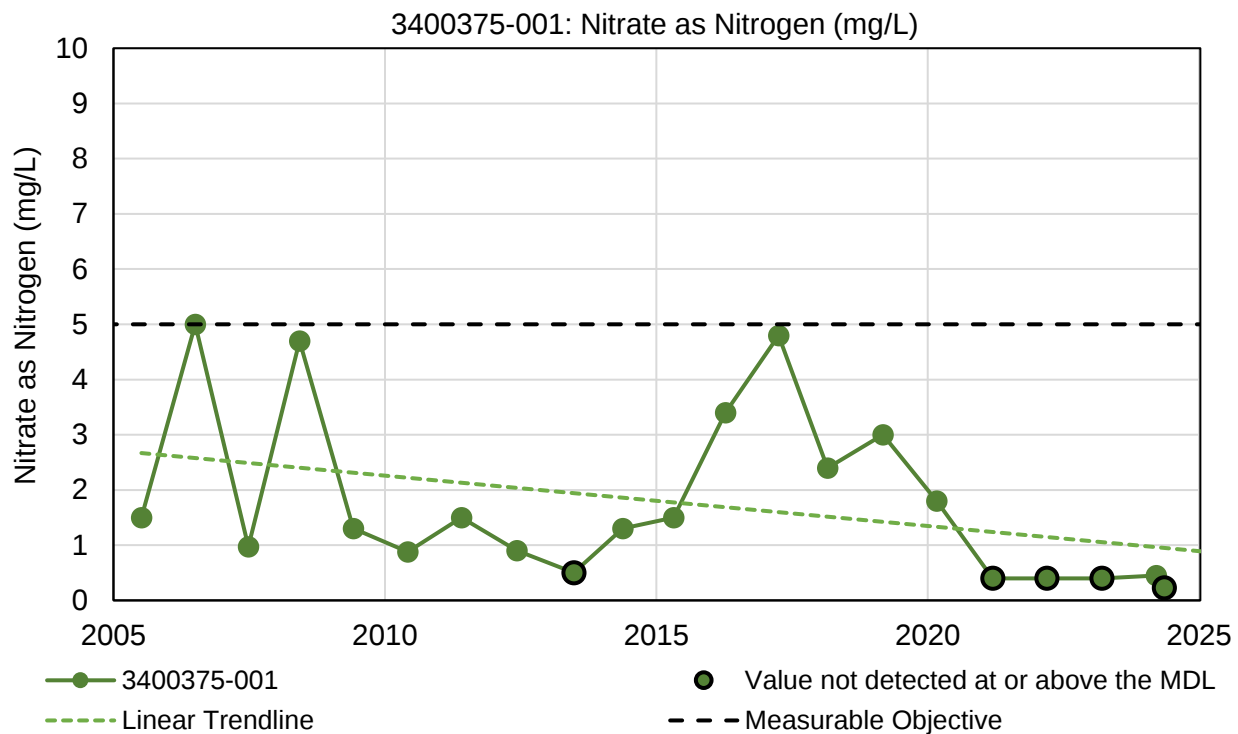




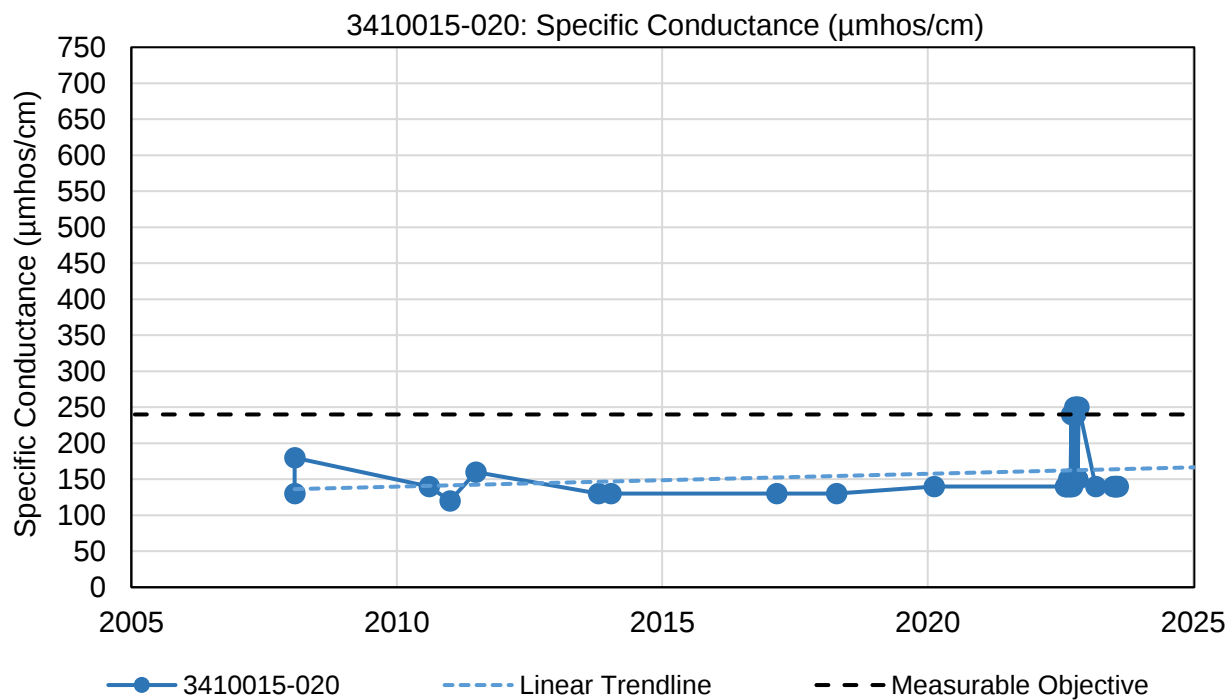
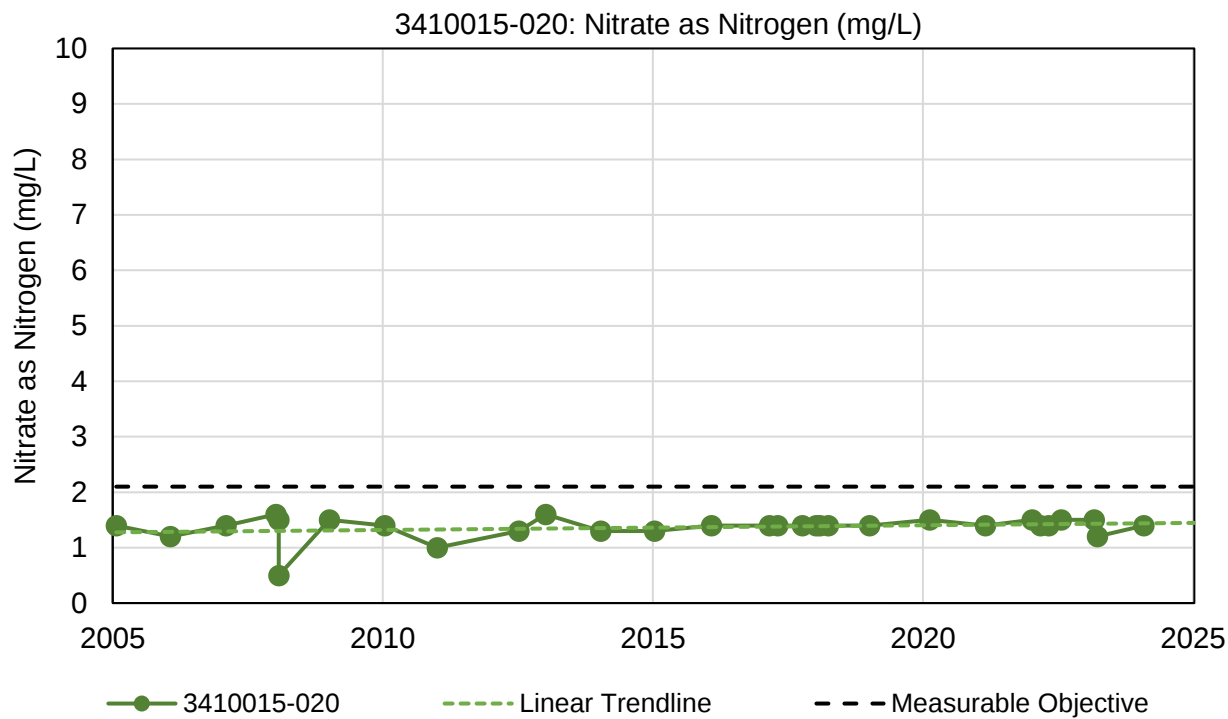


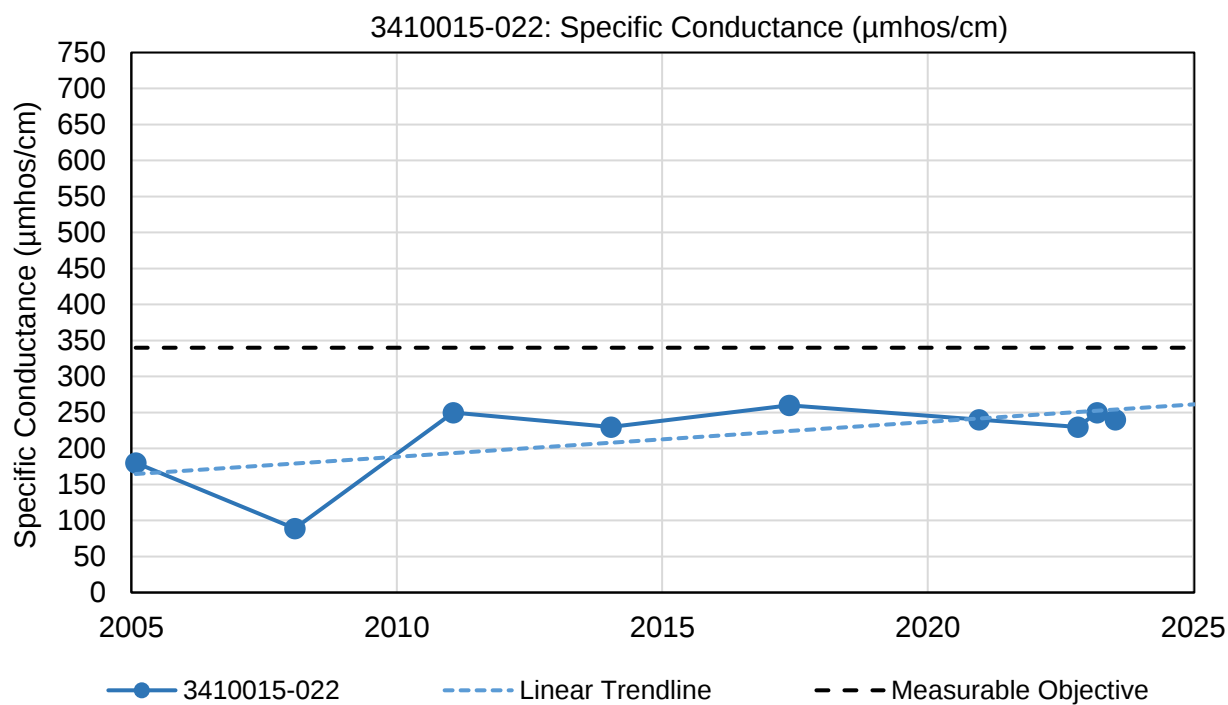
