4. MONITORING NETWORKS

4.1. Introduction [23 CCR § 354.34(a)]

This section describes the Tule Subbasin Monitoring Plan (TSMP), as established in Section 5 and Attachment 1 of the 2024 Coordination Agreement (**Appendices A** and **A-1**), and includes monitoring objectives, protocols, and data reporting requirements in accordance with Groundwater Sustainability Plan (GSP) regulations. The TSMP was developed as a coordinated effort and is adopted by the Terra Bella Irrigation District (TBID) Groundwater Sustainability Agency (GSA). The monitoring plan describes the monitoring network designed to collect data such as surface water flow, surface water quality, groundwater levels, groundwater quality, and land surface elevation.

Individual GSAs may include additional monitoring features that are not specified in the TSMP. All additional monitoring features in this GSP meet the minimum design and construction requirements as agreed upon in the 2024 Coordination Agreement.

4.2. Monitoring Network Objectives [23 CCR § 354.34 (b)]

The monitoring network objective is to ensure that data collected is in sufficient quantities, distribution, frequency, and accuracy to provide meaningful results for demonstrating progress toward achieving the Tule Subbasin's (Subbasin's) sustainability goal. The following objectives are identified in Section 1.1 of the TSMP:

- To monitor impacts on the beneficial uses and users of groundwater.
- To monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.
- Enable the quantification of annual changes in water budget components.
- To identify data gaps and monitoring features to address the data gaps.
- To provide a standard methodology for the collection of surface water, groundwater, and land surface subsidence data within the Tule Subbasin.
- To provide for a central, secure monitoring database available to the GSAs for their use in preparing their respective groundwater sustainability plans and annual reports.

The TSMP is both iterative and adaptable, allowing for modifications to the network that can accommodate changes in the frequency of monitoring or changes in methodologies.

4.2.1. Progress Toward Achieving Measurable Objectives [23 CCR § 354.34(b)(1)]

Each year during Plan implementation, the TBID GSA, in coordination with the Subbasin, will prepare an Annual Report to document Subbasin conditions and monitoring activities from the previous water year. Data collected from the monitoring network is evaluated to determine current conditions and progress towards measurable objectives and achieving sustainability goals. Progress toward achieving measurable objectives for each sustainability indicator is quantified by comparing current conditions against interim milestones and minimum thresholds (**Chapter 3**).

If monitoring results indicate any of the sustainability indicators are not meeting interim milestones, the GSA may need to adjust Projects and Management Actions (PMA), as described in **Chapter 5** of this GSP. Additionally, GSP Periodic Evaluations are conducted every five years, in compliance with California Code of Regulations (23 CCR § 356.4), providing an opportunity to amend the plan and provide a written assessment on whether it is meeting the sustainability goals established by the agency.

4.3. Chronic Lowering of Groundwater Levels Monitoring Network [23 CCR § 354.34; 354.36]

4.3.1. Monitoring Network Design

The groundwater level monitoring network must demonstrate occurrence, flow direction, and hydraulic gradients between principal aquifers and surface water features. Groundwater level monitoring networks were developed for the Upper Aquifer, Lower Aquifer, and Santa Margarita Formation. As described in the Hydrogeologic Conceptual Model (**Section 2.2)**, within the TBID Plan Area, the Upper Aquifer occurs from 350 feet below ground surface (bgs) to approximately 300 feet bgs. The Lower Aquifer, which is below the Corcoran Clay west of Highway 99, ranges in depth from 2,200 feet in the west to approximately 400 feet in the eastern portions of the Subbasin where the Corcoran Clay is not present. The Santa Margarita Formation, located in the southeast part of the Subbasin, ranges in depth from 700 feet to 2,000 feet bgs. A monitoring network was not developed for the Pliocene deposits, which are considered to be an aquitard. Monitoring of the Pliocene Formation is discussed in the PMA section to address the issues of critical head.

The entire Tule Subbasin groundwater level monitoring network is presented in **Figure 4-1** and **Table 4-1.** This includes aquifer-specific monitoring wells for each principal aquifer and composite wells. Composite wells are only utilized where there are no other aquifer-specific wells for monitoring in the area. The following describes the full groundwater level monitoring network for each principal aquifer, along with the representative monitoring sites (RMS).

Hopkins (1984) suggests a monitoring well density of four wells per 100 square miles for basins that pump more than 10,000 acre-feet annually per 100 square miles. For the Tule Subbasin, which is roughly 745 square miles, this equates to approximately 30 monitoring wells. The TBID Plan Area is approximately 13,962 acres and historically has pumped an average of 9,300 acre-feet per year (AFY), with an average of 900 AFY for municipal pumping. Based on Hopkins 1984, TBID would need to have 1-2 monitoring wells in its network.

4.3.2. RMS Selection

RMS wells were strategically selected from the monitoring network to assess progress towards achieving groundwater level sustainability in the Subbasin. Groundwater level RMS must have documented construction, be located within a designated management area to ensure adequate spatial coverage, and ideally have perforations exclusively in a single hydrogeologic unit. Additionally, these wells must meet the specific historical record criteria and be equipped with pressure transducers to record automated daily water level measurements.

4.3.3. Upper Aquifer Monitoring Network

A total of 121[1] monitoring wells included in **Figure 4-1** were identified in the Upper Aquifer (**Table 4-1**). The entire Upper Aquifer monitoring network is used to create groundwater level contours for seasonal high and seasonal low conditions. The Subbasin GSAs selected a subset (30) of these wells as Representative Monitoring Sites (RMS) for the Upper Aquifer, shown in **Figure 4-2** and **Table 4-2**. **Table 4-3** presents the current monitoring network within the TBID Plan Area. Within the TBID Plan Area, there are no aquifer-specific monitoring wells available, and thus, composite wells are used for monitoring. The lack of aquifer-specific monitoring wells for the Upper Aquifer is identified as a data gap, discussed further in **Section 4.8** of this GSP.

Table 4-3. TBID Upper Aquifer Monitoring Wells

Master Well ID	State Well Number	RMS	Ref. Point Elev (ft amsl)	Ground Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)
Tule_E0034_RMS	23S28E04K 001M	Yes	501.90	500.90	600	N/A	200	590
Tule_E0037_RMS	23S27E03D 001	Yes	662.49	660.86	530	N/A	160	530

ft amsl = feet above mean sea level; ft bgs = feet below ground surface

4.3.4. Lower Aquifer and Santa Margarita Monitoring Network

The Lower Aquifer monitoring network for the entire Subbasin consists of 144[2] monitoring wells, with an additional 49 composite and Santa Margarita Aquifer wells (**Figure 4-1** and **Table 4-4**). The Lower Aquifer monitoring network is presented in **Figure 4-3**. This network consists of 34 RMS wells[3]. The three RMS monitoring sites within the Santa Margarita formation are included in **Figure 4-4**. Within the TBID Plan Area, there is a lack of aquifer-specific monitoring wells available for monitoring. Composite wells presented in **Table 4-3** comprise the monitoring network available within the TBID Plan Area. The lack of aquifer-specific monitoring wells for the Lower and Santa Margarita aquifers is identified as a data gap, discussed further in **Section 4.8** of this GSP.

