



May 21, 2024

Mr. David McNair  
Scotts Valley Water District  
2 Civic Center Dr.  
Scotts Valley, CA 95066

**SUBJECT: REVIEW OF APRIL 2024 GROUNDWATER CONDITIONS  
IN THE SCOTTS VALLEY WATER DISTRICT AREA**

Dear Mr. McNair:

Montgomery & Associates prepared this letter report for Scotts Valley Water District (District) to review end of wet season groundwater conditions and dry season groundwater supply shortages. The report summarizes District precipitation, groundwater extraction, and groundwater level data for the wet season of Water Year (WY) 2024 from October 1, 2023, to April 30, 2024. The information reviewed was used to prepare an Annual Water Supply and Demand Assessment, as outlined in Section 13.2 of the 2020 Urban Water Management Plan (UWMP), which will determine if there is a need to implement the Water Shortage Contingency Plan (WSCP). The data are also compared to sustainability metrics in the Santa Margarita Basin Groundwater Sustainability Plan (GSP) to evaluate progress implementing this plan. Due to steadily decreasing annual extraction volumes, recent wetter than average conditions, and stable to increasing groundwater level trends, the District will continue to have adequate supply in WY2024 to operate extraction wells consistent with prior years.

**PRECIPITATION SUMMARY**

The partial WY2024 rainfall total through May 1 measured at the El Pueblo Yard Station in Scotts Valley is 31.9 inches (Figure 1). This rainfall total is 77% of the long-term average annual precipitation of 41.3 inches in Scotts Valley. Like most years, much of the wet season precipitation occurred from the end of December 2023 to the end of March 2024 (Figure 2). WY2024 total precipitation will be wetter than about 31% of years since 1947 (Figure 1).

May rainfall probability is used to project the likely total rainfall for the remainder of the wet season. April is typically the end of the wet season in Scotts Valley, though about 25% of years have May rainfall greater than 1 inch. Figure 3 shows the likelihood of receiving various amounts of rain in March (blue line), April, (orange line), and May (grey line). The median

rainfall for May is 0.57 inches (Figure 3), therefore total annual precipitation in WY2024 will likely be about 32.5 inches.

Since rainfall in prior years can influence current groundwater conditions in the region, the 2-year and 3-year averages are a useful metric for evaluating water supply and recharge. The 2-year and 3-year average precipitation are also specific triggers in the 2020 UWMP Water Supply and Demand Assessment. The 3-year period included 2 drier than average years in WY2022 and WY2024 and 1 wet year in WY2023. The 2-year average precipitation from WY2023 through April 30, 2024, is 44.0 inches, which is 107% of average; the 3-year average precipitation from WY2022 through April 30, 2024, is 38.4 inches, which is 93% of average.

Another indicator of regional climate conditions is the National Integrated Drought Information System (NIDIS) online tool<sup>1</sup>. The NIDIS program provides real time and historical drought information at the local, state, and federal levels. NIDIS classifies Scotts Valley as being in severe to extreme drought from April 2021 to January 2023. However, after wet conditions in WY2023, the region is no longer in a state of drought.

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<sup>1</sup> <https://www.drought.gov/location/scotts%20valley%2C%20ca>