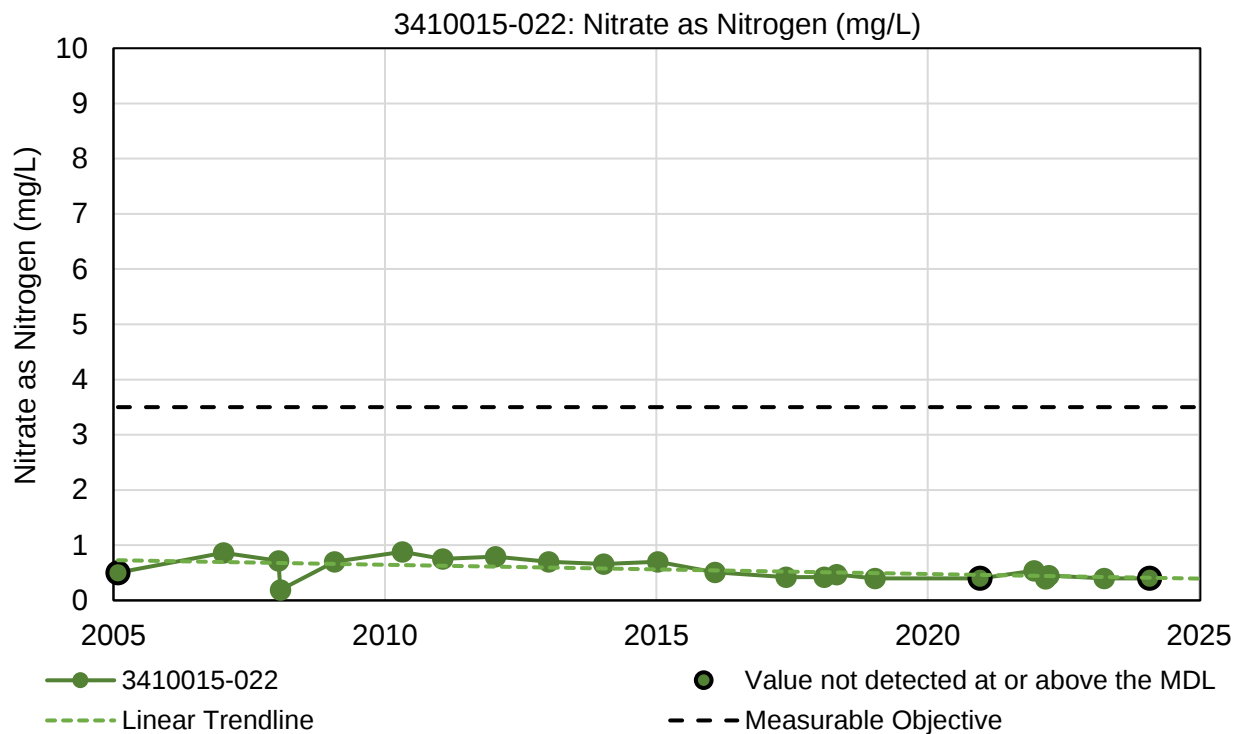


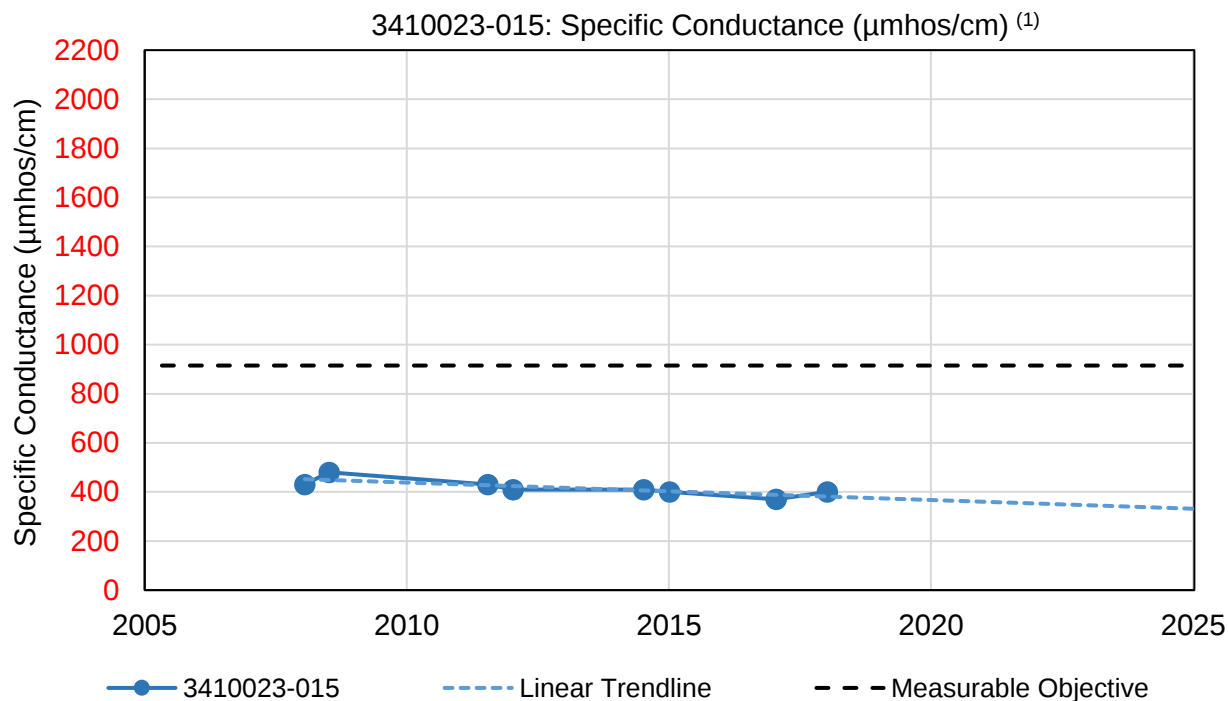
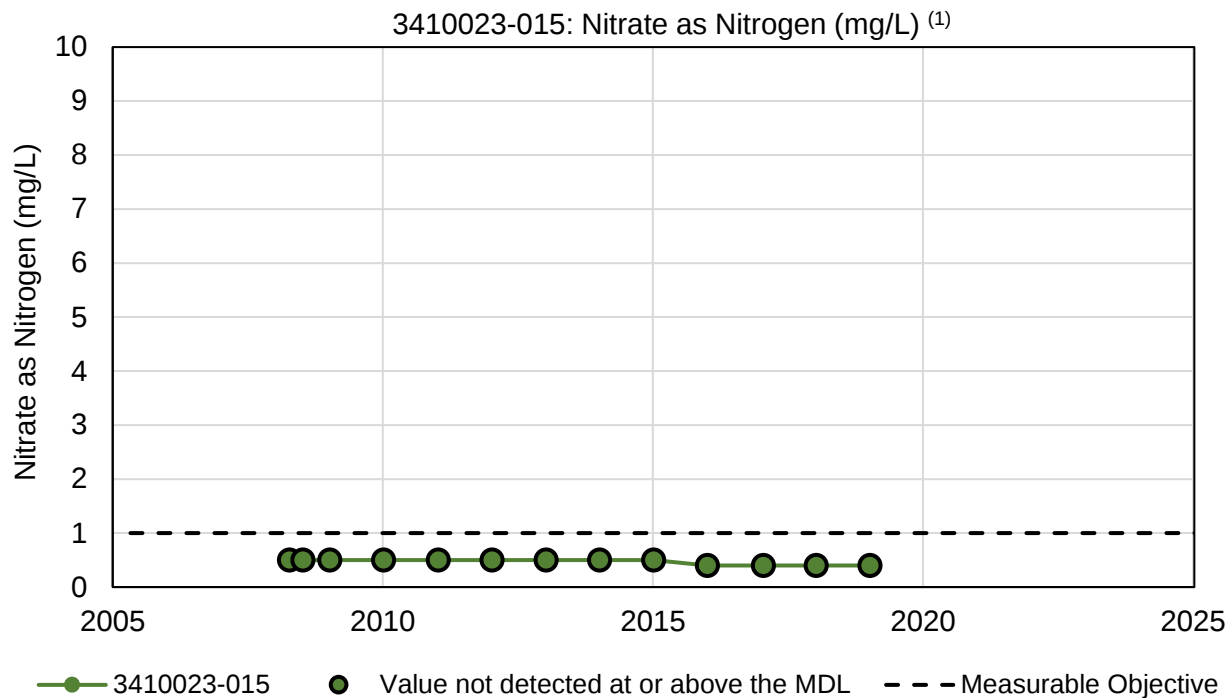




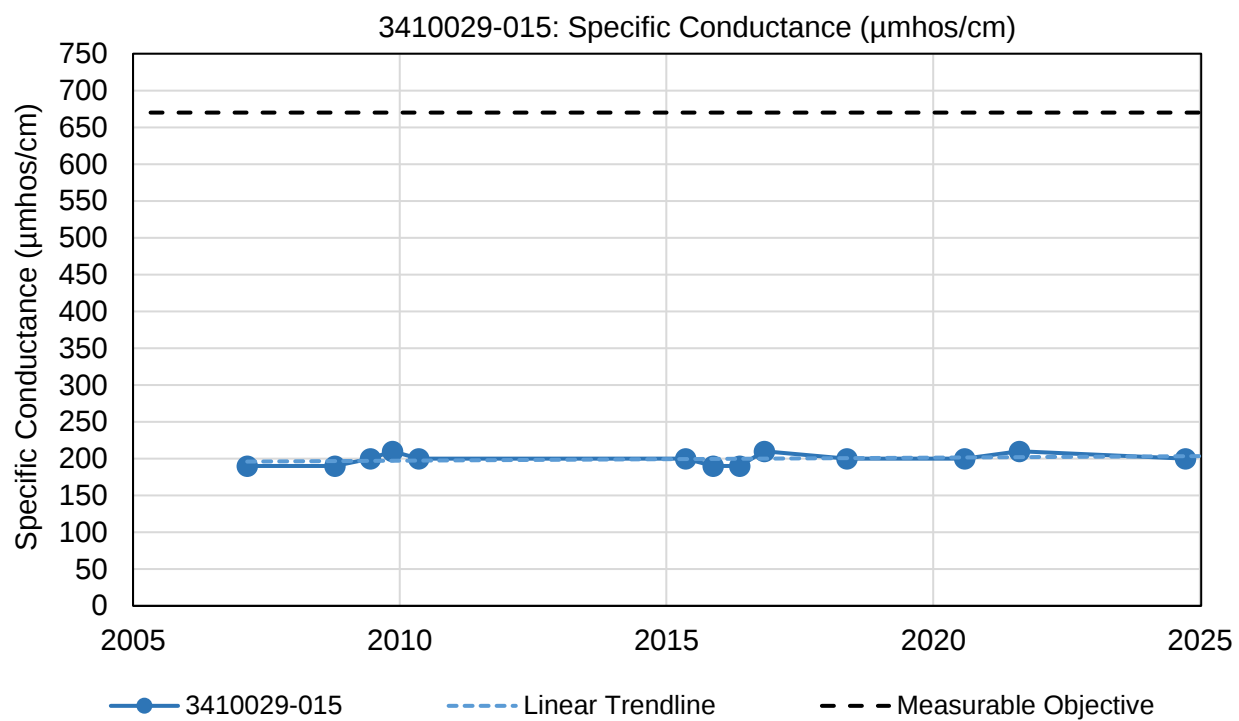