[1] 108 Upper Aquifer well used for Upper Aquifer contouring in the Water Year 2025 Annual Report.

[2] 87 Lower Aquifer wells and 62 composite wells were used for contouring in the Water Year 2025 Annual Report.

[3] 22 RMS wells are identified for the Lower Aquifer in the Water Year 2025 Annual Report.

4.3.5. Groundwater Level Monitoring Network – Monitoring Protocols, Reporting Standards, and Frequency [23 CCR §354.34 (f)(g)(2)(i)]

Data collection procedures and reporting standards are established so that data collected throughout the Subbasin are consistent and comparable. Monitoring protocols are as follows within the TBID Plan Area, in accordance with the Coordination Agreement:

- Groundwater level measurements shall be collected from each well using either a steel tape, a calibrated well sounder, or a pressure transducer. Where possible, groundwater level measurements shall be collected with a steel tape or an electrical groundwater level sounder calibrated to the nearest 0.01 feet. For pre-existing wells with limited access, a calibrated steel tape and chalk or acoustic sounder may be used.
- All equipment must be in good working condition.
- All new monitoring wells shall be equipped with calibrated pressure transducers and corrected for barometric pressure with a vented cable or separate barometric pressure transducer.
- Groundwater level measurements must be representative of static (i.e., non-pumping) groundwater level conditions. To ensure measurement of static groundwater levels in active pumping wells, the field technician collecting the data must verify that the pump has been off for at least 24 hours prior to collecting data.

4.3.5.1 Manual Groundwater Level Measurements

The following describes the procedures for collecting manual groundwater level measurements and is quoted directly from Section 2.1.2.1 of the TSMP. The procedure for collecting manual groundwater level measurements in the field is the following:

1. Upon arrival at each site, the field technician shall note the well name, time of day, and date on the standard groundwater level data form (see Appendix F of **Appendix A-1**).
2. For groundwater level measurements taken with chalk and steel tape, the field technician shall use the groundwater level data form provided in Appendix G of **Appendix A-1**.
3. The field technician shall document the duration since the last pumping of the well occurred and document if any nearby pumping is known.
4. All monitoring equipment shall be cleaned prior to lowering it into the well(s) using the following decontamination procedure:
    a. Wash equipment with an Alconox solution, which is followed by a deionized water rinse.
    b. Triple rinse equipment with deionized water.
    c. Place equipment on a clean surface, such as a Teflon or polyethylene sheet, to air dry.
5. To measure the depth to groundwater with a steel tape or an electrical sounder or meter, slowly lower the steel tape or water level electrical tape into the designated sounding port for production wells and into the main well for monitoring wells. Steel and electrical tapes are lowered to the water surface, as determined by the audio signal, the meter, or the technician. Depths to groundwater are measured relative to the dedicated reference point at the top of the casing or

sounding tube. Depth to groundwater shall be immediately recorded on the standard groundwater level data form (see Appendix F [of the monitoring plan]). Depths to groundwater shall be compared to previous measurements in the field and re-measured if significantly different.

6. For wells with limited access (such as agricultural wells or domestic wells equipped with a pump), a steel tape and chalk may be used. For this method, chalk is applied to a 1- to 3-foot section of the steel tape prior to lowering it in the well. The steel tape is lowered to a depth of at least 1 foot below the static groundwater level, and a whole number on the calibrated tape is matched to the reference point at the surface. Both the foot mark held at the reference point and the groundwater level observed on the chalk shall be recorded on the standard field forms (see Appendix G of **Appendix A-1**). The difference between the two is the depth of the groundwater.
7. When finished sounding the groundwater level, all downhole equipment shall be removed, and where existing, the well cap shall be replaced, and the riser locked.
8. Prior to leaving the monitoring well site, the field technician shall note any physical changes in the concrete well pad and riser pipe, such as erosion, cracks, or damage. All changes shall be recorded on the standard field forms provided in Appendices F and G of **Appendix A-1**.

4.3.5.2 Automatic Groundwater Level Measurements Using Transducers

- All RMS wells shall be equipped with transducers at a depth below the groundwater level that will accommodate anticipated changes in groundwater levels. The following descriptions for utilizing transducers for measuring groundwater levels are quoted directly from Section 2.1.2.2 of the TSMP. Transducers shall be corrected for barometric pressure with a vented cable or a separate barometric pressure transducer.
- Desiccants in transducers with a vented cable shall be replaced in accordance with the manufacturer’s specifications.
- Before removing a transducer that will be reinstalled at the same depth, place an identifying mark on the cable (colored electrical tape or other identifying mark) to ensure that pressure transducers are installed to the same depth during reinstallation.

4.3.5.3 Frequency of Measurement

The frequency of measurements for the groundwater level monitoring network is as specified in Section 2.1.3 of the Coordination Agreement and described herein. Groundwater level measurements will be collected from existing domestic and irrigation wells with sufficient temporal frequency such that short-term, seasonal, and long-term groundwater level trends can be determined. Groundwater levels will be collected semi-annually in the Spring (primarily February but also March or April) and in the Fall (primarily October but also September and November). Groundwater level measurements from new monitoring wells and RMS will be collected using pressure transducers, which will be downloaded on a semi-annual basis.

4.4. Decrease in Groundwater Storage Monitoring Network [23 CCR § 354.34 (c)(2)]

The monitoring network established for groundwater levels is adopted as a proxy to monitor changes in groundwater storage, as discussed previously in **Chapter 3** of this GSP. As such, all wells selected for monitoring changes in groundwater storage will be the same as those used for groundwater level monitoring (**Section 4.3**).

4.5. Degraded Groundwater Quality [23 CCR § 354.34 (c) (4)]

4.5.1. Monitoring Network Design

The existing groundwater quality monitoring program is described in the TSMP (Attachment 1 to the 2024 Tule Subbasin Coordination Agreement [**Appendix A-1**]). The program is designed to support beneficial users and uses within the Subbasin for the Upper and Lower Aquifers. The Upper Aquifer and Lower Aquifer groundwater quality monitoring RMS networks are presented in **Figure 4-5** and **Figure 4-6,** respectively. The full groundwater quality monitoring network with the expanded list of constituents to be analyzed is presented in **Figure 4-7**.

GSAs utilize a unified dataset to streamline monitoring within the Subbasin. By aligning their efforts, they collectively satisfy the requirements of the Irrigated Lands Program, the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) Nitrate Control Program, and the Sustainable Groundwater Management Act (SGMA). This coordination ensures a consistent approach to both immediate and long-term groundwater management solutions at the local level.