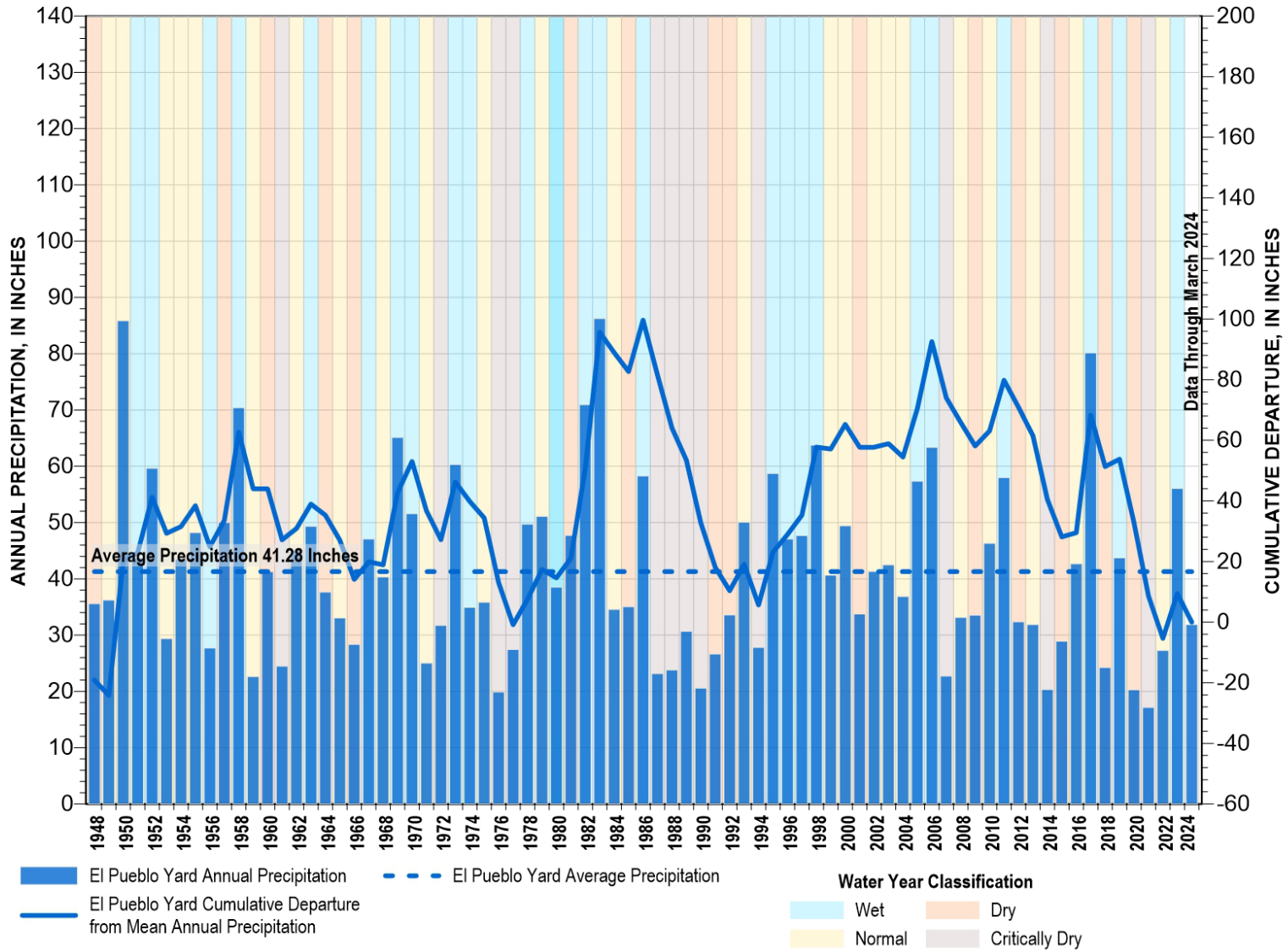


Figure 1. Annual Rainfall at El Pueblo Yard

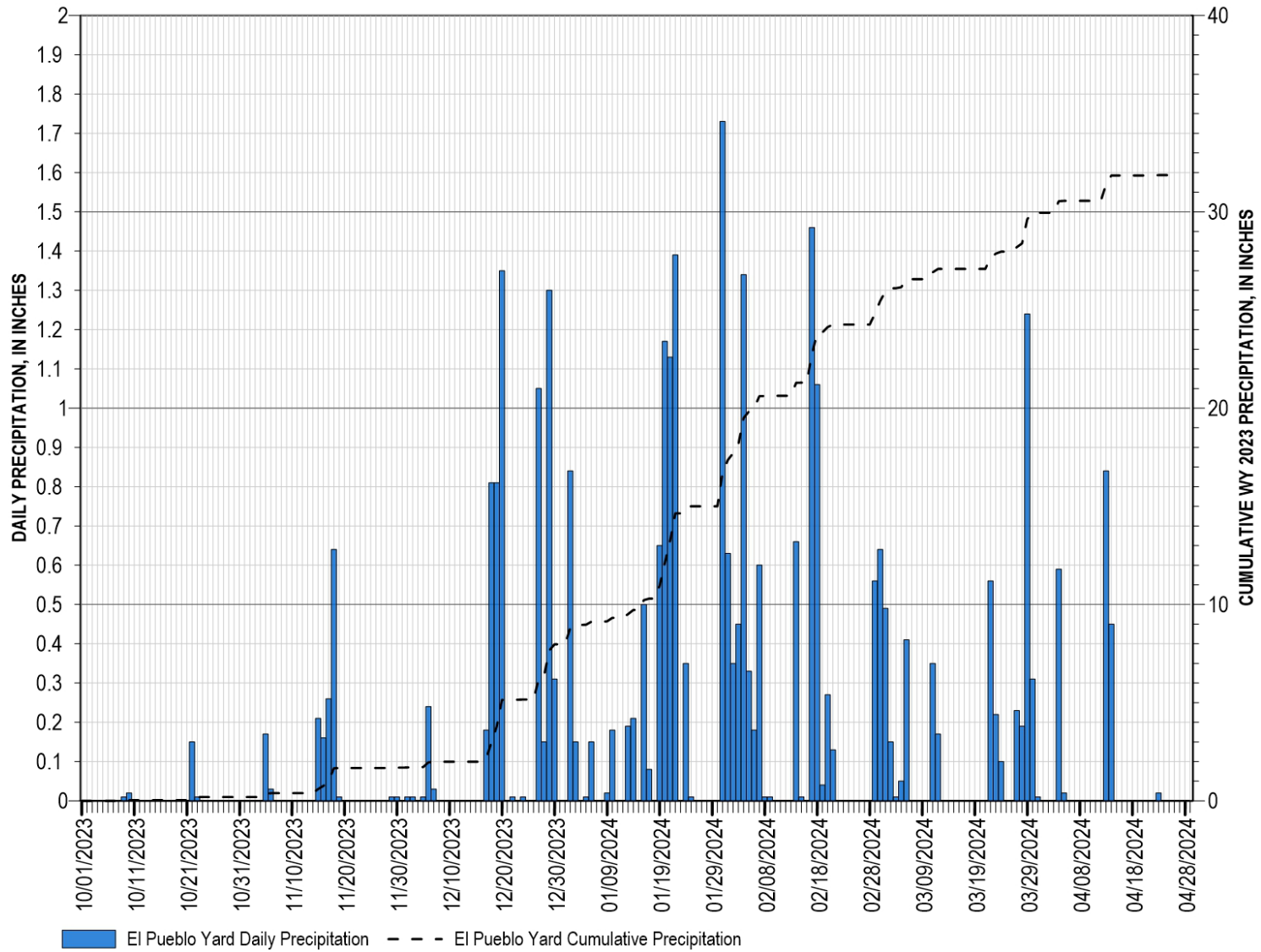


Figure 2. WY2024 Daily Rainfall at El Pueblo Yard

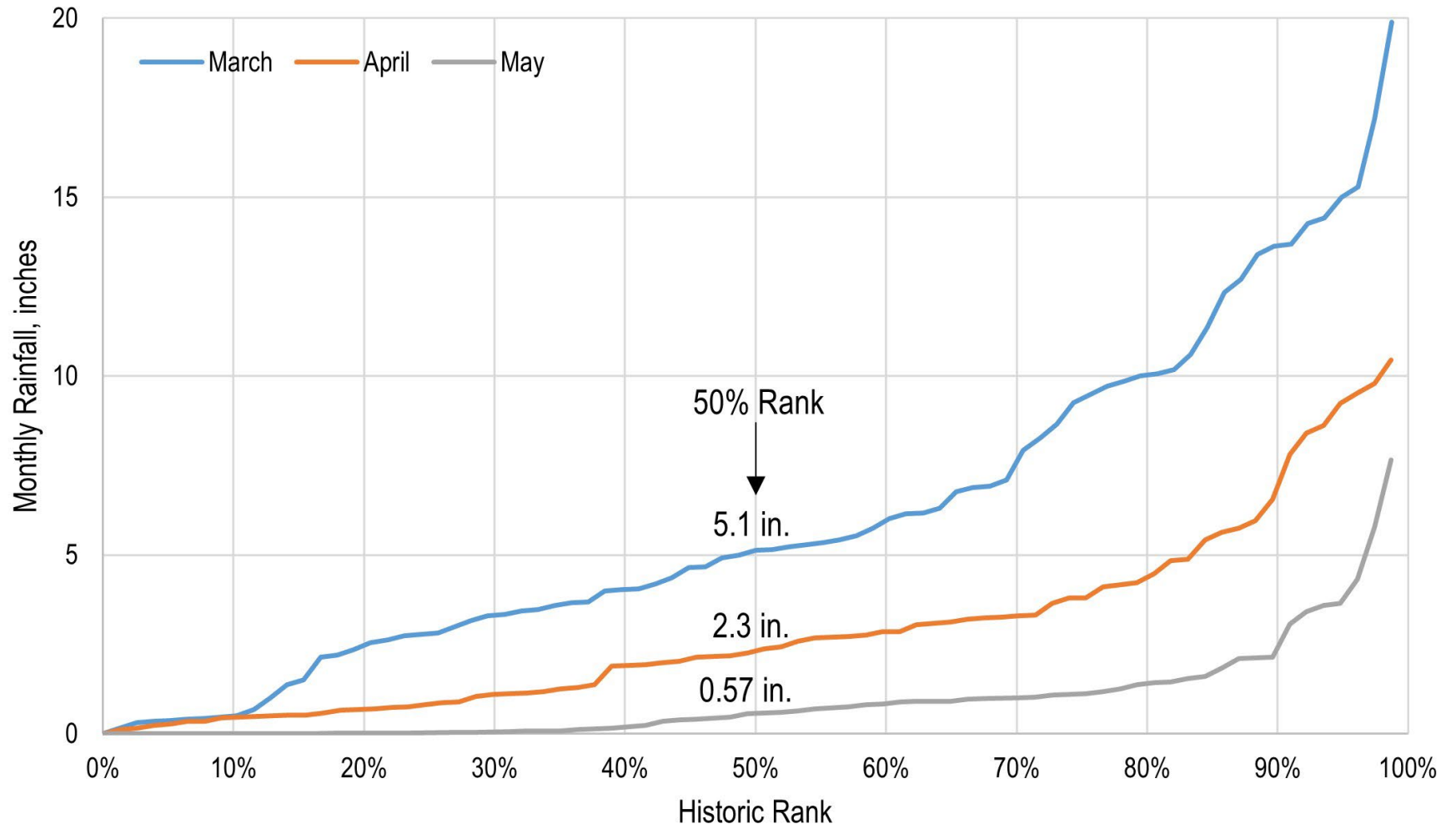


Figure 3. Historical March through May Rainfall Ranking

## GROUNDWATER EXTRACTION SUMMARY

Groundwater provides nearly all water supply distributed by the District. About 200 acre-feet (AF) per year of recycled water is also used to supplement groundwater. The District’s active supply wells are screened in the Lompico and/or Butano aquifers. Extraction wells #10A, #11A, and #11B are screened in the Lompico aquifer and Orchard Well is screened in both the Lompico and Butano aquifers. Well #3B was abandoned in March 2024 prior to the work associated with installing the new Sucinto well, scheduled to be completed by the end of 2024. The Sucinto Well will be screened in the Lompico and Butano aquifers similar to the Orchard Well. Extraction well locations are shown on Figure 4.

District groundwater extraction is 447.7 AF from October 1, 2023 to March 31, 2024. WY2024 extraction to date is about 20 to 150 AF lower than historical extraction volumes during the wet season in the past 5 years (Table 1). About 50% of extraction was from Lompico Wells #10A and #11B and 50% of extraction was from Lompico/Butano Orchard Well. Well #11A was pumped minimally producing 1.1 AF in November 2023 and Well #3B was inactive prior to being abandoned.

Table 1. Summary of Wet Season Extraction

Time Period	Lompico Extraction Wells #10A, #11A and #11B (AF)	Lompico/Butano Extraction Orchard Well (AF)*	Total (AF)
WY2019 Oct 2018 - Mar 2019	97.6	422.7	520.4
WY2020 Oct 2019 - Mar 2020	250.8	301.2	552.0
WY2021 Oct 2020 - Mar 2021	468.4	127.5	595.9
WY2022 Oct 2021 - Mar 2022	193.8	311.4	505.2
WY2023 Oct 2022 - Mar 2023	248.2	218.6	466.8
WY2024 Oct 2023 - Mar 2024	222.8	224.9	447.7

\*The relative contribution of the Lompico and Butano aquifers to extraction wells screened across the units is estimated to be 40% from the Lompico aquifer and 60% from the Butano aquifer in the Santa Margarita Basin GSP. This estimate is required by the GSP but is not supported by extraction data analysis. The estimated extraction volumes are not distributed by aquifer in this report due to the uncertainty in the estimates.

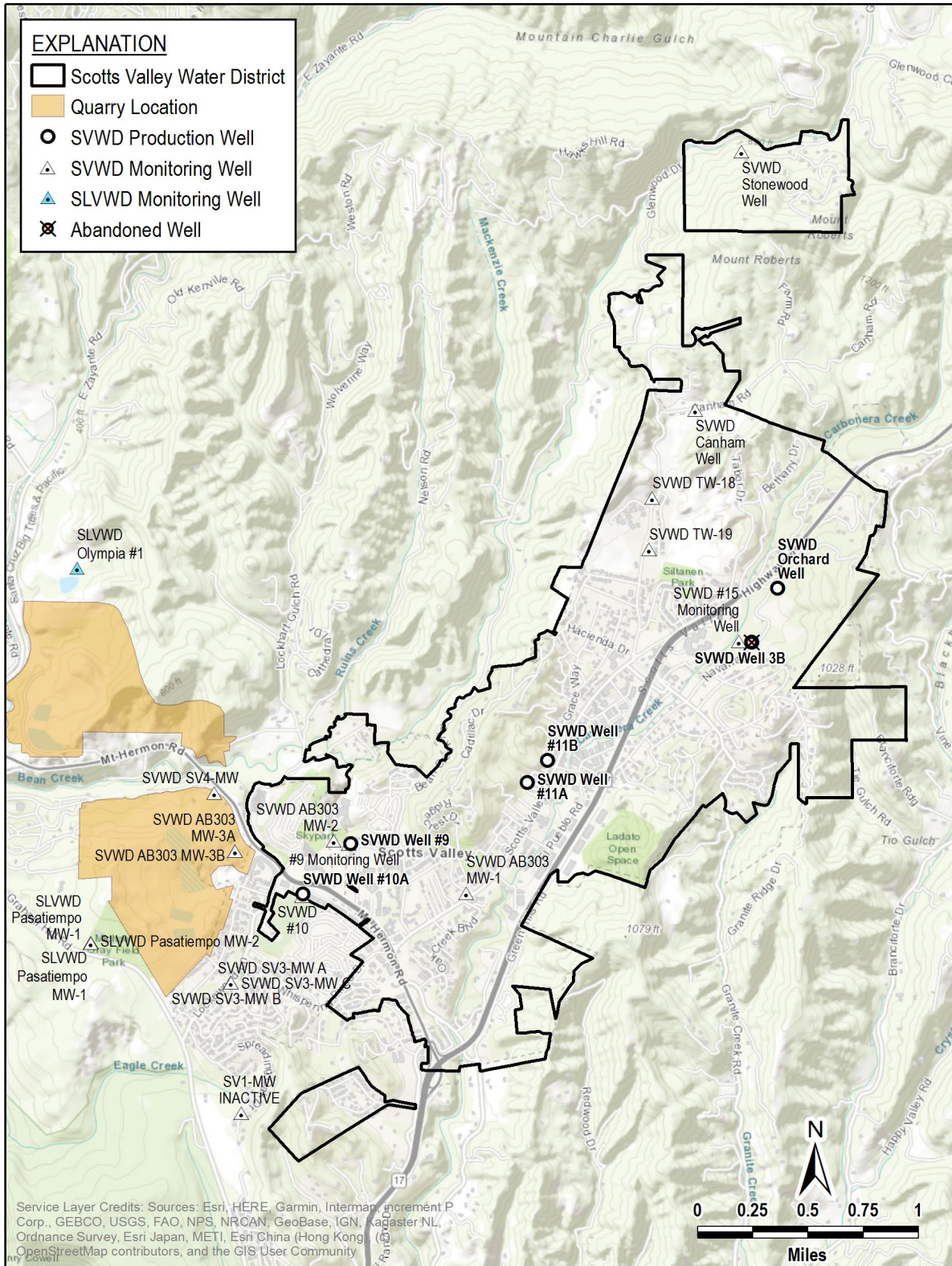


Figure 4. Extraction and Monitoring Well Locations

District extraction for the first half of WY2024 and totals from prior water years are summarized on Figure 5. In WY2023, the District pumped 1,049 AF, which is the lowest annual volume on record since WY1986. WY2023 extraction distribution was similar to the first half of WY2024, with about 498 AF (48% of total extraction) from Lompico aquifer wells and 550 AF (53% of total extraction) from Lompico/Butano aquifer wells.

The shallower Santa Margarita aquifer and Monterey Formation are not actively used for water supply by the District, although District Well #9 is installed in the Monterey Formation. The Santa Margarita aquifer is an important regional aquifer for groundwater recharge, surface water baseflow particularly to Bean Creek north of the District's service area, and domestic supply. The Monterey Formation is a regional aquitard separating the Santa Margarita aquifer and the Lompico aquifer, except where absent under parts of Scotts Valley, and is also used in some areas as domestic supply. The District last extracted groundwater from the Santa Margarita aquifer in the 1980s. Monterey Formation groundwater extraction has not occurred in Well #9 since 2020 and prior to that it only produced less than 100 AF per year since 2008.