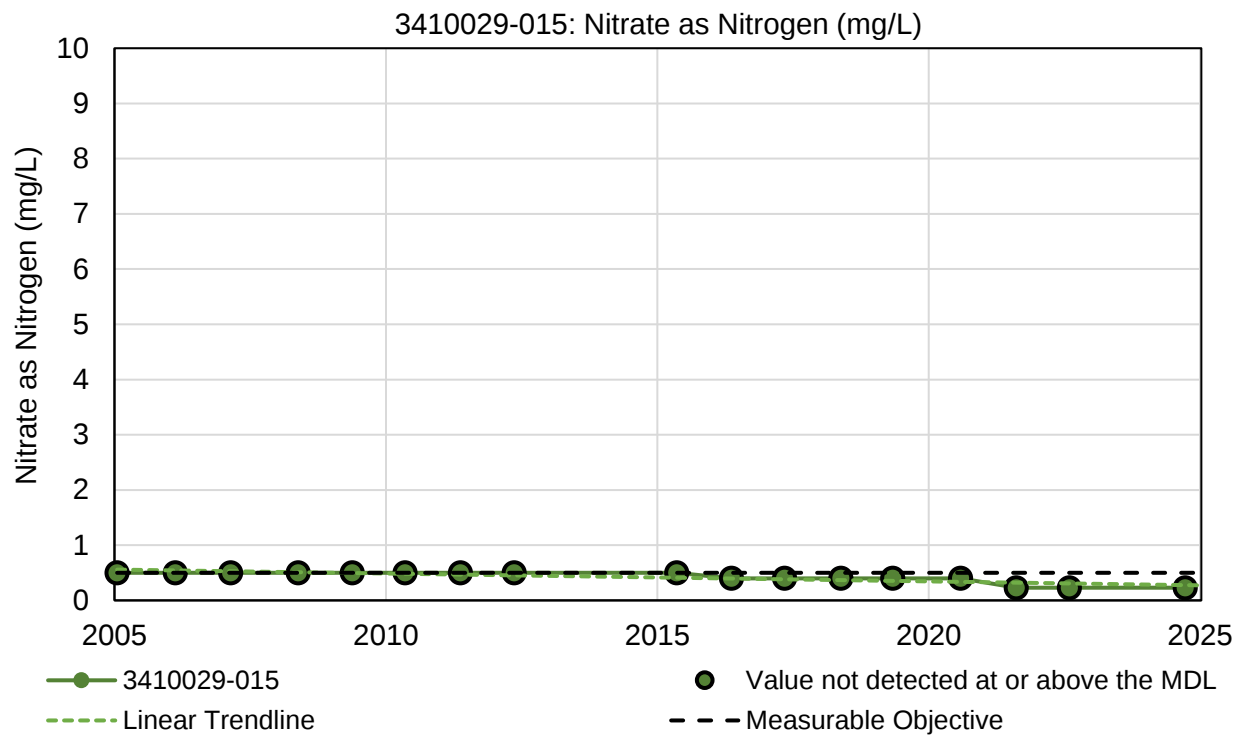
- 1) Monitoring entity, Slavic Missionary Church, stopped measurement of specific conductance due to a change in management. An inquiry has been made to determine if specific conductance can be monitored and reported annually in the future. A response has not yet been received.