The groundwater quality monitoring network described in the Subbasin GSPs focused on monitoring features included in the Tule Basin Water Quality Coalition's (TBWQC) groundwater quality trend monitoring program. The Irrigated Lands Regulatory Program (ILRP) General Order R5-2013-0120-09 specifies the monitoring network and schedule requirements. Additionally, Safe Drinking Water Information System (SDWIS) datasets inform the GSAs regarding the public water systems' characterization and monitoring of groundwater quality.

4.5.2. RMS Selection

RMS sites were derived from existing monitoring programs in the Tule Subbasin and based on an analysis of beneficial use and users. The RMS wells consist of privately owned domestic and agricultural wells within the Subbasin. The following criteria were used to select specific wells as RMS:

1. Located near (preferably upgradient of) drinking water wells
2. Located in regions with known historical constituents of concern (COC) exceedances or contamination plumes
3. Representative of groundwater quality in a single aquifer
4. Can be accessed and are capable of collecting representative samples at semi-annual intervals or better.

The Tule Subbasin Coordination Agreement proposed that water quality RMS wells be designated for agricultural or domestic use, depending on the dominant surrounding land use. However, modifications to the approach are being implemented by the GSAs such that both existing and future RMS locations will be monitored for all regulatory drinking water standard COCs. Data gaps in the existing RMS well network have been identified for the development of future well additions to the network.

In accordance with the Draft Tule Basin Water Quality Surface Water and Groundwater Monitoring Plan, as well as the Quality Assurance Program Plan (Appendix H of **Appendix A-1**), groundwater samples shall be collected and analyzed each summer on an annual basis.

According to the Tule Subbasin Coordination Agreement (see **Appendix A-1**), the groundwater sampling protocols described herein will ensure the following:

- Groundwater quality data are collected from the correct location
- Groundwater quality data are accurate and reproducible
- Groundwater quality data represent conditions that inform appropriate basin management decisions
- All salient information is recorded to normalize, if necessary, and compare data
- Data are handled in a way that ensures data integrity

4.5.3. Upper Aquifer Monitoring Network

The RMS network for the Upper Aquifer consists of 25 wells.[4] across the Subbasin (**Figure 4-5** and **Table 4-5**). Although there are no water quality RMS wells designated for the Upper Aquifer, there are two composite RMS wells within the TBID Plan Area.

4.5.4. Lower Aquifer Monitoring Network

For the Lower Aquifer, the RMS network includes 22 wells[5] throughout the Subbasin (**Figure 4-6** and **Table 4-6**). Within the TBID Plan Area, there are no water quality RMS wells designated for the Lower Aquifer. However, there are two composite RMS wells within the TBID Plan Area.

4.5.5. Groundwater Quality Constituents to be Analyzed

Annual water quality monitoring of wells within the Subbasin, as represented in **Figures 4-5** and **4-6,** will include laboratory analyses for nitrate as N only. Measurements of the following parameters will be collected from well discharge prior to sampling: temperature, pH, dissolved oxygen (DO), and electrical conductivity (EC) (**Table 4-7**). Additional details for this process are described below and in Section 2.4.2 of the TSMP.

[4] 43 Upper Aquifer water quality wells were identified in the WY 2025 Annual Report.

[5] 40 wells are included in the Lower Aquifer water quality RMS in the WY2025 Annual Report.

Table 4-7. Groundwater Quality Monitoring Constituents – Field Analysis

Constituent	Units
Electrical Conductivity (EC)	µmhos/cm (at 25°C)
pH	Standard Unit
Dissolved Oxygen (DO)	mg/L
Temperature	°C

µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter;
°C = Degrees Celsius

Groundwater samples from wells within the Groundwater Quality Monitoring Network, depicted in **Figure 4-7,** will be analyzed for an expanded list of analytes in addition to nitrate as N every five years, rather than on an annual basis. The additional analytes will include total dissolved solids (TDS), as well as major cations and anions outlined in **Table 4-8**.

Table 4-8. Groundwater Quality Monitoring Constituents – Laboratory Analysis

Type	Constituent	Units
Elemental	Arsenic	mg/L
	Uranium	mg/L
	Hexavalent Chromium	mg/L
Cations	Calcium	mg/L
	Magnesium	mg/L
	Potassium	mg/L
	Sodium	mg/L
Anions	Sulfate	mg/L
	Chloride	mg/L
	Perchlorate	mg/L
	Carbonate/Bicarbonate	mg/L
	Nitrate as N	mg/L
Nitrogen Cycle	Nitrite as N	mg/L
	Total Kjeldahl Nitrogen (TKN)	mg/L
	Ammonia	mg/L

Type	Constituent	Units
Additional Considerations	Total Dissolved Solids	mg/L
	Tetrachloroethene (PCE)	mg/L
	Dibromo-3-chloropropane (DBCP)	mg/L
	1,2,3-Trichloropropane (TCP)	ng/L
	Per-and polyfluoroalkyl Substances (PFAS)	ng/L

µg/L = Micrograms per liter; equivalent to parts per billion (ppb); mg/L = milligrams per liter; equivalent to parts per million (ppm); ng/L = nanograms per liter; equivalent to parts per trillion (ppt)

4.5.6. Groundwater Quality Samples from Existing Domestic Water Supply of Irrigation Wells

Per the 2024 Tule Subbasin Coordination Agreement (see **Appendix A-5**), the following procedures shall be followed to remain in accordance with the Tule Subbasin GSAs as they pertain to groundwater quality samples from existing domestic water supply of irrigation wells:

> *The field technician shall document all groundwater sampling activities on the standard groundwater sampling form (see Appendix I). Domestic water supply and irrigation wells that are active (i.e. that have pumped in the last 24 hours) shall be pumped for a minimum of 10 minutes and shall meet the field parameter requirements below before sampling. Domestic and irrigation wells that are inactive (i.e. have not pumped in the last 24 hours) shall be sampled after purging the well for a period of time adequate to remove at least three well volumes removed prior to sampling and shall meet the field parameter requirements below (see Appendix I).*
>
> *During pumping and prior to sample collection, the field technician shall obtain field measurements of temperature, pH, DO and EC from water collected from the sample port. Meters for measuring pH, DO and EC shall be field calibrated in accordance with manufacturer's specifications at the beginning of each sampling day. Samples will be collected when: (1) a minimum of four sets of parameter readings have been obtained; and (2) the temperature, pH, and EC reach relatively constant values.*
>
> *All samples shall be collected from the discharge point nearest the well head and placed in laboratory-prepared sample containers. The technician collecting the sample shall wear new latex or neoprene gloves while collecting the sample. Sample containers shall be labeled before or immediately after sampling with self-adhesive tags having the following information written in waterproof ink:*
>
> - *Project number*
> - *Sample I.D. number*
> - *Sample location*
> - *Date and time sample was collected*

- *Initials of sample collector*

4.5.7. Groundwater Quality Samples from Monitoring Wells

According to the 2024 Tule Subbasin Coordination Agreement (see **Appendix A-5**), groundwater quality samples from monitoring wells shall follow the procedures described below:

> *All groundwater samples from monitoring wells will be collected consistent with procedures described in the United States Environmental Protection Agency's (USEPA's) Low-flow (Minimal Drawdown) Groundwater Sampling Procedures. Low-flow purging can be conducted using either portable or dedicated (leave in well) pump systems. A submersible pump, diaphragm pump, or positive displacement pump, which may contain a bladder, may be used for evacuating (purging) the monitoring well casing and collecting the samples. The pump-intake should be set in the middle or slightly above the middle of the screened interval in the well and documented in the field notes. Other equipment necessary for collecting groundwater samples using the low-flow sampling method include:*

- *A water level measurement device, or water level sounder*
- *In-line flow through cell to monitor water quality parameters*
- *Field forms for documenting water quality parameters measured at each monitoring well*
- *Chain of custody forms*
- *Laboratory prepared sample containers from a State-certified laboratory with the appropriate labels for the analytes being measured*
- *Gloves*
- *Cleaning supplies for decontaminating*
- *Tubing for the pump*

> *All samples shall be collected from a discharge port at the wellhead and placed in laboratory-prepared sample containers. For dissolved trace metal analyses, samples will be collected in unpreserved bottles, then filtered through a 0.45-micron filter and acidified prior to analysis in accordance with the laboratory's instructions. The technician collecting the sample shall wear new latex or neoprene gloves while collecting the sample. Sample containers shall be labeled before or immediately after sampling with self-adhesive tags having the following information written in waterproof ink:*

- *Project number*
- *Sample I.D. number*
- *Sample location*
- *Date and time sample was collected*
- *Initials of sample collector*

4.5.8. Well Sampling Records

According to the 2024 Tule Subbasin Coordination Agreement (see **Appendix A-5**), groundwater quality samples from monitoring wells shall follow the procedures described below:

> *Data collected during groundwater sampling will be recorded on the standard forms provided in Appendix I [of* ***Appendix A-5****]. Information and data to be recorded shall include:*

- *Sample I.D.*
- *Duplicate I.D., if applicable*
- *Date and time sampled*
- *Name of sample collector*
- *Well designation (State well numbering system for water supply wells)*
- *Owner's name, or other common designation*
- *Well diameter*
- *Depth to water on day sampled*
- *Casing volume on day sampled*
- *Method of purging (bailing, pumping, etc.)*
- *Extraordinary circumstances (if any)*
- *Field measurements temperature (0º C), pH, specific electrical conductivity (at 25ºC µs/cm), and dissolved oxygen (mg/l)*
- *Number and type of sample container(s)*
- *Times corresponding to water quality measurements*
- *Pumping rate at time of sampling*
- *In addition to the standard forms for collecting data, the field technician shall keep a daily field record for each day of fieldwork. Following review by the project manager, the original records*
- *shall be kept in the project file.*

4.5.9. Handling, Storage, and Transportation of Samples

Per the 2024 Tule Subbasin Coordination Agreement (see **Appendix A-5**), the following procedures shall be followed as they pertain to handling, storage, and transportation of groundwater quality samples:

> *Upon collection and labeling, all samples shall be placed immediately into a clean chest/cooler with ice in order to keep samples cool. Exposure to dust, direct sunlight, high temperature, adverse weather conditions, and possible contamination shall be avoided.*
>
> *All samples will be transported to a State-certified analytical laboratory within 24 hours of collection. Samples shall be transported under chain-of-custody procedures, which document the transfer of custody of samples from the field to the laboratory. Each sample sent to the*

laboratory for analysis shall be recorded on a Chain-of-Custody Record, which includes instructions to the laboratory for analytical services.

Information contained on the triplicate Chain-of-Custody Record shall include:

- *Project number*
- *Signature of sampler(s)*
- *Date and time sampled*
- *Sample I.D.*
- *Number of sample containers*
- *Sample matrix (water)*
- *Analyses required*
- *Remarks, including preservatives, special conditions, or specific quality control measures*
- *Turnaround time and person to receive laboratory report*
- *Method of shipment to the laboratory*
- *Release signature of sampler(s), and signatures of all people assuming custody*
- *Condition of samples when received by laboratory*

Blank spaces on the Chain-of-Custody Record will be crossed out between the last sample listed and the signatures at the bottom of the sheet.

The field sampler shall sign the Chain-of-Custody Record and record the time and date at the time of transfer to the laboratory or to an intermediate person. A set of signatures is required for each relinquished/reserved transfer, including intermediate transfers. The original imprint of the Chain-of-Custody Record will accompany the sample containers. A duplicate copy shall be placed in the project file.

If the samples are to be shipped to the laboratory, the original Chain-of-Custody will be sealed inside a plastic bag within the ice chest, and the chest shall be sealed with custody tape which has been signed and dated by the last person listed on the Chain-of-Custody. U. S. Department of Transportation shipping requirements shall be followed and the sample shipping receipt retained in the project file as part of the permanent chain-of-custody document. The shipping company (e.g. Federal Express, UPS, DHL) will not sign the chain-of-custody forms as a receiver, instead the laboratory shall sign as a receiver when the samples are received.

4.5.10. Quality Control Samples

According to the 2024 Tule Subbasin Coordination Agreement (see **Appendix A-5**), the following procedures shall be followed as they pertain to quality control samples for the monitoring of groundwater quality:

> *Quality control samples shall consist of duplicates and blanks. At least one duplicate sample shall be collected during each day of sampling. The duplicate sample shall be collected from the same well as the original and immediately after the original sample. At least one blank sample shall be included with each batch of samples delivered to the laboratory. Blank samples shall consist of laboratory prepared deionized water that is containerized at the laboratory and delivered with the sample containers. Duplicate and blank samples will be analyzed by the laboratory, as specified in the project Quality Assurance Project Plan (QAPP) or by the project manager (see Appendix H [of **Appendix A-5**]).*

4.5.11. Frequency of Measurements

Groundwater quality samples will be collected from the wells shown on **Figures 4-5** and **4-6** on an annual basis each summer and analyzed as described in **Section 4.5.5** of this GSP (see Section 2.4.1 of **Appendix A-1**).

4.6. Land Subsidence [23 CCR § 354.34(c)(5)]

4.6.1. Monitoring Network Design

Land subsidence has been monitored throughout the Tule Subbasin based on Interferometric Synthetic Aperture Radar (InSAR), survey benchmark, global positioning system (GPS) station, and extensometer data. A combination of these sources has provided data that has allowed for an analysis of historical and current subsidence, which can be compared and correlated to groundwater pumping and groundwater levels. The US Geological Survey (USGS) collected and analyzed land subsidence measurements in the 1950s and 1960s (Lofgren and Klausing, 1969), which was used to conclude that lowered groundwater levels caused by groundwater pumping in areas where significant amounts of clay and silt are present in the subsurface.