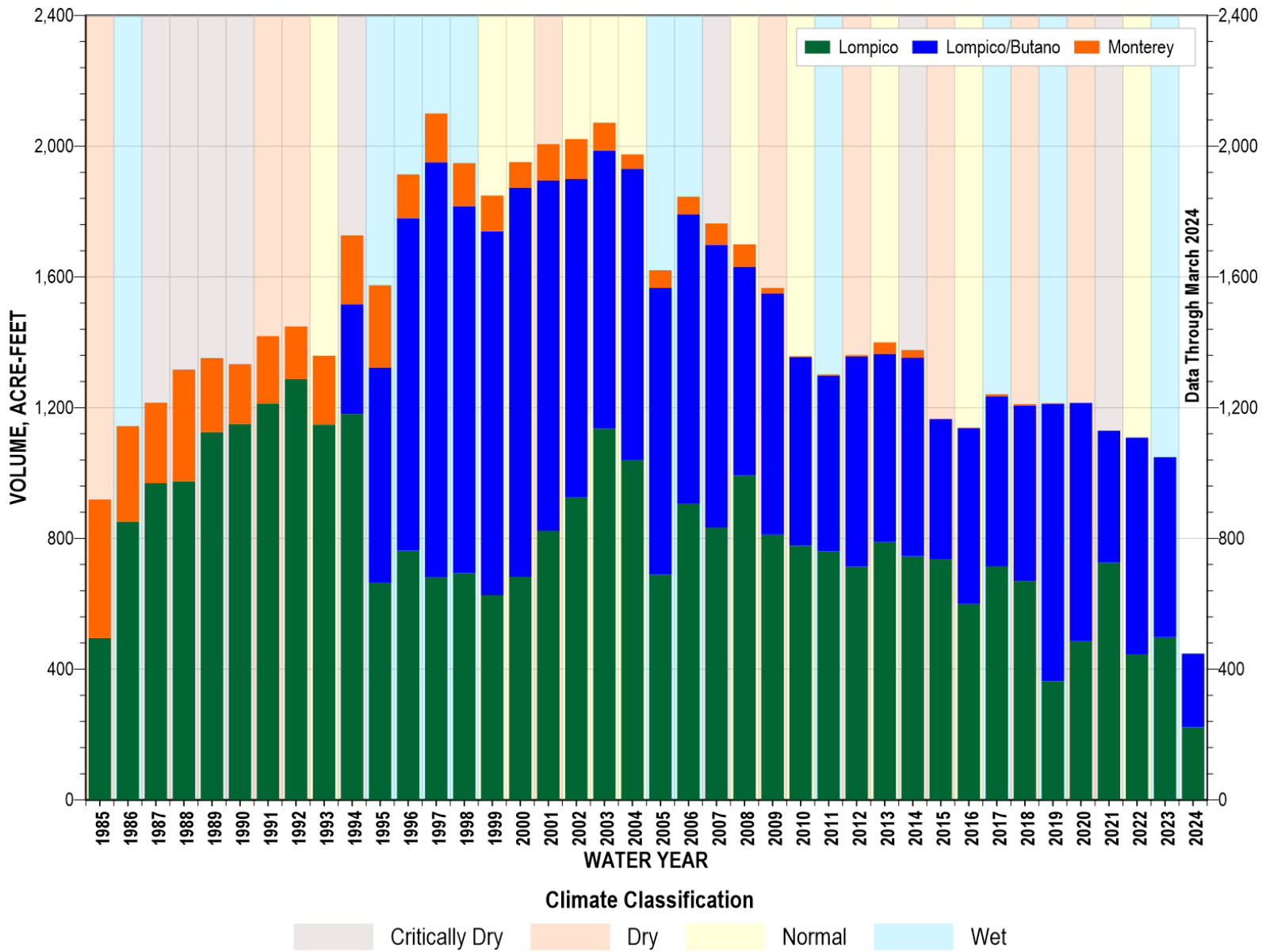


Figure 5. Groundwater Extraction by Water Year and Aquifer

## **GROUNDWATER LEVELS SUMMARY**

Groundwater levels in the District are measured in both monitoring and inactive extraction wells screened in the Santa Margarita, Lompico, and Butano aquifers and the Monterey Formation. Each aquifer in the District's service area has unique responses to precipitation and pumping conditions, based on depth, overlying geology, and proximity to extraction wells as discussed below. Groundwater levels measured in active extraction wells are not indicative of regional aquifer conditions so are omitted from this analysis.

Groundwater levels are manually measured in District wells at least quarterly unless a well is actively being used for extraction. Most monitoring wells have transducers that record daily groundwater levels. Table 2 summarizes groundwater levels in April 2024 relative to October 2023, which preceded a wet year, and October 2017, which preceded the 2012 to 2016 drought. Hydrographs showing groundwater elevations over time at selected wells are referenced in Table 2. Well locations are shown on Figure 4.

Groundwater level data are used to evaluate progress toward implementing the Santa Margarita Basin GSP. Groundwater elevations for representative monitoring points (RMPs) in the District's service area are evaluated relative to the GSP's sustainable management criteria (SMC). SMC include minimum thresholds (MT), measurable objectives (MO), and interim milestones. MTs are groundwater elevations at which undesirable results may start to occur. MOs are the groundwater elevation goal that allows for operational flexibility and ensures that future droughts and unforeseen changes to water supplies do not cause unsustainable conditions. Interim milestones are 5-year goals to help meet MOs by 2042. For purposes of the GSP annual report, annual minimum groundwater elevations at RMPs are compared to the SMC. For this spring conditions evaluation, higher spring elevations are compared to SMC to show how current wet season conditions compare to target groundwater levels. Groundwater elevation comparisons to MTs are also part of the Water Supply and Demand Assessment section of this letter report.

Groundwater levels are on track for achieving groundwater level SMC for the District RMPs. In general, groundwater levels in District monitoring wells have been stable to increasing since 2017. Spring 2024 groundwater elevations in 6 out of 9 RMP wells are above the MO with no groundwater levels close to MTs.

### **Santa Margarita Aquifer Groundwater Levels**

Groundwater levels in the Santa Margarita aquifer are generally stable in the District because the aquifer is no longer used by the District or nearby quarries for water supply. However, San Lorenzo Valley Water District still extracts from the Santa Margarita aquifer south of Scotts Valley in their Pasatiempo well field and in their Olympia and Quail Hollow well fields north of Bean Creek. The Santa Margarita aquifer is also an important aquifer for baseflow to streams and

domestic supply for homes not connected to one of the water districts. Some Santa Margarita aquifer monitoring wells in the District respond rapidly to rainfall with groundwater levels rising in wet years and declining in dry years, while other Santa Margarita monitoring wells in the northern portion of the District are less responsive. Generally, seasonal groundwater level fluctuations are more pronounced further to the south where the Santa Margarita aquifer provides baseflow to Bean Creek. The aquifer in the northern portion of the District has less connection to streams and is not used as much for water supply. Historic overpumping of the Santa Margarita and Lompico aquifers has caused the Santa Margarita aquifer to be dewatered below Scotts Valley where the Monterey Formation is absent.

April 2024 groundwater levels in the 3 Santa Margarita aquifer monitoring wells in the southern portion of the District have remained generally stable over the past 7 years, indicated as follows:

- Monitoring well AB303 MW-1 typically demonstrates a few feet of seasonal groundwater level fluctuation with little to no net annual change (Figure 6). Groundwater levels in April 2024 are 3.6 feet higher than October 2023 and 6.1 feet higher than October 2017 in AB303 MW-1 (Table 2).
- Monitoring wells AB303 MW-3B and SV4-MW groundwater levels are relatively stable most years with rising and falling levels occurring only in the wettest years (Figure 7 and Figure 8). In dry periods such as from 2020 to 2022 and 2012 to 2016, groundwater levels are about 10 to 20 feet lower than peaks in spring 2017 and 2023. Groundwater levels in April 2024 are within 1 foot of levels measured in October 2017 and 2023 (Table 2).

SV4-MW is the only RMP for the Santa Margarita aquifer in the southern part of the District. This well is used to evaluate depletion of interconnected surface water from Bean Creek. The groundwater elevation in SV4-MW is 31 feet above the MT and 25 feet above the MO (Table 3).

Santa Margarita well TW-18 in the northern portion of the District fluctuates very little, with all groundwater level measurements within a range of a few feet (Figure 9). The April 2024 groundwater elevation is within a foot of the MO and is about 8 feet higher than the MT (Table 3).

## **Monterey Formation Groundwater Levels**

The Monterey Formation groundwater levels have a long-term increasing trend in the only District well screened in this aquifer, Well #9. The Monterey Formation is no longer used as a water supply by the District. Groundwater levels in Well #9 continue to steadily increase since the well has barely been used as a water source since 2008 (Figure 10). The groundwater level in April 2024 is 2 feet higher than October 2023 and about 24 feet higher than fall October 2017 (Table 2). The April 2024 groundwater elevation is 4 feet above the MO for the well (Table 3).

## Lompico Aquifer Groundwater Levels

Groundwater level fluctuation in the deeper Lompico aquifer is influenced more by pumping than precipitation. As depicted on the hydrograph for Well #10 on Figure 11, groundwater levels in the Lompico aquifer in south Scotts Valley declined substantially through the early 2000s when District and other regional pumping volumes were greater. Reduced extraction since 2010 has allowed groundwater levels to stabilize from 2010 to 2016. Ongoing pumping reductions through water use efficiency measures and conservation measures have resulted in increasing groundwater elevations since 2016, despite dry years from 2020 to 2022.

Groundwater levels in Lompico aquifer Well #10 (Figure 11), Well #11A (Figure 12), TW-19 (Figure 13), and AB303-MW2 (Figure 14) have increased to varying degrees in the last few years (Table 2). Groundwater level increases may be in part due to recovery in wet years like WY2017 and WY2023, but since increases continued in recent dry years, they appear to be more related to reduced Lompico aquifer extraction.

Groundwater levels in Well #10, which is close to the District's southernmost extraction at Well #10A and relatively close to the SLVWD's Pasatiempo wells, have shown sustained increases in both seasonal high and seasonal low groundwater levels since 2016 (Figure 11). Well #10's April 2024 groundwater level is 5.4 feet higher than October 2023 and 16.6 feet higher than October 2017. Groundwater levels in Well #10 fluctuate by about 30 to 40 feet during annual cycles due to pumping at nearby Well #10A. Well #10's April 2024 groundwater elevation is 20 feet above the MO (Table 3).

Well #11A and #11B have been used to pump less in recent years than Well #10A, therefore groundwater levels have less seasonal fluctuation than observed at Well #10. Groundwater levels have steadily increased in Well #11A since 2017 (Figure 12). Well #11A's April 2024 groundwater level is about 2 feet higher than the groundwater level in October 2023 and 36 feet higher than October 2017 (Table 2). The April 2024 groundwater elevation is 12 feet above the MO (Table 3).

Other Lompico monitoring wells, TW-19 and AB303 MW-2, also have increasing groundwater level trends similar to Well #10 and #11A but without seasonal fluctuation due to nearby pumping (Figure 13 and Figure 14, respectively). Differing increases in groundwater levels in different parts of Scotts Valley reaffirms our understanding that groundwater levels in the Lompico aquifer are recovering because of decreased pumping, indicated as follows:

- TW-19 is in north Scotts Valley and not close to an active extraction well (Figure 4). Regional groundwater levels at TW-19 demonstrate a steady increasing trend since 2017. The April 2024 groundwater elevation is 6.5 feet higher than October 2023 and 42 feet higher than October 2017 (Table 2). The groundwater elevation at TW-19 is 8 feet above the MO (Table 3).

- AB303 MW-2's groundwater level increase is less pronounced than TW-19 as it is closer to active extraction Well #10A (Figure 4). The April 2024 groundwater level in AB303 MW-2 is 4 feet higher than October 2023 and 15 feet higher than October 2017 (Table 2).

## **Lompico/Butano Aquifer Groundwater Levels**

Monitoring Well #15 is the only District monitoring well screened near the Lompico and Butano aquifers northern extraction wells, Well #3B and Orchard. Well #15 is within 50 feet of the recently abandoned Well #3B and about 2,500 feet from the Orchard Well. Pumping at Well #3B highly influenced groundwater levels in the monitoring well. In recent years when only the Orchard Well was active, the influence of pumping at this more distant extraction well is still observed. The groundwater elevation in Well #15 has historically fluctuated up to 100 feet over short periods of time reflecting active pumping influence on groundwater levels. However, despite short-term variability, the long-term groundwater level trend since 2000 has been stable.

The groundwater level in April 2024 at Well #15 is 4 feet higher than October 2023 and 22 feet lower than October 2017 (Table 2). The April 2024 groundwater elevation is about 22 feet below the MO and 20 feet above the MT (Table 3). The groundwater elevation has been above the MO at times during the past few years (Figure 15). Since the groundwater elevation is very sensitive to active and inactive pumping cycles, and the MO was recently achieved, this goal is still achievable in the near term. A future dedicated Butano monitoring well near the District Lompico and Butano extraction wells would help provide insight into deep aquifer groundwater level fluctuations in this area.

## **Butano Aquifer Groundwater Levels**

Butano aquifer dedicated monitoring wells, Canham and Stonewood, are former exploratory wells that did not produce economically viable quantities of water. The hydrogeologic influence of the District's Lompico/Butano aquifer extraction wells on these monitoring wells is uncertain, especially because 1) the distance between the monitoring and extraction wells is relatively far (the shortest distance is 0.8 miles between Canham and Orchard), 2) the wells were not monitored until nearly a decade after Lompico/Butano extraction began, and 3) groundwater levels in monitoring wells were stable when the extraction wells were resting during Orchard treatment system upgrades in 2021 (Figure 16 and Figure 17).