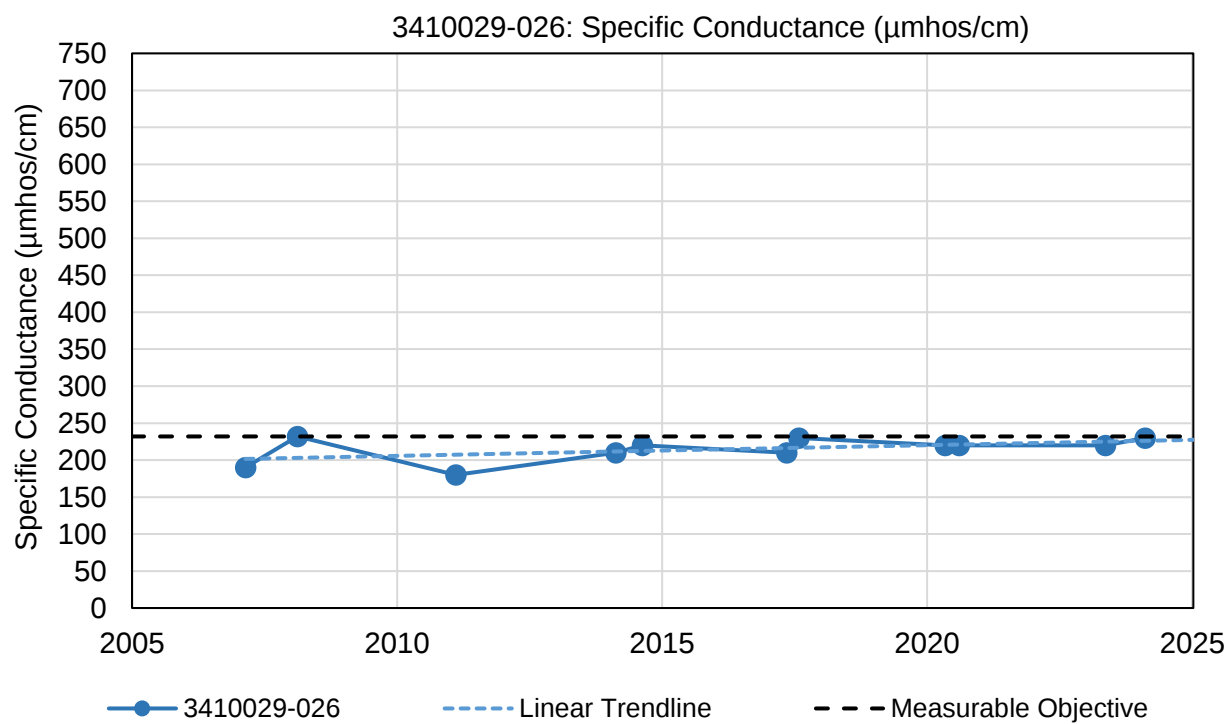
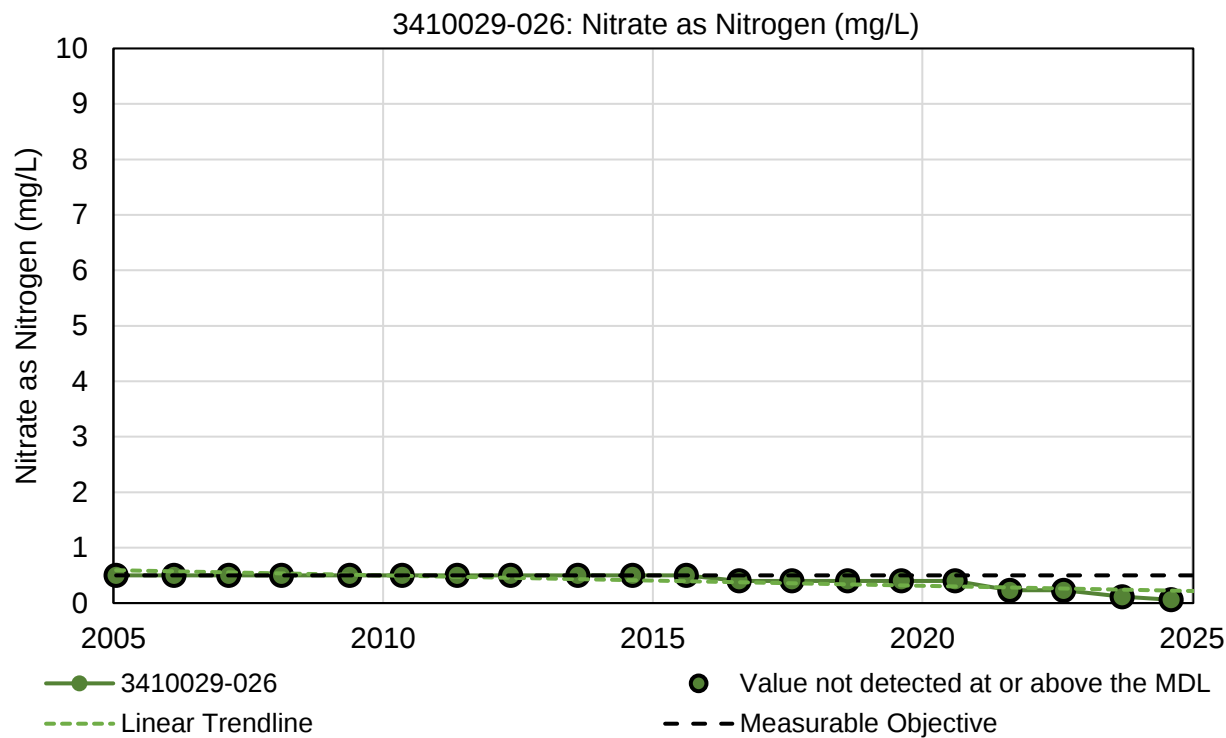


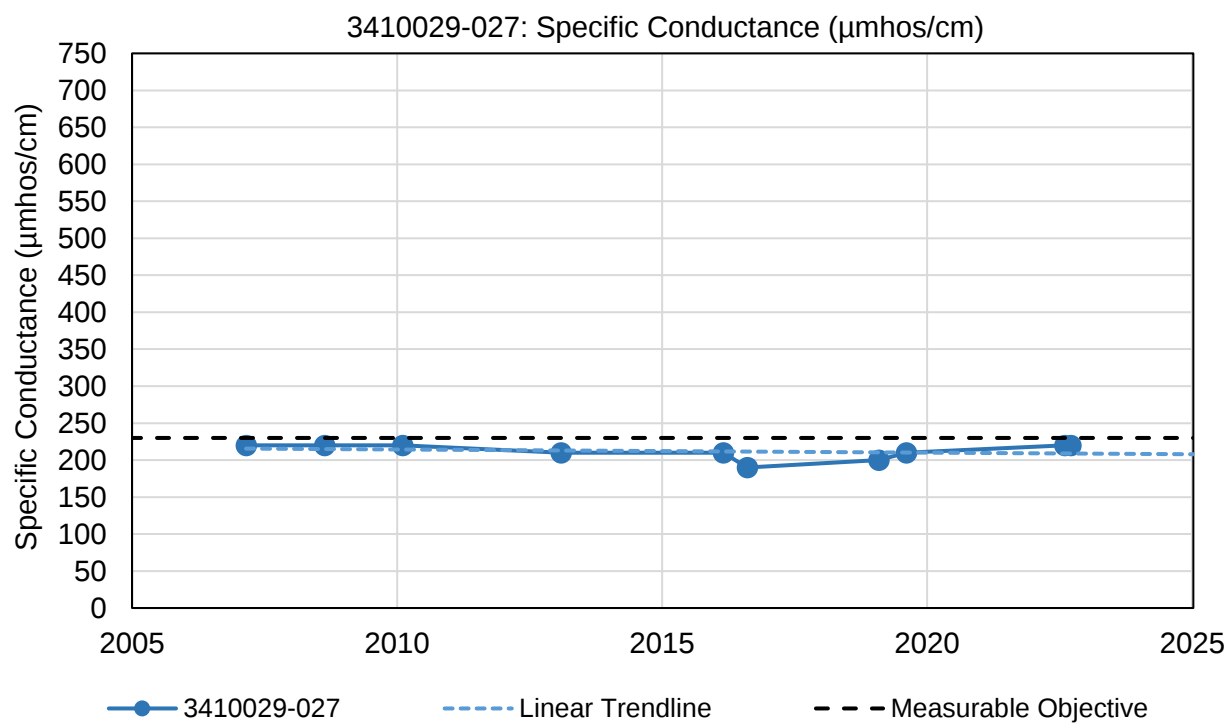
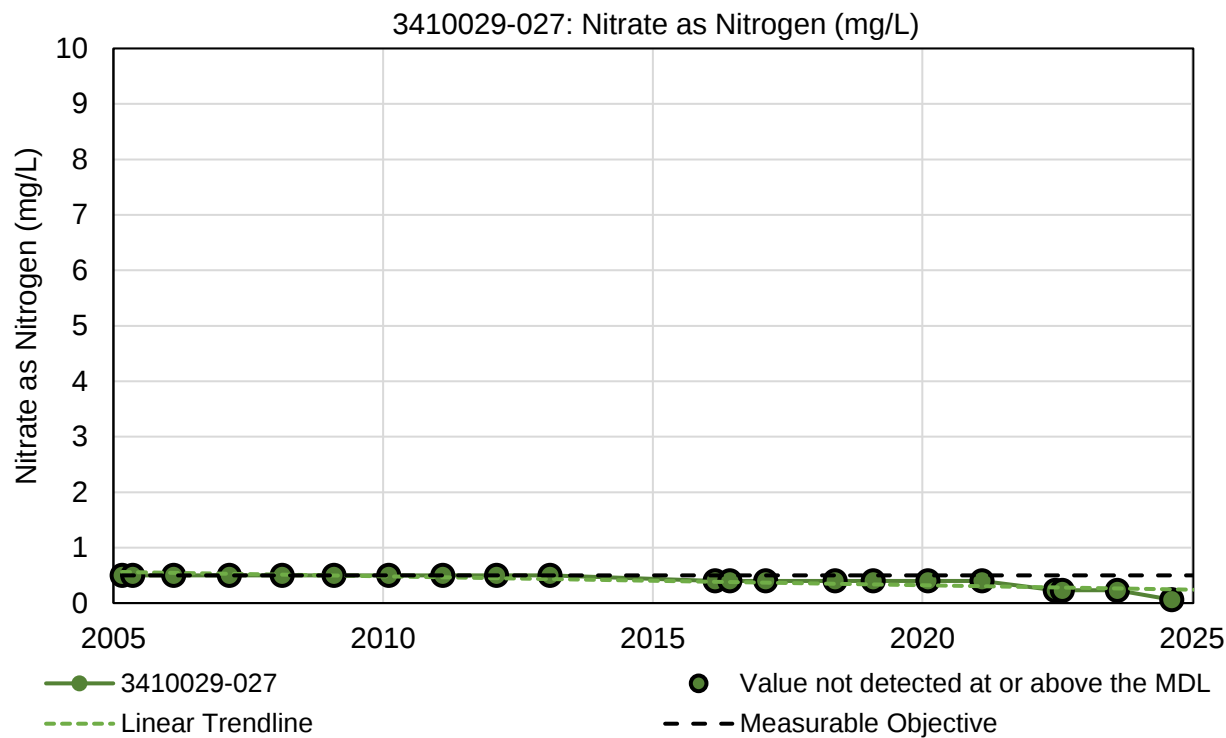


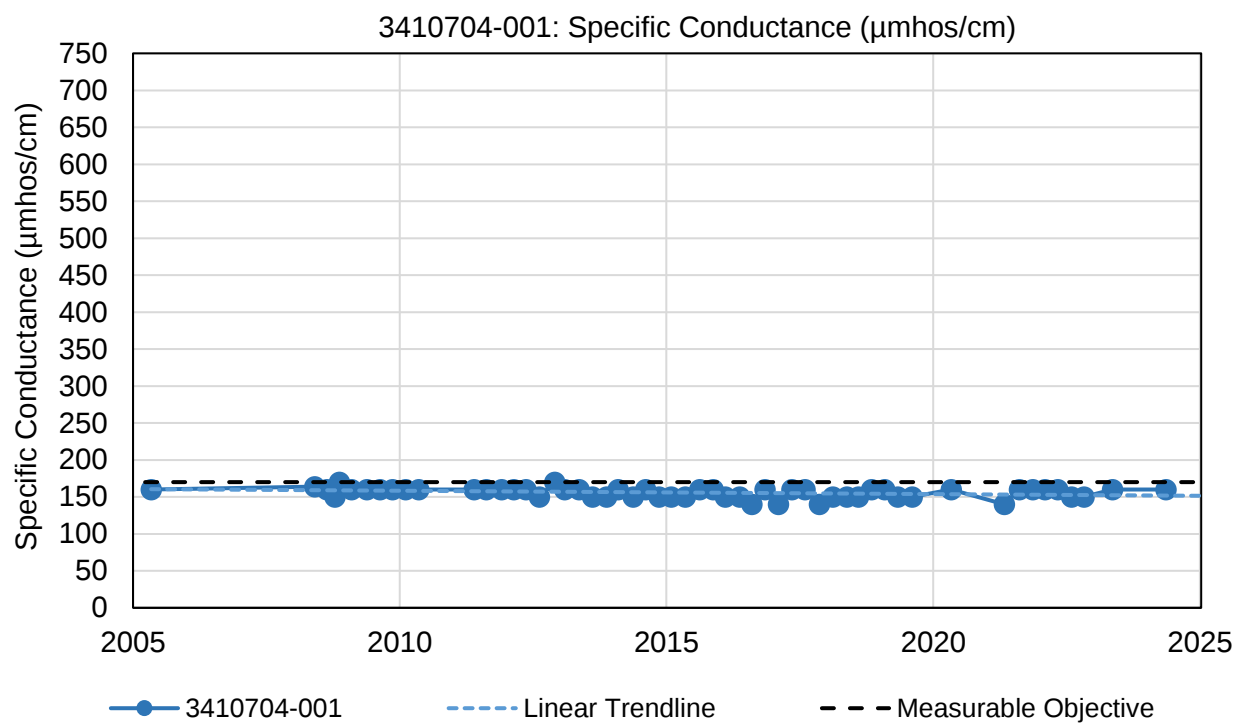