4.6.2. RMS Selection

The RMS for land subsidence consists of a combination of benchmark

sites supplemented by InSAR data. A single extensometer is located near the Friant-Kern Canal, in a region of the Subbasin where subsidence is of most concern.

4.6.3. Monitoring Features

Changes in land surface elevation associated with groundwater withdrawal will be monitored by collecting data from survey benchmarks, extensometers, and satellite (InSAR) data. Each data source is discussed in the following sections.

4.6.3.1 Surveyed Benchmarks

Ninety-nine benchmarks have been established throughout the Tule Subbasin that will allow for changes in land surface elevation to be monitored using GPS measurements. Each benchmark indicates a survey station, which is labeled with a station identification number, as shown in **Figure 4-8** and **Table 4-9**. The 99 benchmarks in the Subbasin that make up the land subsidence monitoring network are categorized by the following: 1) 61 RMS benchmark stations, 2) 33 benchmark stations established by the Friant Water Authority (FWA), and 3) 38 benchmark stations established by the Friant-Kern Canal (FKC) LS Monitoring Plan. Additional benchmarks may be established in the Tule Subbasin in the future.

4.6.3.2 Satellite Data (InSAR)

Changes in land surface elevation over time can be observed on a regional scale using satellite data, which is generated using interferometric synthetic aperture radar (InSAR). Eighty-four InSAR monitoring points based on InSAR data points are shown between benchmark stations to represent land subsidence changes since 2015. To be consistent with the Tule Subbasin Coordination Agreement, the TBID GSA will be obtained from the California Department of Water Resources (DWR) quarterly. InSAR locations as part of the RMS network, along with their identification numbers, are shown in **Figure 4-8** and **Table 4-9.** Currently, there is one InSAR location as part of the RMS network (RMS ID: TB0092_InSAR).

4.6.3.3 Extensometers

The USGS uses an extensometer to collect data on aquifer system compaction, which causes land subsidence. The extensometer station (22S/27E-30D2) is located near the FKC on the northeastern side of the Saucelito Irrigation District (SID) GSA and approximately one mile north of the Deer Creek crossing and the western, non-contiguous portion of the TBID Plan Area (**Figure 4-8**). The extensometer collects data on the aquifer compaction of sediments between the land surface and a depth of 1,180 feet. The data is accessible to the public on the USGS website. There is the potential for additional extensometers to be established in the Tule Subbasin in the future.

4.6.4. Monitoring Procedure

4.6.4.1 Surveyed Benchmarks

According to the Tule Subbasin Coordination Agreement (see **Appendix A-1**), the benchmark station network will be established in accordance with the National Geodetic Survey (NGS) Guidelines for Establishing GPS-Derived Ellipsoid Heights (National Oceanic and Atmospheric Administration [NOAA], 1997). Elevation data collected using a GPS will be constrained to an established NGS benchmark location on Lake Success Dam (KT 200), and land surface elevation readings will be recorded to an accuracy of 0.1 feet relative to the North American Vertical Datum of 1988 (NAVD88).

4.6.4.2 Extensometers

The USGS extensometer (22S/27E-30D2) records aquifer system compaction with its equipped continuous monitoring device. Aquifer system compaction data collected from the extensometer is accessible on the USGS website, and data updates can be downloaded for analysis.

4.6.4.3 Satellite Data (InSAR)

InSAR data will be obtained from the USGS, Jet Propulsion Laboratory, or European Space Agency. The data will be processed, analyzed, and interpreted by an outside professional, such as Neva Ridge

Technologies, Inc., or an approved equal. The InSAR data will ultimately be used to develop maps representing regional land surface changes.

4.6.5. Frequency of Measurement

4.6.5.1 Global Positioning Surveys

GPS surveys of the stations throughout the Subbasin will be conducted annually and will be correlated to groundwater quality sampling events. GPS stations located within the Friant-Kern Canal Monitoring Zone, however, will be surveyed quarterly.

4.6.5.2 Extensometers

Continuous aquifer system compaction measurements are collected at the USGS extensometer (22S/27E-30D2). The resulting data can be accessed on the USGS website, which can be downloaded for analysis as updates are available.

4.6.5.3 Satellite Data (InSAR)

InSAR data will be obtained and analyzed quarterly.

4.7. Interconnected Surface Water [23 CCR § 354.34(c)(6)]

4.7.1. Monitoring Network Design

The interconnected surface water (ISW) monitoring network for the Subbasin is as described in Sections 2.6 and 4.1 of the TSMP. The Tule River Association (TRA) monitors surface water flow in the Tule River and beyond the Tule Subbasin, and Deer Creek and White River surface water are monitored by the USGS and US Bureau of Reclamation (USBR), respectively. Current monitoring features, procedures, and frequency for surface water in the Tule Subbasin follow those in place by the corresponding monitoring agency. Monitoring features are comprised of monitoring stations in primary rivers and streams, including the Tule River, Deer Creek, and White River. Stream flows at gaging stations and diversion points are measured continuously and transmitted electronically. Locations without stream gages are measured at least once every two weeks or when major changes in stream flow occur.

Within the TBID Plan Area, the only major natural surface water feature is Deer Creek. Deer Creek flows west through the northern-most non-contiguous portions of the TBID Plan Area. An ISW monitoring network is presented in **Figure 4-9.** For the TBID Plan Area, this includes four shallow monitoring wells along Deer Creek just west of the FKC. A numerical groundwater-surface water model will incorporate data from the existing shallow monitoring wells, and future monitoring wells discussed in **Section 4.8.4** below, to quantify the degree of interconnection.

4.8. Data Gaps [23 CCR § 354.38(b); § 354.38(c)(1); § 354.38(d)]

Section 4.1 of the TSMP identifies data gaps for each sustainability indicator across the Subbasin. This section summarizes those subbasin-wide findings while focusing on the data requirements specific to the TBID GSA.

4.8.1. Groundwater Level Monitoring Data Gaps

There is a high density of wells across the Subbasin, but many of them are composite and do not provide aquifer-specific data. More aquifer-specific monitoring data will enhance the ability to monitor groundwater level changes and flow patterns for both the Upper and Lower Aquifers. Areas are selected to provide the spatial coverage necessary to prepare complete groundwater level contour maps in both the Upper and Lower Aquifers.

Additionally, the Subbasin is lacking in pumping test data that is used to estimate aquifer parameters. The majority of pumping tests that were used to derive aquifer parameters were single-well, short-term tests lasting less than 24 hours. Also, there is a lack of pumping tests that measure groundwater level interference from nearby monitoring wells. This is necessary to estimate aquifer storage. Moving forward, it is recommended that when constructing new monitoring wells, GSAs conduct long-term pumping tests longer than 24 hours to better estimate transmissivity. It is also recommended that a pumping test be conducted on high-capacity production wells. Future pumping tests for TBID to improve estimates of aquifer parameters are described in the *Projects and Management Actions*.