Groundwater levels in the Butano aquifer monitoring wells are relatively stable, as indicated by the following:

- Stonewood monitoring well groundwater levels have a slight increasing trend over time. The groundwater level in April 2024 is 1.4 feet higher than October 2023 and 5.2 feet higher than October 2017 (Table 2). The April 2023 groundwater elevation in Stonewood is 5 feet above the MO.

- The Canham monitoring well has a long term stable trend with very little fluctuation, other than a minor increase related to well vault flooding during the extreme December 2022 atmospheric river storms. The April 2024 groundwater level is 1.3 feet lower than October 2023 and 2 feet lower than Fall 2017. The Canham well groundwater level is 25 feet below the MO and 15 feet above the MT (Table 3). The MO is based on hypothetical groundwater model simulations for an expanded conjunctive use concept in the Basin and may not have the simulated affect in this area. The MO is higher than any groundwater elevation measured in the well since monitoring began in 2011.

A deep dedicated monitoring well in the Butano aquifer closer to the District’s Lompico/Butano aquifer pumping wells is planned as part of the Santa Margarita Groundwater Agency implementation of its GSP. This well will provide an additional groundwater level data point closer to where Butano pumping is occurring to help the District monitor and manage Butano aquifer extraction.

Table 2. Groundwater Level Summary

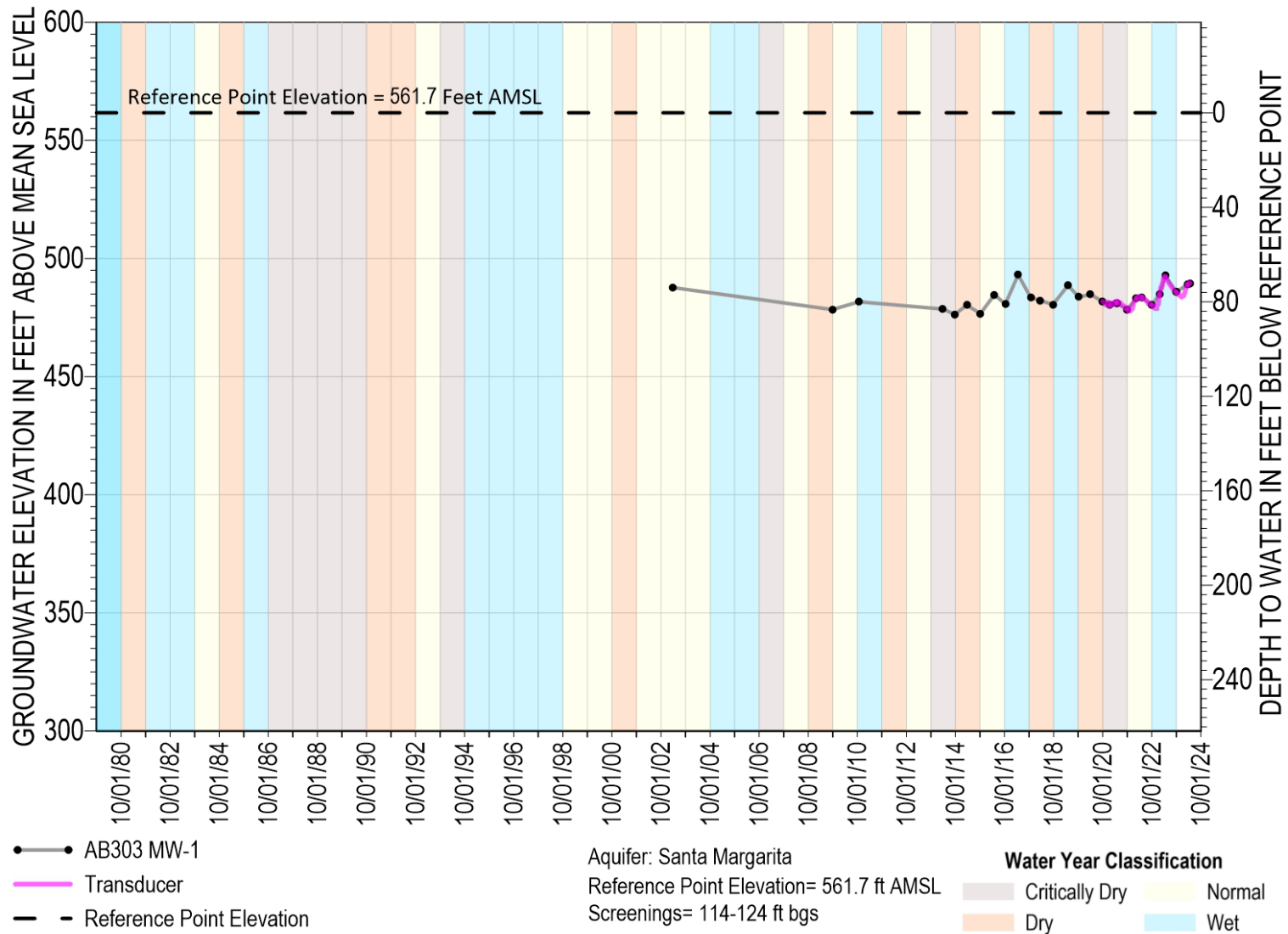
Well	Groundwater Level April 2024 (feet below ground surface)	Change in Groundwater Level Since Oct 2023 (feet)	Change in Groundwater Level Since Oct 2017 (feet)	Hydrograph Figure Number
<b>Santa Margarita Aquifer</b>				
AB303 MW-1	72.2	3.6	6.1	Figure 6
AB303 MW-3B	111.7	0.0	3.2	Figure 7
SV4-MW	42.5	-0.9	0.1	Figure 8
TW-18	244.5	0.4	0.7	Figure 9
<b>Monterey Formation</b>				
Well #9	165.6	2.1	24.0	Figure 10
<b>Lompico Aquifer</b>				
Well #10	168.3	5.4	16.6	Figure 11
Well #11A	273.7	2.4	36.3	Figure 12
TW-19	274.8	6.5	42.2	Figure 13
AB303 MW-2	119.7	3.9	14.8	Figure 14
<b>Lompico/Butano Aquifer</b>				
Well #15	349.2	3.7	-22.3	Figure 15
<b>Lompico/Butano Aquifer</b>				
Stonewood	49.4	1.4	5.2	Figure 16
Canham	340.9	-1.3	-1.9	Figure 17

Table 3. Groundwater Level Sustainable Management Criteria Evaluation

Aquifer	Well Name				Minimum Groundwater Elevation (feet above mean sea level)			
		Minimum Threshold	Interim Milestone #1 (2027)	Measurable Objective	WY2021	WY2022	WY2023	April WY2024
					Critically Dry WY	Normal WY	Wet	---
Santa Margarita	TW-18	462	471	471	471.8	470.9	470.4	470.5
	SV4-MW*	381	387	387	404.1	405.7	408.7	412.8
Monterey	Well #9	301	340	358	351.0	354.0	356.0	362.6
Lompico	Well #10	286	302	322	330.3	338.1	350.1	342.6
	Well #11A	288	299	317	308.0	312.6	320.2	328.9
	TW-19	314	357	376	370.4	370.0	378.4	384.8
Lompico/Butano	Well #15	291	310	333	307.1	307.9	306.5	310.8
Butano	Stonewood	836	844	844	845.0	845.8	847.6	849.1
	Canham	427	447	467	441.7	441.2	441.2	441.9

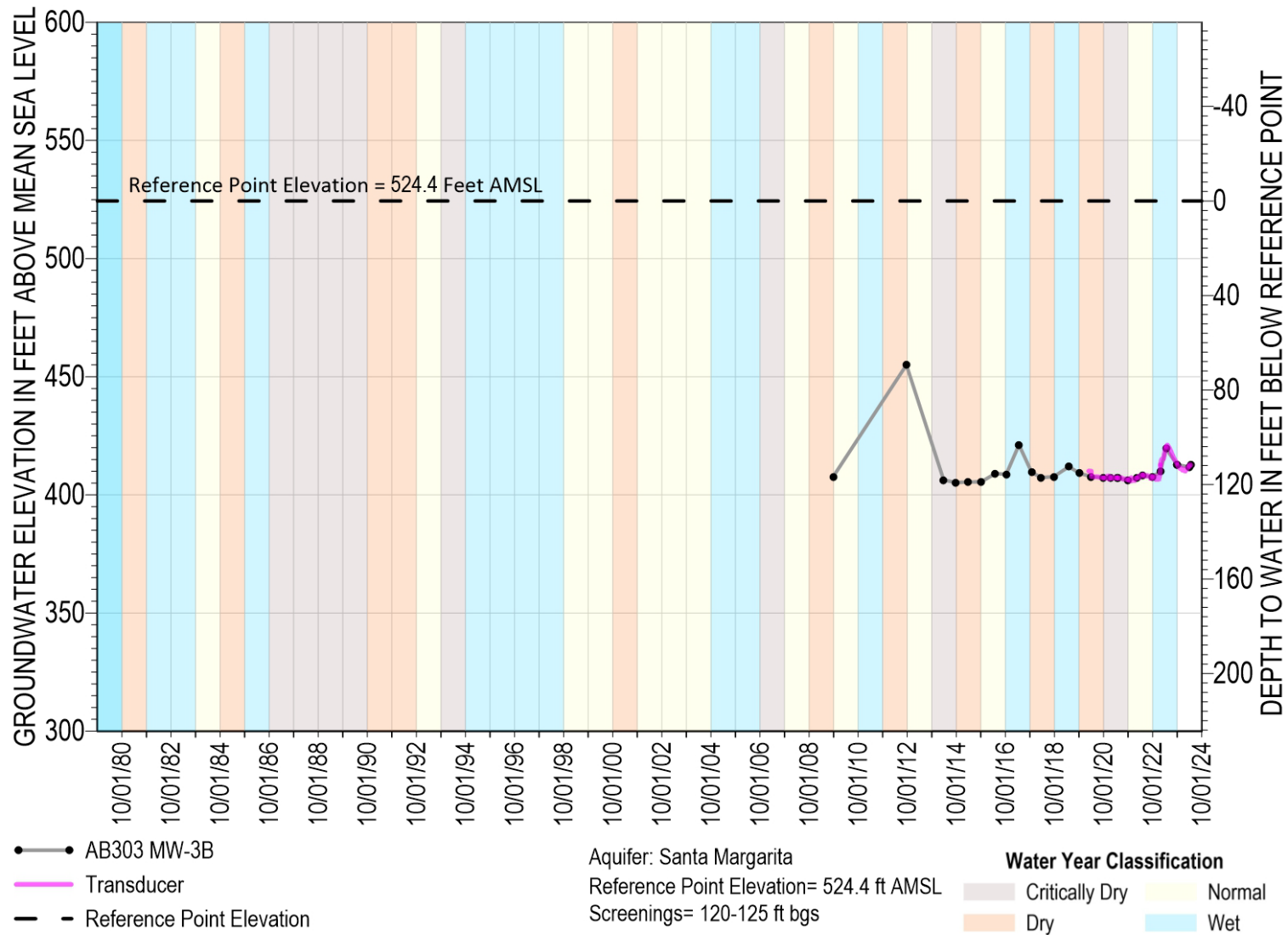
\*SV4-MW is an RMP for the interconnected surface water sustainability indicator

Minimum threshold not met
Minimum threshold met but 2027 interim milestone and measurable objective not met
Minimum threshold and 2027 interim milestone met, but measurable objective not met
Measurable objective met