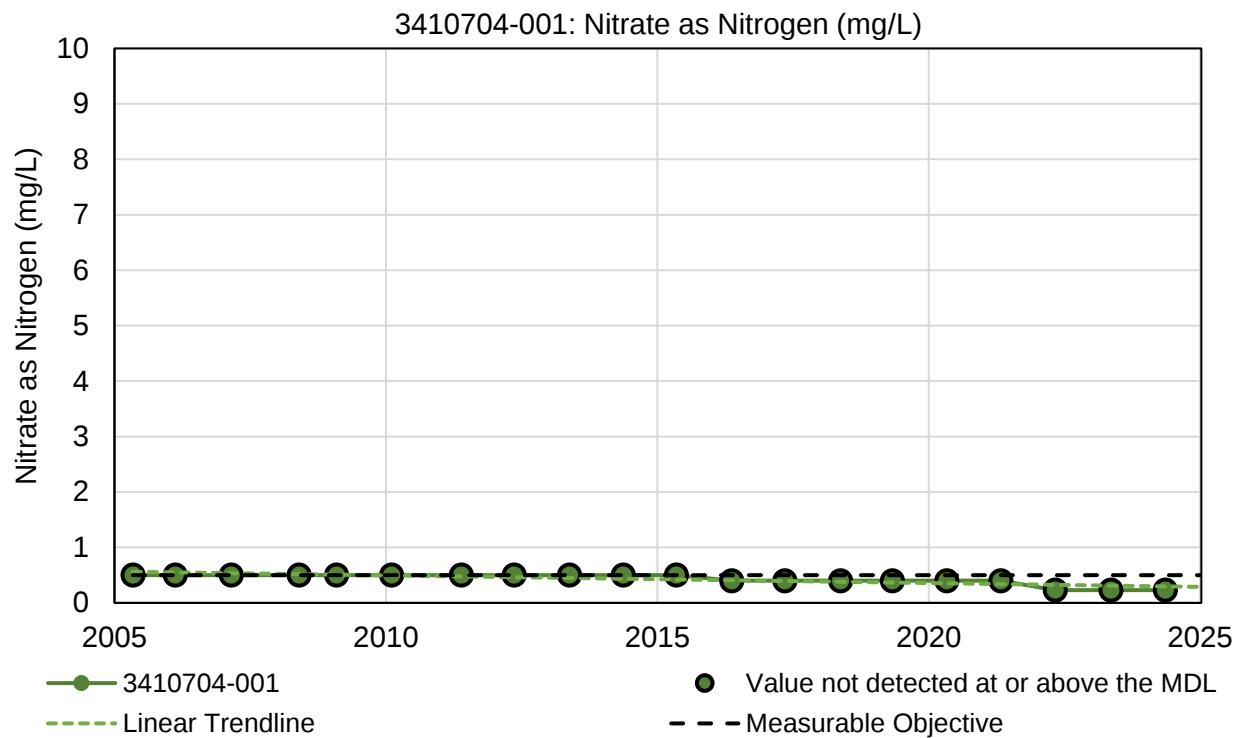


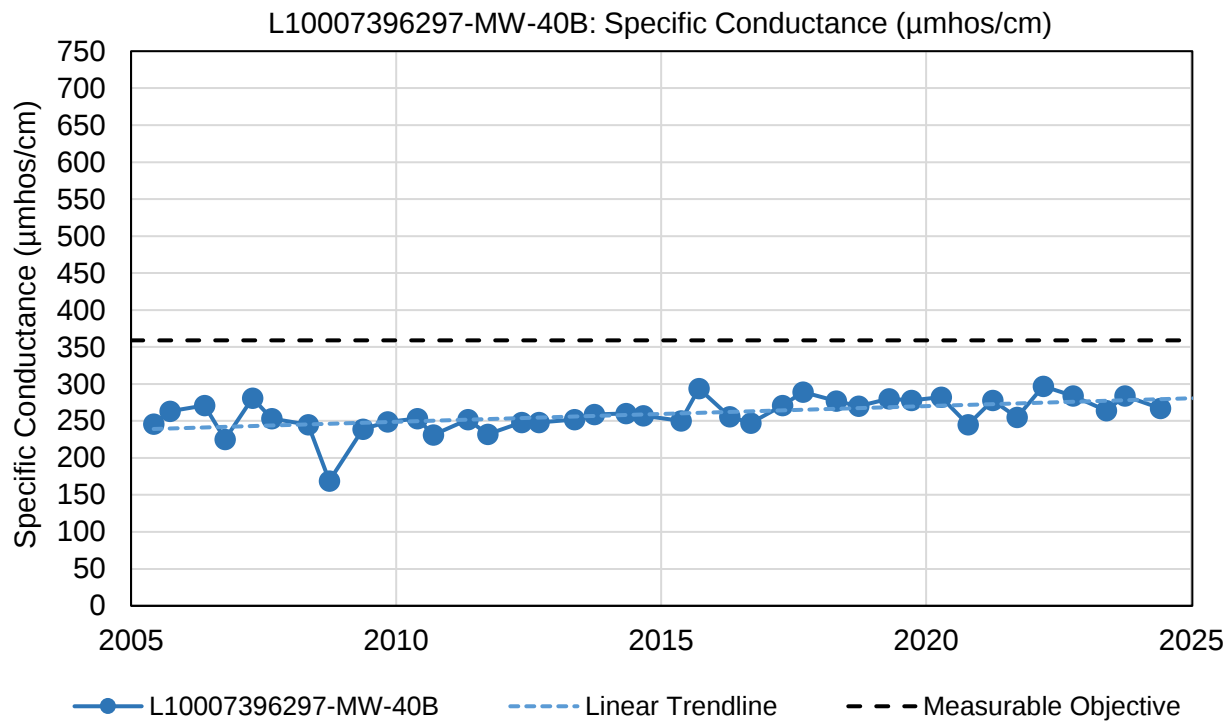
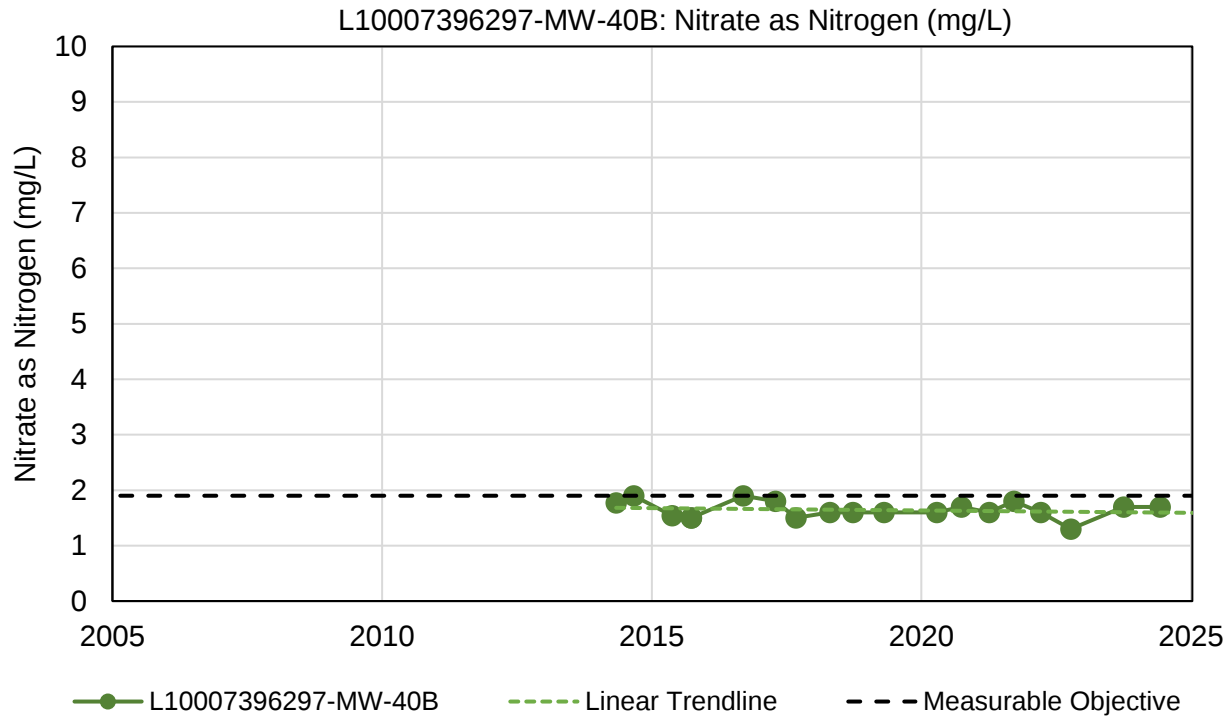
- 1) Monitoring entity, Cal Am Fruitridge Vista, communicated that this well is a standby well on a 9-year sampling period. An inquiry has been made to determine if nitrate and specific conductance can be monitored and reported annually in the future. A response has not yet been received.