General recommendations for aquifer-specific monitoring locations are presented in **Figure 4-10a**. This includes Upper Aquifer, Lower Aquifer, and nested monitoring well locations. Most of the proposed locations are nested wells consisting of monitoring zones in both the Upper and Lower Aquifers. The depth of these wells will vary depending on their location. Upper Aquifer wells will typically be in the upper 400 feet, while Lower Aquifer wells may be as shallow as 250 feet and as deep as 1,600 feet. All wells are recommended to have a 5-inch casing diameter to allow for groundwater sampling. LSCE recommendations for TBID GSA are presented in **Figure 4-10b**. LSCE recommends that the TBID GSA install a single multi-completion monitoring well to fill water level, groundwater quality, and interconnected surface water monitoring data gaps for the TBID Plan Area and the Subbasin. Specifics for this monitoring well are discussed further in **Chapter 5** of the GSP.

4.8.2. Groundwater Quality Monitoring Data Gaps

The current groundwater quality RMS network was derived from existing monitoring programs in the Tule Subbasin. Therefore, the requirements of these programs, including monitoring features and frequency, were used to develop and implement the Tule Subbasin SGMA groundwater quality monitoring network. Data gaps and limitations within existing monitoring programs are discussed below, and the Tule Subbasin GSAs have identified a plan to address such data gaps in order to improve the groundwater quality monitoring program.

Many of the current RMS network wells are privately owned domestic or agricultural wells; therefore, the GSAs are not responsible for the maintenance and upkeep of wells. As such, sample collection during monitoring events cannot be guaranteed. Limitations may be encountered for a variety of reasons. For example, in the case that agricultural wells are not in operation or are actively pumping water to the measuring point, groundwater quality samples cannot be collected from those wells. Similarly, for an accurate analysis of groundwater quality, monitoring wells must also be purged prior to sampling; however, agricultural wells do not typically run when surface water supplies are available to meet crop demands during wet years or in winter or spring seasons. In such cases, these limitations would hinder the current RMS network from being monitored on a semi-annual or quarterly basis to capture short-term seasonal trends. Additionally, static groundwater levels cannot be collected from wells if the pump has not been shut off for at least 24 hours to collect accurate groundwater level measurements. Groundwater levels are measured in the Spring and Fall when groundwater pumps are not running, which poses a challenge while attempting to correlate elevation with groundwater quality data.

The Tule Subbasin GSAs are working to refine and improve the groundwater quality RMS well network, such as proposing to incorporate additional dedicated monitoring sites that are representative of groundwater conditions and beneficial users. Such additions and improvements would allow for adequate monitoring frequency to detect short-term and seasonal trends in the Subbasin.

In order to provide adequate coverage of groundwater quality characterization, the GSAs will adaptively refine the groundwater network in the case that conditions change and new information and data become available. Areas in the Tule Subbasin are being identified as designated data gaps, which will be prioritized for future groundwater quality RMS locations. Initial efforts will include reevaluation of monitoring sites from existing groundwater quality programs (**Table 4-10**) for adequacy to be utilized as groundwater quality RMS wells. In the case that an existing monitoring feature is deemed inadequate, the Tule Subbasin GSAs will coordinate with landowners to obtain permission to utilize domestic wells as dedicated monitoring sites.

4.8.3. Land Surface Elevation and Subsidence Monitoring Data Gaps

InSAR data that provides coverage throughout the Tule Subbasin have been historically available and indicate areas where land subsidence has occurred. More conventional methods for land surface elevation surveying, such as GPS monitoring, are ongoing in order to verify the accuracy of InSAR data. The USGS has refurbished one extensometer that is included in this monitoring plan, which is located approximately one mile north of Deer Creek along the Friant-Kern Canal. However, a data gap has been identified in that the characteristics of aquifer system compaction in the northwestern portion of the Subbasin are unknown, which is hydrogeologically different than the area where the existing extensometer is located. Therefore, at least one new extensometer is recommended for the vicinity of the Homeland Canal at Highway 43 in the northwest portion of the Subbasin. The additional extensometer would provide a more accurate assessment of aquifer system compaction in an area of the Subbasin that has experienced a relatively high level of subsidence.

4.8.4. Interconnected Surface Water Data Gaps

Currently, the Subbasin faces a data gap regarding the depletions of ISW. To address this, the existing network of stream gages and interim monitoring wells (**Section 4.3.7**) will be supplemented by the 16 preliminary new monitoring well sites (**Figure 4-11**). These locations- comprising eight sites along the Tule River, six along Deerk Creek, and two along White River, are designed to track groundwater levels and clarify surface water interactions.

Additionally, TBID GSA will incorporate DWR's best management practices for estimating ISW depletions caused by groundwater use. To estimate interconnected surface water (ISW) depletion using a numerical model, the document outlines a high-level three-step process: first, run the model with pumping at the wells of interest and record the net stream gain; second, rerun the model without pumping from those same wells and record the new net stream gain; and finally, subtract the results of the first step from the second to determine the net change in flow, which represents the depletion caused by groundwater pumping. This process allows managers to quantify the location, quantity, and timing of depletion, which can then be analyzed across different seasons and water-year types to understand how pumping impacts surface water over time (DWR, 2024). This approach will be further clarified as TBID works with the other Subbasin GSAs to estimate ISW depletions.

4.9. Reporting Monitoring Data to the Department [§ 354.40]

Reporting monitoring data to the department will occur using the Tule Subbasin Data Management System. A detailed description and a guide for this system are provided in **Chapter 5** of this GSP, as well as Attachment 1 of the 2024 Tule Subbasin Coordination Agreement (**Appendix A-1)**.