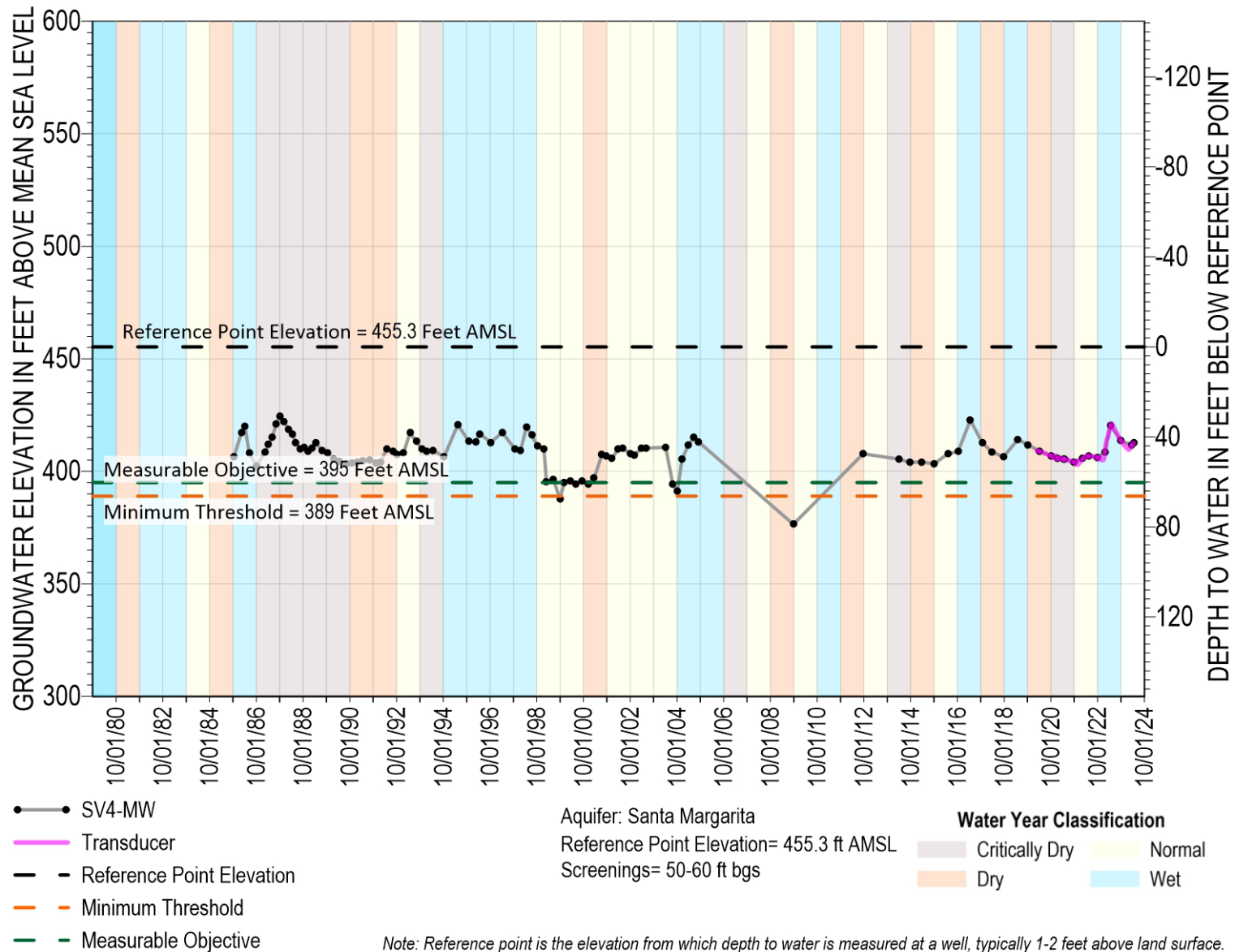
*Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.*

Figure 6. AB303 MW-1 Hydrograph (Santa Margarita Aquifer)



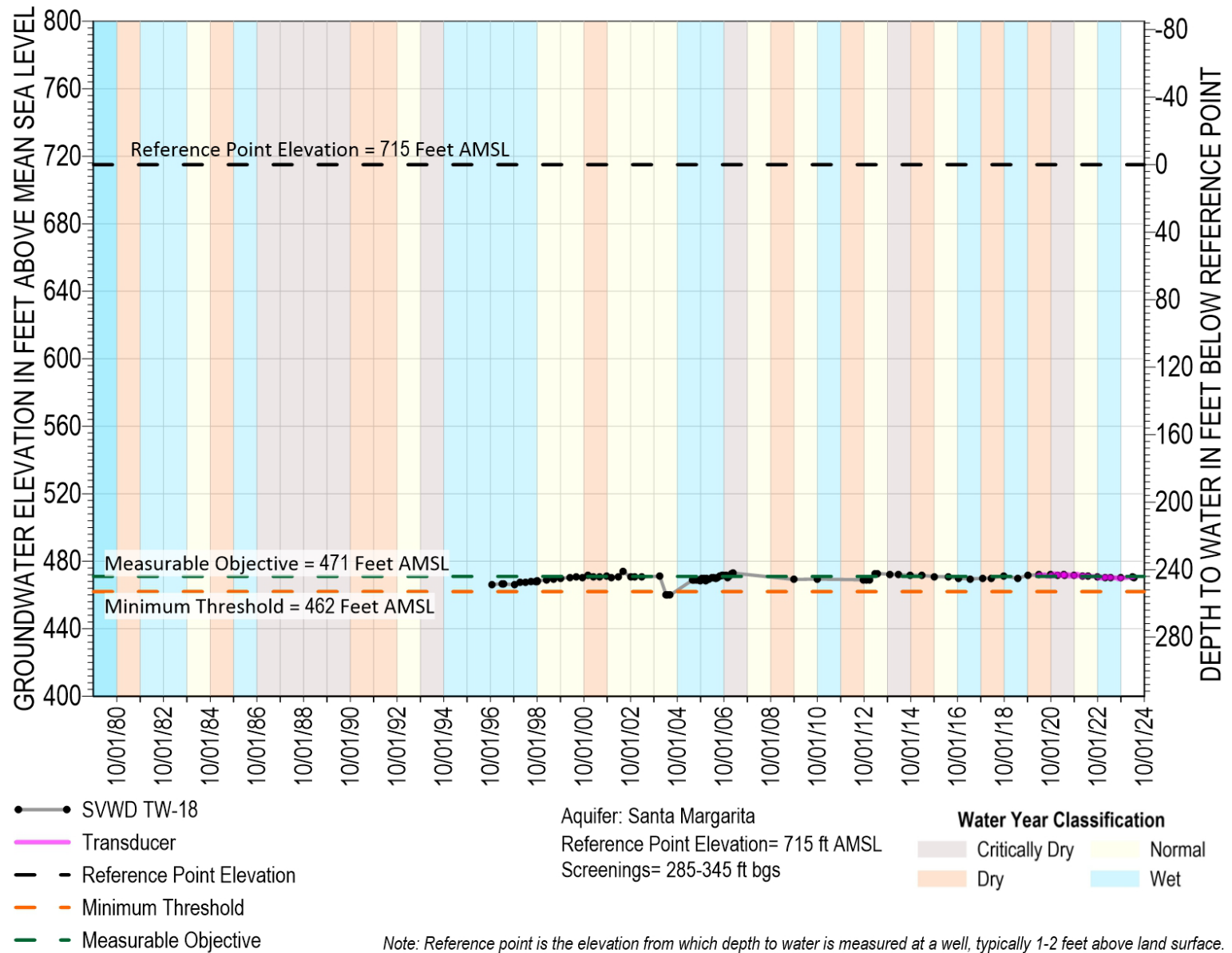
*Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.*

Figure 7. AB303 MW-3B Hydrograph (Santa Margarita Aquifer)



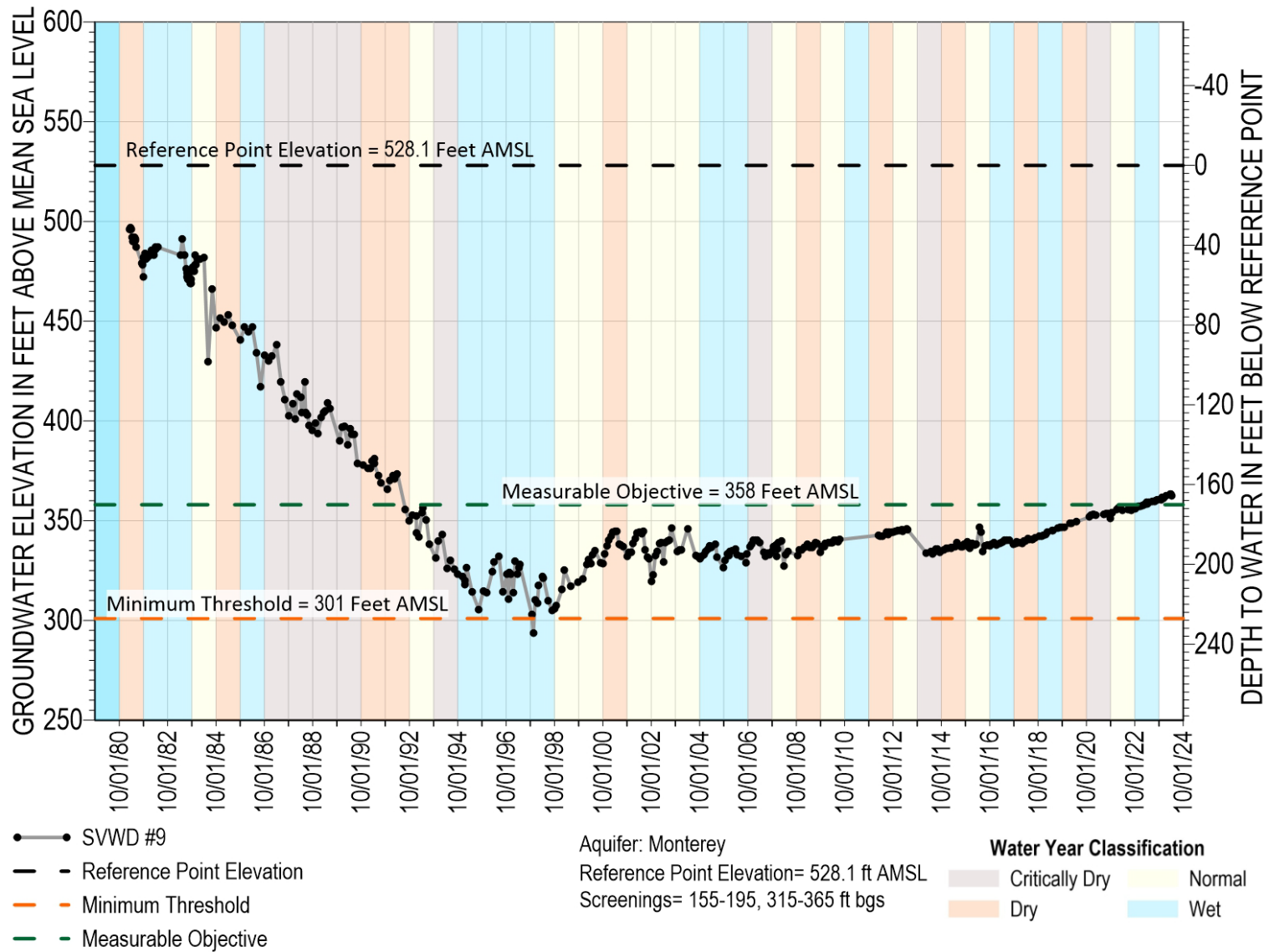
*Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.*

Figure 8. SV4-MW Hydrograph (Santa Margarita Aquifer)



*Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.*

Figure 9. TW-18 Hydrograph (Santa Margarita Aquifer)



Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.