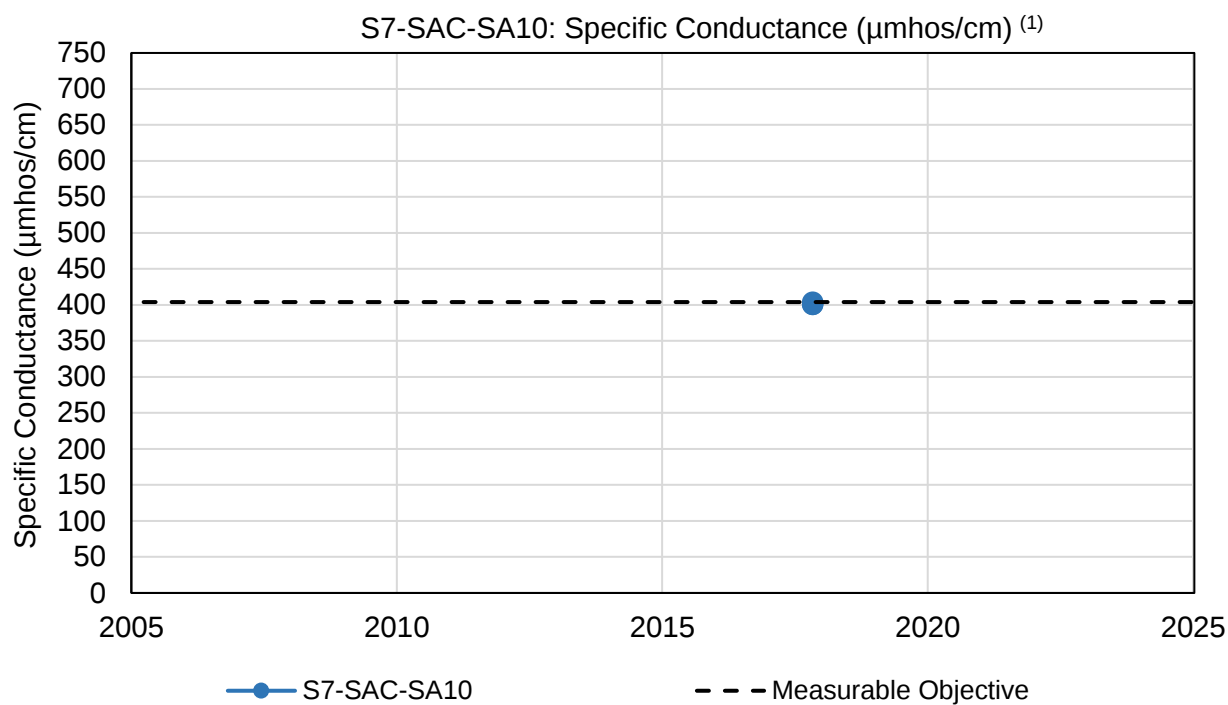
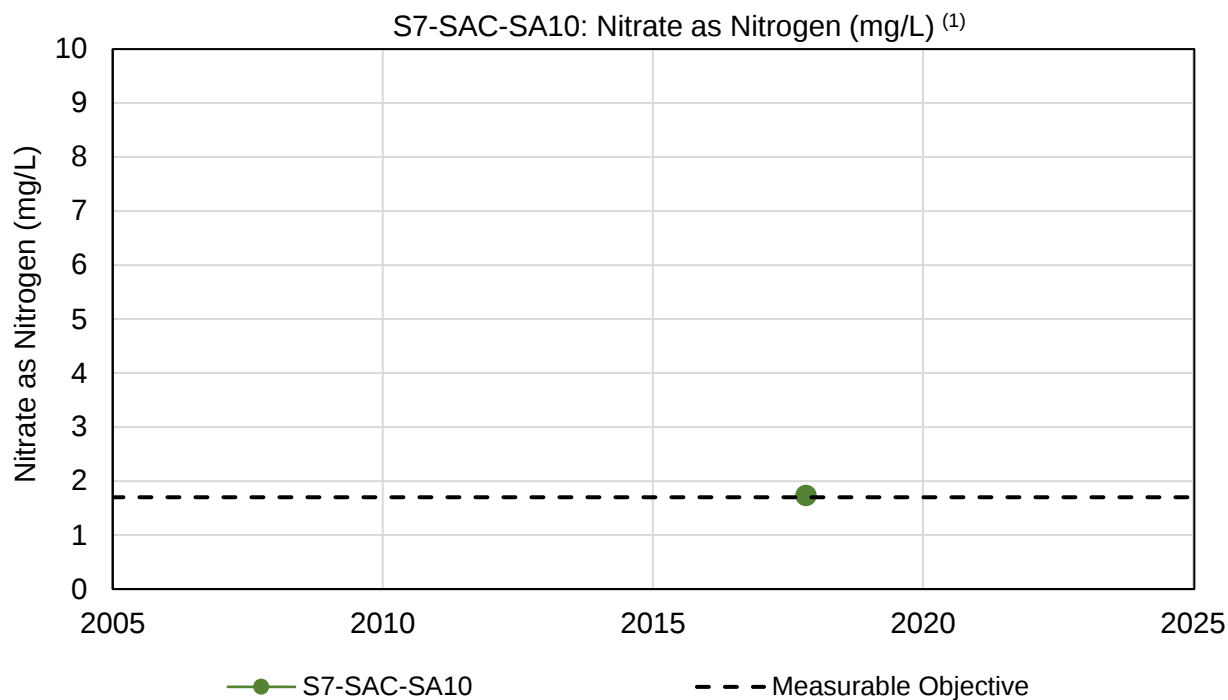












- 1) This well is a domestic well with no available information regarding the owner. The well was last sampled in 2017. It is recommended that this well be removed from the water quality monitoring network as no contact with the owner can be made.