Table 4-1. Tule Subbasin Groundwater Level Monitoring Network

GSA Name	CASGEM State Well Number	Short State Well Number	ILRP_ID	Master Well ID	Well Name/ Well Log	Owner	RMS	Ref. Point Elev (ft amsl)	Ground Surface Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
															X-Coordinate	X-Coordinate
Alpaugh GSA	23S23E25N001M	23S/23E-25N01	N/A	Tule_A0056_RMS	25N01	4Creeks	Yes	211	210	N/A	N/A	702	1504	L	6429260	1845240
	N/A	24S/23E-23	N/A	Tule_A0057_RMS	Well 55	Alpaugh	Yes	200	199	N/A	1459	707	1459	L	6432070	1849220
	N/A	N/A	IR1073	Tule_A0149_ILP	N/A	Alpaugh ID	No	197	200	N/A	N/A	N/A	N/A	L	6441270	1843920
	N/A	N/A	M1027	Tule_A0159_ILP	N/A	Alpaugh ID	No	204	202	N/A	N/A	N/A	N/A	L	6418750	1842030
Delano-Earlimart ID GSA	23S26E28H001M	23S/26E-28H01	N/A	N/A	N/A	N/A	No	379	379	300	300	190	300	U	6511140	1846470
	24S25E16B001M	24S/25E-16B01	N/A	N/A	N/A	N/A	No	287	287	300	285	120	285	U	6480770	1827830
	25S26E09N001M	25S/26E-09N01	N/A	N/A	N/A	N/A	No	381	381	N/A	351	276	351	U	6506000	1797780
	23S26E29D001M	23S/26E-29D01	D1058	Tule_D0045_RMS	E0119660	Parvinder Hundal	Yes	345	343	310	298	160	300	U	6504550	1847740
	24S25E35H001M	24S/25E-35H01	D1034	Tule_D0047_RMS	1095774	Jonathan Martin	Yes	321	320	360	340	160	320	U	6489730	1809700
	24S26E04P001M	24S/26E-04P01	N/A	Tule_D0048_RMS	P-24	N/A	Yes	390	390	402	393	216	393	U	6511170	1834580
	N/A	24S/26E-11	N/A	Tule_D0049_RMS	36201	N/A	Yes	438	437	399	399	301	399	U	6521730	1830690
	24S26E32G001M	24S/26E-32G01	N/A	Tule_D0050_RMS	67	N/A	Yes	400	398	470	470	23	461	U	6507230	1810860
	N/A	M19-U	N/A	Tule_D0055_RMS	M-19U	DEID	Yes	373	373	810	350	200	350	U	6505920	1824480
	N/A	23S/25E-36	D1031	Tule_D0084_ILP	E0083349	Jose Valencia	No	314	313	N/A	N/A	N/A	N/A	U	6493150	1841080
	24S25E013D001M	24S/25E-013D01	D1032	Tule_D0085_ILP	E0060486	Jim Cesare	No	343	342	N/A	N/A	N/A	N/A	U	6497960	1826190
	N/A	N/A	D1042	Tule_D0088_RMS	N/A	N/A	No	411	411	N/A	N/A	N/A	N/A	U	6516490	1830580
	23S25E36H001M	23S/25E-36H01	N/A	N/A	E0196006	N/A	No	332	332	605	600	360	600	L	6497980	1841250
	23S26E31H001M	23S/26E-31H01	N/A	N/A	N/A	N/A	No	351	351	1012	N/A	N/A	N/A	L	6503220	1842160
	23S26E35H001M	23S/26E-35H01	N/A	N/A	N/A	N/A	No	439	439	1370	1370	375	1370	L	6524300	1841590
	23S26E33J001M	23S/26E-33J01	N/A	N/A	N/A	N/A	No	397	397	495	N/A	N/A	N/A	L	6513800	1840110
	N/A	N/A	N/A	N/A	N/A	N/A	No	353	353	N/A	N/A	N/A	N/A	L	6500670	1821790
	24S25E22B001M	24S/25E-22B01	N/A	N/A	N/A	N/A	No	301	301	602	602	422	602	L	6485290	1822560
	24S25E25P001M	24S/25E-25P01	N/A	N/A	N/A	N/A	No	339	339	1011	N/A	N/A	N/A	L	6495330	1814890
	24S25E36H001M	24S/25E-36H01	N/A	N/A	N/A	N/A	No	357	357	725	725	N/A	N/A	L	6497990	1810370
	24S25E36J001M	24S/25E-36J01	N/A	N/A	N/A	N/A	No	360	360	1415	1398	437	1398	L	6497980	1808320
	24S26E30R001M	24S/26E-30R01	N/A	N/A	N/A	N/A	No	381	381	1239	N/A	N/A	N/A	L	6503280	1812290
	24S26E26F001M	24S/26E-26F01	N/A	N/A	N/A	N/A	No	458	458	1402	1400	550	1400	L	6521800	1815490
	25S26E02H001M	25S/26E-02H01	N/A	N/A	N/A	N/A	No	479	479	1002	1002	N/A	N/A	L	6521830	1805630
	24S26E32L002M	24S/26E-32L02	N/A	N/A	N/A	N/A	No	396	396	400	400	N/A	N/A	L	6504860	1808060
	25S26E06G001M	25S/26E-06G01	N/A	N/A	N/A	N/A	No	368	368	N/A	1200	N/A	N/A	L	6499960	1804270
	25S26E10B003M	25S/26E-10B03	N/A	N/A	N/A	N/A	No	431	431	960	N/A	N/A	N/A	L	6513870	1801390
	25S26E14B001M	25S/26E-14B01	N/A	N/A	N/A	N/A	No	465	465	1355	1355	N/A	N/A	L	6519250	1796230
	25S26E12M001M	25S/26E-12M01	N/A	N/A	N/A	N/A	No	494	494	1396	N/A	N/A	N/A	L	6523270	1798610
	25S26E09C001M	25S/26E-09C01	N/A	Tule_D0053_RMS	N/A	N/A	Yes	399	398	N/A	N/A	450	1002	L	6509080	1797600
	N/A	N/A	N/A	Tule_D0054_RMS	M19-L	DEID	Yes	373	373	810	805	705	805	L	6505920	1824480
	N/A	23S25E33	M1051	Tule_D0166_ILP	N/A	Earlimart PUD	No	275	271	N/A	N/A	N/A	N/A	L	6478960	1839770