Figure 10. Well #9 Hydrograph (Monterey Formation)

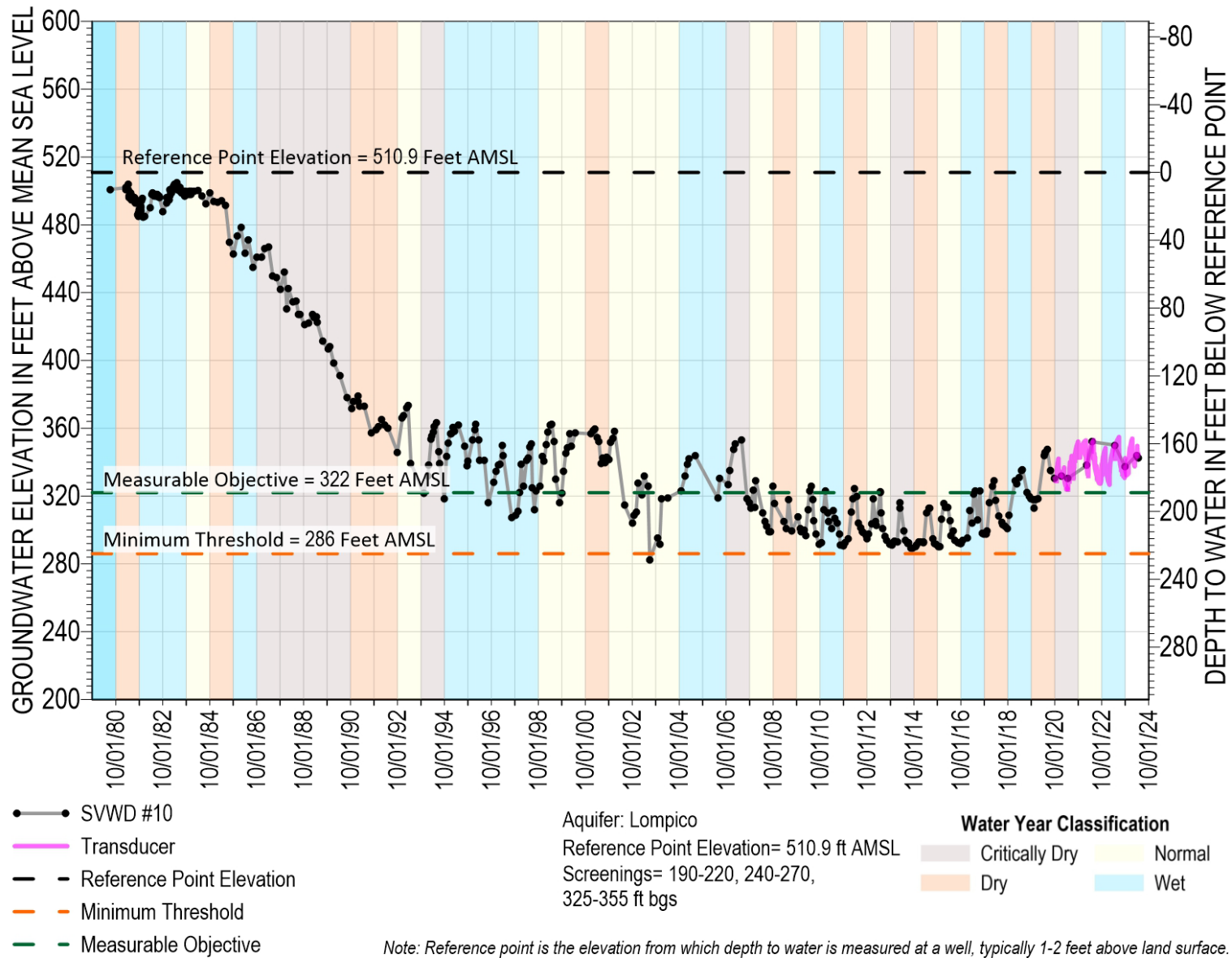
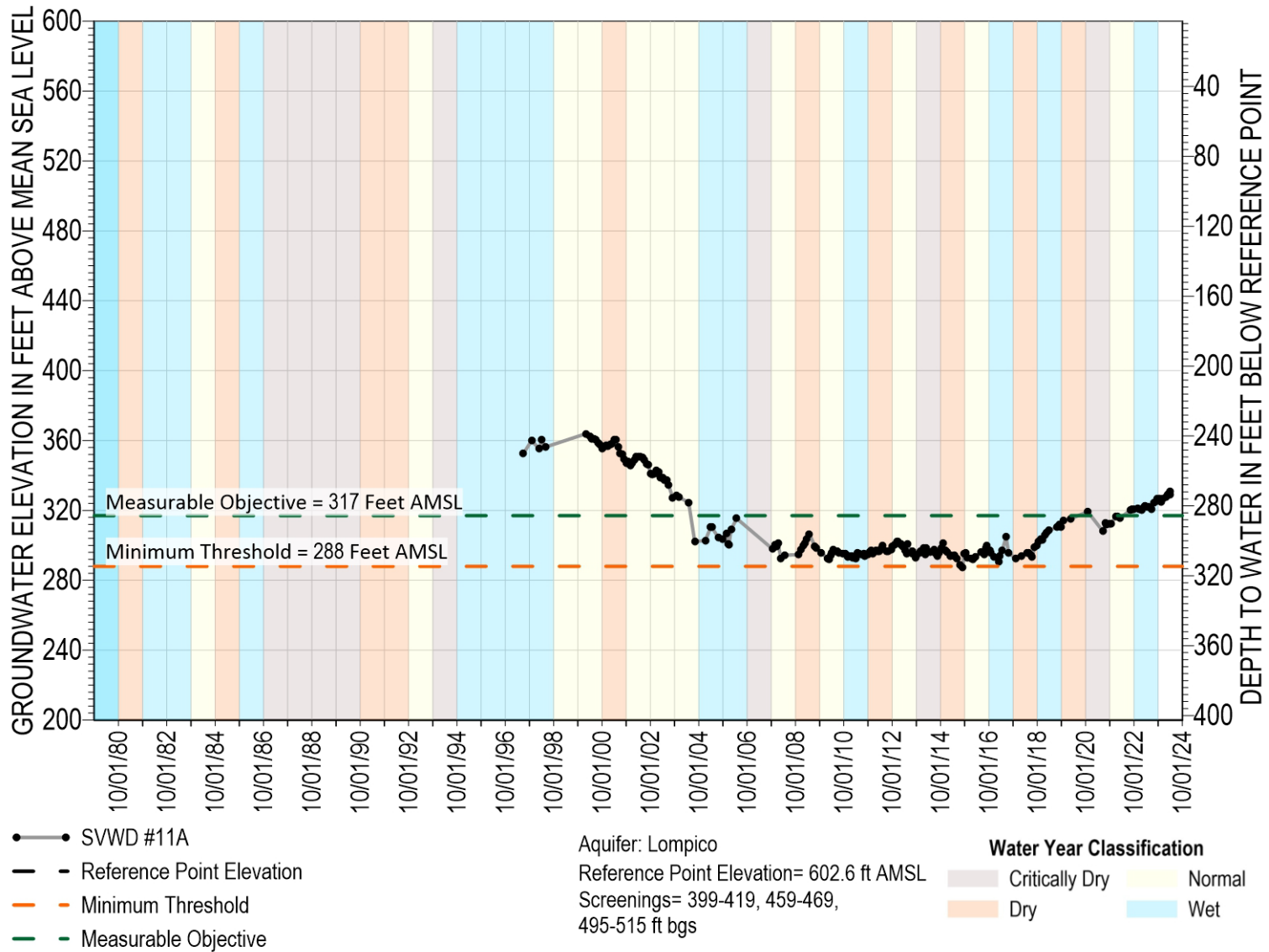


Figure 11. Well #10 Hydrograph (Lompico Aquifer)



*Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.*

Figure 12. Well #11A Hydrograph (Lompico Aquifer)

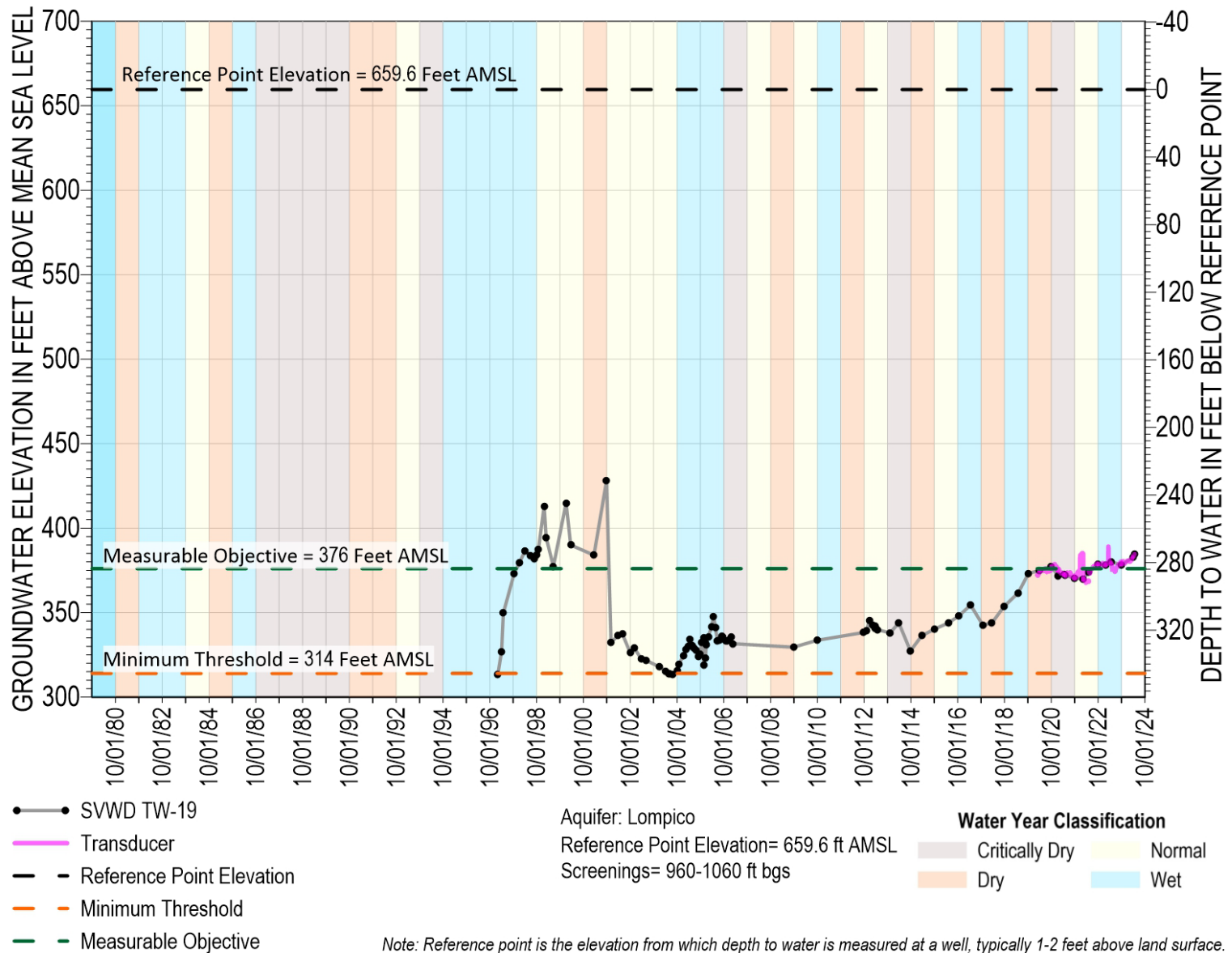
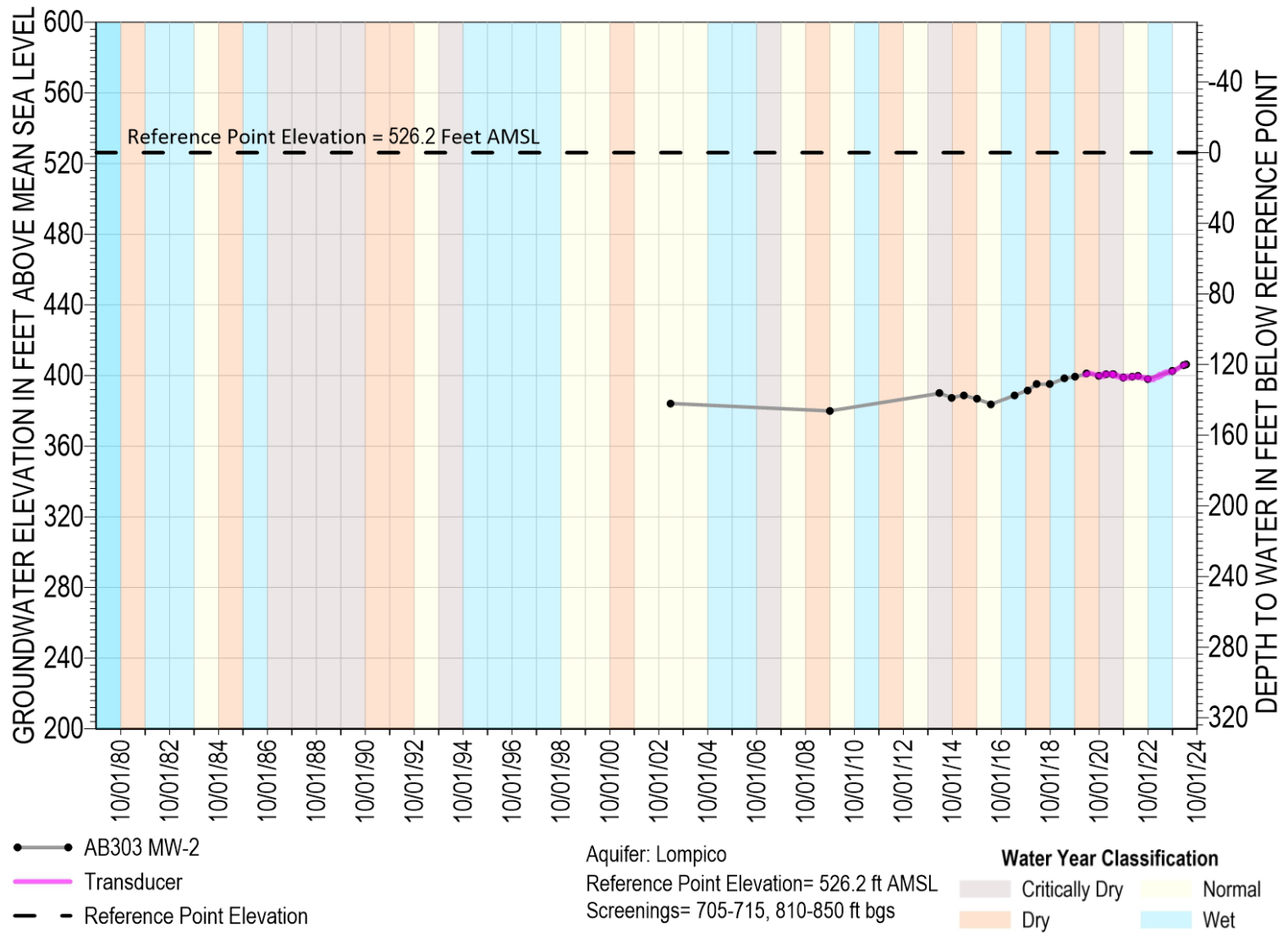


Figure 13. TW-19 Hydrograph (Lompico Aquifer)



*Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.*

Figure 14. AB303-MW2 Hydrograph (Lompico Aquifer)

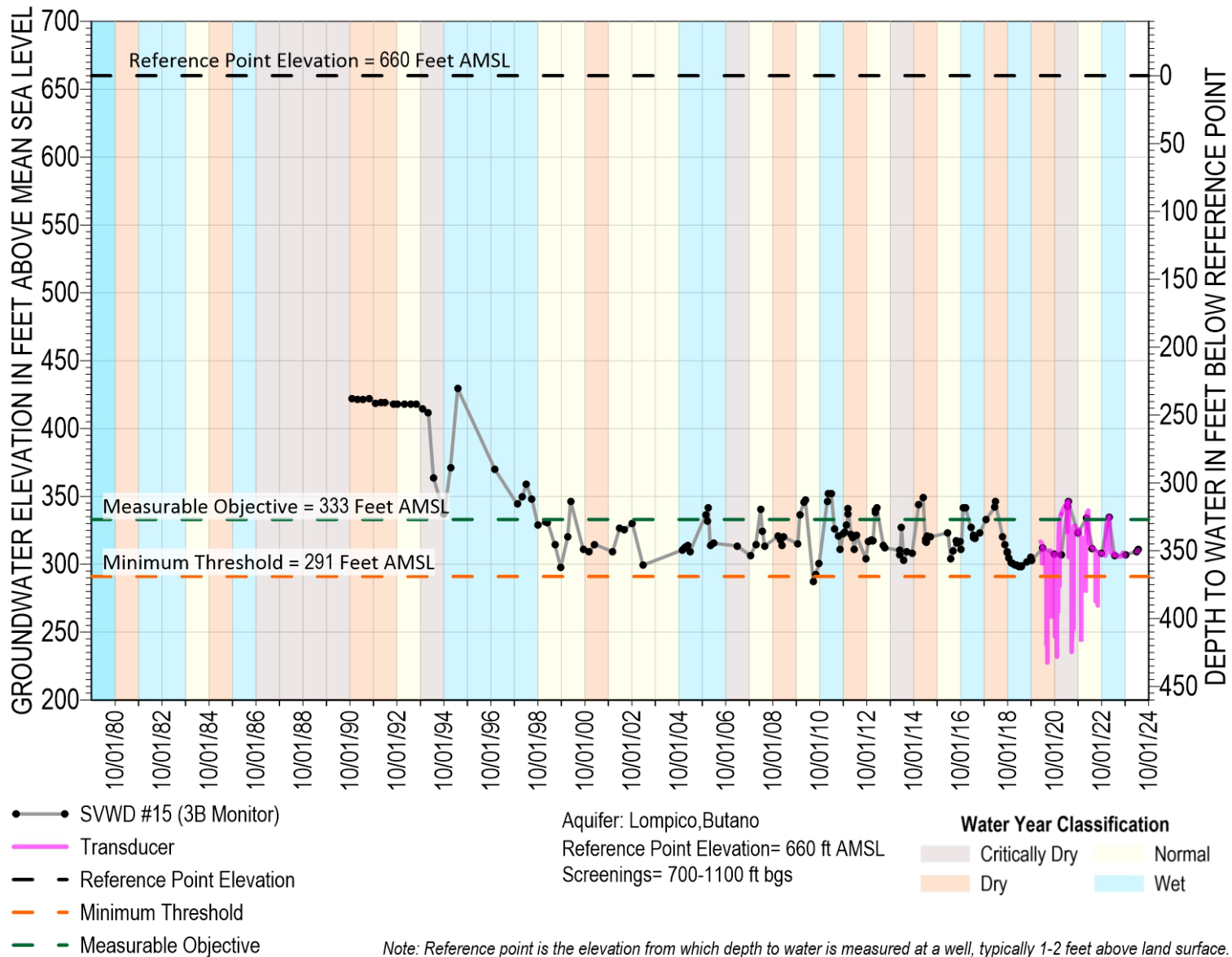
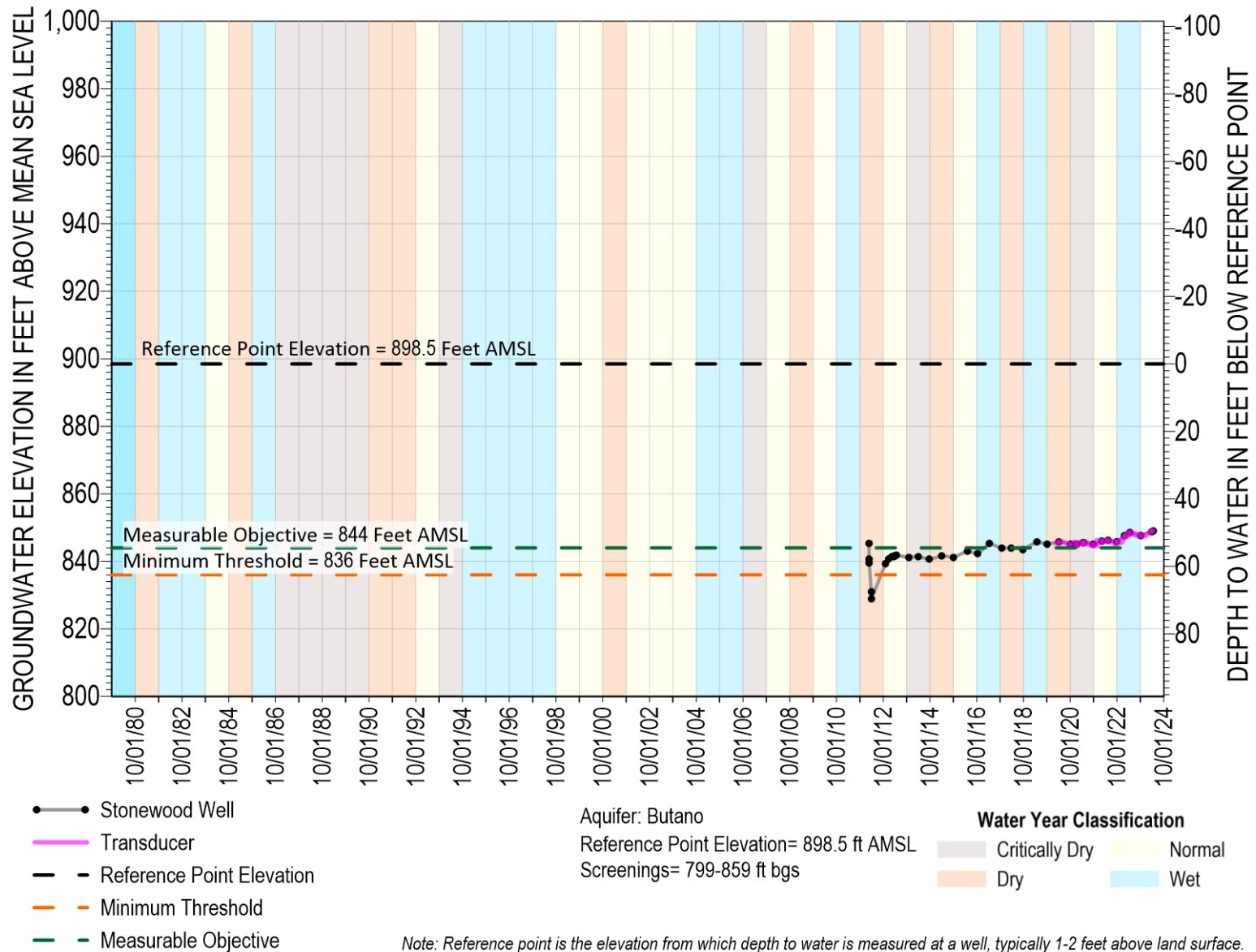


Figure 15. Well #15 Hydrograph (Lompico/Butano Aquifers)



*Note: Reference point is the elevation from which depth to water is measured at a well, typically 1-2 feet above land surface. Pumping measurements are removed from hand soundings but not from transducer data.*

Figure 16. Stonewood Hydrograph (Butano)

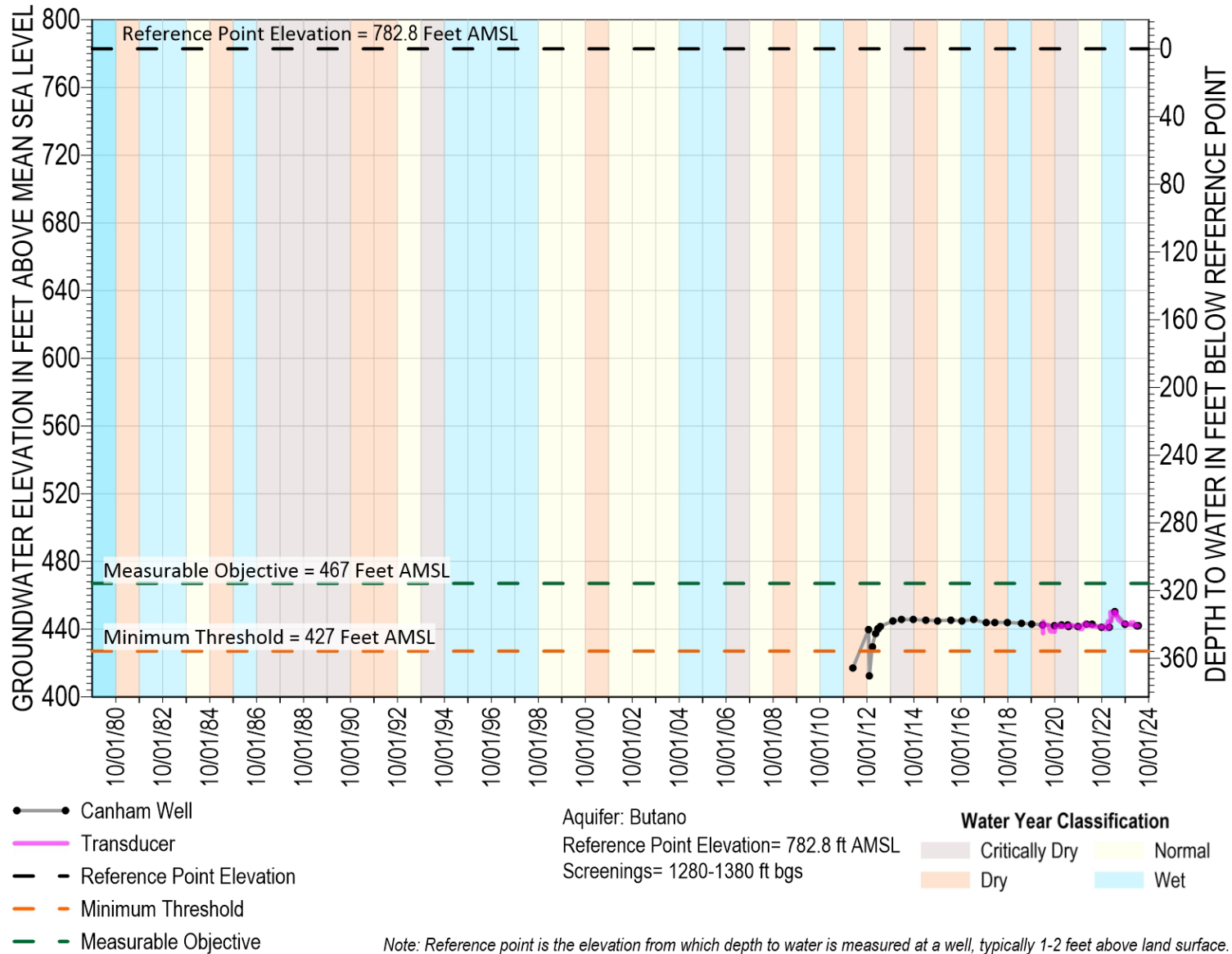


Figure 17. Canham Hydrograph (Butano)

## WATER SUPPLY CONDITIONS SUMMARY

Long-term decreasing groundwater extractions are benefiting regional groundwater levels in all aquifers in the District area. Despite dry conditions from 2012 to 2016 and 2020 to 2022, above-average rainfall in WY2017, WY2019, and WY2023 recharged the shallow Santa Margarita aquifer. The Lompico and Butano aquifers—which are used for District water supply—are deeper and mostly confined beneath the Monterey Formation, so these aquifers generally do not respond immediately to rainfall like the Santa Margarita aquifer does. Reduced extraction from the Lompico aquifer and Monterey Formation has reversed long-term declining groundwater level trends. Groundwater levels in the Monterey Formation are clearly increasing, year after year, even during dry years. The Lompico aquifer has generally been recovering throughout the District since 2017. The Butano aquifer groundwater levels appear to be stable, though the current Butano aquifer monitoring network does not fully capture regional trends due to uncertain hydrogeologic connection with the extraction wells only partially screened in the aquifer. A new dedicated Butano aquifer monitoring well is planned through GSP implementation that will help the District better monitor Butano groundwater levels closer to the active extraction wells.

## WATER SUPPLY AND DEMAND ASSESSMENT

Ensuring that adequate water supplies are available to meet existing and future water demands is essential for the District to operate sustainably. The WSCP in the 2020 UWMP establishes trigger levels for water resource management actions during periods of drought or increased extractions that result in water supply shortages relative to demand. There are specific triggers related to precipitation, groundwater level, and groundwater extraction data that require operational changes by the District if exceeded. Groundwater conditions triggers from the 2020 UWMP are summarized on Figure 18.

Precipitation and groundwater level data presented earlier in this report are used to evaluate WY2024 conditions relative to applicable triggers. At this time none of the WSCP triggers have been exceeded and therefore no management changes by the District are necessary. A summary of precipitation and groundwater conditions relative to triggers is as follows:

- Annual precipitation in WY2024 is 77% of average, 2-year precipitation is 107% of average, and 3-year precipitation is 93% of average which exceeds all precipitation triggers. The Stage 1 precipitation trigger is annual precipitation less than 75% and/or 2-year precipitation less than 80% of average (Figure 18).
- The District's baseline annual extraction referenced in the 2020 UWMP is 950 AF from the Lompico aquifer and 350 AF from the Butano aquifer. These baseline values are consistent with the groundwater in storage SMC in the GSP. Using the GSP assumption

that 40% of extraction from the Lompico/Butano aquifer extraction wells is sourced from the Lompico aquifer, WY2023 extractions totaled 718 AF from the Lompico aquifer and 330 AF from the Butano aquifer. WY2023 extraction volumes are 76% of baseline extraction for the Lompico aquifer and 94% of baseline extraction for the Butano aquifer and do not exceed thresholds on Figure 18 that start at 120% of baseline. Because groundwater extractions for WY2024 to date have been less than wet seasons in prior water years, the District appears to be on track to maintain extraction volumes less than the baseline for the duration of WY2024.

- As shown in Table 3, WY2023 groundwater levels are 10 feet or more above the MTs for the District's Monterey Formation, Lompico, and Butano aquifer wells, so do not exceed supply shortage thresholds on Figure 18. As discussed in this report, April 2024 groundwater levels are stable or increasing in all Monterey Formation, Lompico, and Butano aquifer monitoring wells.

STAGE	RAINFALL TRIGGER <sup>1</sup>
1	Cumulative rainfall over 2 years < 80% of average and/or Single year rainfall < 75% of average
2	Cumulative rainfall over 2 years < 70% of average and/or Single year rainfall < 60% of average
3	Cumulative rainfall over 3 years < 50% of average and/or Single year rainfall < 50% of average
4	Same or worse than Stage 3
5	Same or worse than Stage 3

The Districts' Boards may adjust stages up or down based on annual review and other WSCP shortage stage evaluation criteria.

<sup>1</sup> Single year rainfall < 50% of average is representative of water shortage of 50%.

STAGE	SLVWD TRIGGER	SVWD TRIGGER
1	<ul style="list-style-type: none"> <li>Only rainfall trigger applies</li> </ul>	<ul style="list-style-type: none"> <li>Only rainfall trigger applies</li> </ul>
2	<ul style="list-style-type: none"> <li>Groundwater level RMP Minimum Threshold levels are within:               <ul style="list-style-type: none"> <li>5 feet of Minimum Threshold for Santa Margarita Aquifer RMPs, or</li> <li>10 feet of Minimum Threshold for Monterey Formation or Lompico Aquifer RMPs</li> </ul> </li> <li>Last 5-year SLVWD extraction average exceeds SLVWD projected long-term average baseline pumping by 20% for Santa Margarita Aquifer or 20% for Lompico Aquifer</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater level RMP Minimum Threshold levels are within 10 feet of Minimum Threshold for Monterey Formation, Lompico or Butano Aquifer RMPs</li> <li>Last 5-year SVWD extraction average exceeds SVWD projected long-term average baseline pumping by 20% for Lompico Aquifer or 20% for Butano Aquifer</li> </ul>
3	<ul style="list-style-type: none"> <li>One RMP in any of the Santa Margarita Aquifer, Monterey Formation, and Lompico Aquifer has a Minimum Threshold exceedance</li> <li>Overall groundwater level trend over 5 years is declining in 25% of RMPs</li> <li>Last 5-year SLVWD extraction average exceeds SLVWD projected long-term average baseline pumping by 20% for Santa Margarita Aquifer or 20% for Lompico Aquifer</li> </ul>	<ul style="list-style-type: none"> <li>One RMP in any of the Monterey Formation, Lompico Aquifer or Butano Aquifer has a Minimum Threshold exceedance</li> <li>Overall groundwater level trend over 5 years is declining in 25% of RMPs</li> <li>Last 5-year SVWD extraction average exceeds SVWD projected long-term average baseline pumping by 20% for Lompico Aquifer or 20% for Butano Aquifer</li> </ul>
4	<ul style="list-style-type: none"> <li>Three RMP in any of the Santa Margarita Aquifer, Monterey Formation, and Lompico Aquifer have Minimum Threshold exceedances</li> <li>Overall groundwater level trend over 5 years is declining in 50% of RMPs</li> <li>Last 5-year SLVWD extraction average exceeds SLVWD projected long-term average baseline pumping by 30% for Santa Margarita Aquifer or 30% for Lompico Aquifer</li> </ul>	<ul style="list-style-type: none"> <li>Three RMP in any of the Lompico, Monterey &amp; Butano aquifers have Minimum Threshold exceedances</li> <li>Overall groundwater level trend over 5 years is declining in 50% of RMPs</li> <li>Last 5-year SVWD extraction average exceeds SVWD projected long-term average baseline pumping by 30% for Lompico Aquifer or 30% for Butano Aquifer</li> </ul>
5	<ul style="list-style-type: none"> <li>Five RMP in any of the Santa Margarita Aquifer, Monterey Formation, and Lompico Aquifer have a Minimum Threshold exceedance</li> <li>Overall groundwater level trend over 5 years is declining in 75% of RMPs</li> <li>Last 5-year SLVWD extraction average exceeds SLVWD projected long-term average baseline pumping by 40% for Santa Margarita Aquifer or 40% for Lompico Aquifer</li> </ul>	<ul style="list-style-type: none"> <li>Lompico, Monterey &amp; Butano aquifers have up to 5 RMP exceedances</li> <li>Santa Margarita aquifer has up to 5 RMP Minimum Threshold exceedances</li> <li>Overall groundwater level trend over 5 years is declining in 75% of RMPs</li> <li>Last 5-year SVWD extraction average exceeds SVWD projected long-term average baseline pumping by 40% for Lompico Aquifer or 40% for Butano Aquifer</li> </ul>

The Districts' Boards may adjust stages up or down based on annual review and other WSCP shortage stage evaluation criteria.

Figure 18. Groundwater Conditions Trigger Levels - 2020 UWMP

## CONCLUSIONS

Despite a drier than average wet season in WY2024, the combination of wet conditions in WY2023 and decreasing groundwater extraction is benefitting all aquifers in the District. Groundwater recharge from precipitation in wet years and in-lieu recharge from decreased extraction have led to stable to increasing groundwater levels and groundwater in storage. All District groundwater extraction is from the deeper Lompico and Butano aquifers, with District extraction from those aquifers decreasing annually since 2017. The wet year in WY2023 directly benefits groundwater recharge in the shallower Santa Margarita and Monterey aquifers and will eventually recharge the deeper aquifers. Prior reviews of groundwater conditions concluded that “based on groundwater level trends and pumping volumes in the Lompico aquifer through the 2012 to 2016 drought and beyond, keeping total District annual pumping below 1,250 AF per year should not stress the aquifers being pumped even in below average rainfall years over the short-term.” The District has been able to maintain extraction volumes below the 1,250 AF per year threshold in recent years. With planned future urban growth and climate uncertainty, declines in groundwater levels in all aquifers still may occur, so the District should remain vigilant and continue to closely monitor and evaluate groundwater levels and extraction volumes.

Sincerely,  
MONTGOMERY & ASSOCIATES



Georgina King, P.G., C.Hg  
Principal Hydrogeologist



Pete Dennehy, P.G., C.Hg  
Senior Hydrogeologist