GSA Name	CASGEM State Well Number	Short State Well Number	ILRP_ID	Master Well ID	Well Name/ Well Log	Owner	RMS	Ref. Point Elev (ft amsl)	Ground Surface Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
															X-Coordinate	X-Coordinate
Delano-Earlimart ID GSA	N/A	23S25E33	M1052	Tule_D0167_ILP	N/A	N/A	No	278	277	N/A	N/A	N/A	N/A	L	6482150	1840670
	N/A	24S26E36	M1053	Tule_D0168_ILP	N/A	Richgrove CSD	No	512	511	N/A	N/A	N/A	N/A	L	6528610	1808190
	N/A	25S/26E-08	D1087	Tule_D0173_RMS	N/A	N/A	No	382	381	N/A	N/A	N/A	N/A	L	6505330	1799310
	24S26E11D001M	24S/26E-11D01	N/A	N/A	N/A	N/A	No	438	438	861	N/A	N/A	N/A	L	6521730	1830690
	25S26E22G001M	25S/26E-22G01	N/A	N/A	N/A	N/A	No	431	431	1250	N/A	550	1250	L	6515260	1789630
	23S25E25R001M	23S/25E-25R01	N/A	N/A	7	N/A	No	325	325	450	450	246	450	C	6497810	1843970
	23S26E19R001M	23S/26E-19R01	N/A	N/A	11	N/A	No	343	342	1270	1260	212	1260	C	6503070	1849310
	23S26E15P001M	23S/26E-15P01	N/A	N/A	17	Cecil Steele	No	392	392	1000	N/A	250	1000	C	6516400	1854500
	23S26E34Q001M	23S/26E-34Q01	N/A	N/A	23	N/A	No	411	411	372	372	20	372	C	6516680	1838680
	24S25E35D001M	24S/25E-35D01	N/A	N/A	59	N/A	No	323	323	1200	1200	294	1200	C	6490080	1811210
	24S26E29H001M	24S/26E-29H01	N/A	N/A	68	N/A	No	394	394	501	501	135	501	C	6508570	1816160
	24S26E28P001M	24S/26E-28P01	N/A	N/A	70	N/A	No	421	421	N/A	N/A	N/A	N/A	C	6511210	1809590
	24S26E33P001M	24S/26E-33P01	N/A	N/A	69	N/A	No	419	419	741	741	270	741	C	6511240	1810290
	24S26E27H001M	24S/26E-27H01	N/A	N/A	72	N/A	No	443	443	500	500	200	500	C	6516480	1812610
	24S26E26C002M	24S/26E-26C02	N/A	N/A	73	N/A	No	468	468	900	900	350	900	C	6521820	1812370
	24S26E35H003M	24S/26E-35H03	N/A	N/A	75	N/A	No	490	490	N/A	N/A	N/A	N/A	C	6524450	1809650
	25S26E04A002M	25S/26E-04A02	N/A	N/A	78	N/A	No	423	423	1452	1452	346	1452	C	6511250	1806410
	25S26E15R001M	25S/26E-15R01	N/A	N/A	85	N/A	No	441	441	453	444	200	444	C	6516540	1793440
	N/A	23S/25E-27	N/A	Tule_D0043_RMS	E0174371	N/A	Yes	287	286	810	800	300	800	C	6487400	1846610
	N/A	24S/27E-31	M1054	Tule_D0051_RMS	489110	Richgrove CSD	Yes	495	495	N/A	800	300	800	C	6530710	1812190
	N/A	24S/25E-05	IR1024	Tule_D0118_ILP	E064159	Aldo Risi	No	267	266	610	600	280	600	C	6476800	1835920
	N/A	24S/25E-29	IR1079	Tule_D0154_ILP	943139	Jeff Rasmussen	No	276	275	895	892	284	892	C	6476800	1815940
	N/A	25S/26E-02	IR1082	Tule_D0156_ILP	E0092100	Harjinder Gil	No	465	463	840	840	300	840	C	6519190	1802890
Eastern Tule GSA	21S27E20M001M	21S/27E-20M01	#13 henderson	N/A	N/A	N/A	No	405	405	N/A	N/A	N/A	N/A	U	6521470	1899190
	N/A	N/A	C17	N/A	C-17	City of Porterville	No	N/A	438	700	325	100	300	U	6547610	1907720
	N/A	N/A	N/A	N/A	N/A	N/A	No	456	455	N/A	N/A	N/A	N/A	U	6557590	1909320
	N/A	N/A	C20	N/A	C-20	City of Porterville	No	N/A	432	540	404	125	379	U	6546150	1910150
	21S27E36F001M	21S/27E-36F01	C8	N/A	C-8	City of Porterville	No	465	464	435	435	79	435	U	6557840	1905880
	21S27E20Q001M	21S/27E-20Q01	202	N/A	N/A	Porterville ID	No	410	410	180	174	150	168	U	6538680	1912510
	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	437	N/A	N/A	N/A	N/A	U	6547030	1909040
	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	441	N/A	N/A	N/A	N/A	U	6549740	1909120
	21S26E24R001M	21S/26E-24R01	N/A	N/A	Lucky 70	N/A	No	396	394	218	N/A	N/A	N/A	U	6529830	1912720
	N/A	N/A	N/A	N/A	MW03N	N/A	No	439	439	N/A	N/A	46	66	U	6548580	1910470
	N/A	N/A	N/A	N/A	MW03S	N/A	No	439	439	N/A	N/A	67	87	U	6548580	1910470
	N/A	N/A	N/A	N/A	MW04	N/A	No	434	434	N/A	N/A	70	90	U	6546250	1911060
	N/A	N/A	N/A	N/A	MW05	N/A	No	439	439	N/A	N/A	60	80	U	6546560	1910410
	N/A	N/A	N/A	N/A	MW06	N/A	No	435	435	N/A	N/A	61	81	U	6546890	1910640
	N/A	N/A	N/A	N/A	MW07	N/A	No	433	433	N/A	N/A	51	71	U	6546250	1911040
	N/A	N/A	N/A	N/A	MW08	N/A	No	433	433	N/A	N/A	70	90	U	6546100	1911240

GSA Name	CASGEM State Well Number	Short State Well Number	ILRP_ID	Master Well ID	Well Name/ Well Log	Owner	RMS	Ref. Point Elev (ft amsl)	Ground Surface Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
															X-Coordinate	X-Coordinate
	N/A	N/A	N/A	N/A	MW09	N/A	No	435	435	N/A	N/A	51	71	U	6546240	1911290
Eastern Tule GSA	N/A	N/A	N/A	N/A	MW101	N/A	No	423	423	N/A	N/A	40	60	U	6540720	1900470
	N/A	N/A	N/A	N/A	MW103	N/A	No	426	426	N/A	N/A	80	100	U	6537990	1892250
	N/A	N/A	N/A	N/A	MW104	N/A	No	414	414	N/A	N/A	70	90	U	6535260	1890100
	N/A	N/A	N/A	N/A	MW105	N/A	No	410	410	N/A	N/A	59	79	U	6532740	1888610
	N/A	N/A	N/A	N/A	MW106	N/A	No	414	414	N/A	N/A	70	90	U	6535210	1885990
	N/A	N/A	N/A	N/A	MW107	N/A	No	409	409	N/A	N/A	60	80	U	6535220	1887690
	N/A	N/A	N/A	N/A	MW108	N/A	No	412	412	N/A	N/A	50	70	U	6533440	1887840
	N/A	N/A	N/A	N/A	MW109	N/A	No	406	406	N/A	N/A	60	80	U	6534670	1888510
	N/A	N/A	N/A	N/A	MW110	N/A	No	429	429	N/A	N/A	50	70	U	6539380	1891300
	N/A	N/A	N/A	N/A	MW111	N/A	No	432	432	N/A	N/A	95	115	U	6540700	1892740
	N/A	N/A	N/A	N/A	MW112	N/A	No	447	447	N/A	N/A	84	104	U	6545830	1891520
	N/A	N/A	N/A	N/A	MW113	N/A	No	432	432	N/A	N/A	85	105	U	6541940	1896430
	N/A	N/A	N/A	N/A	MW114	N/A	No	422	422	N/A	N/A	87	107	U	6538060	1896550
	N/A	N/A	N/A	N/A	MW115	N/A	No	447	447	N/A	N/A	89	109	U	6545810	1893390
	N/A	N/A	N/A	N/A	MW116	N/A	No	424	424	N/A	N/A	112	132	U	6537920	1888550
	21S26E11P001M	21S/26E-11P01	189	N/A	#1 parks ranch	N/A	No	368	368	N/A	N/A	N/A	N/A	U	6522030	1922960
	21S27E32N001M	21S/27E-32N01	193	N/A	#19 saak	N/A	No	412	411	95	N/A	N/A	N/A	U	6535590	1902370
	21S27E18M001M	21S/27E-18M01	D1011	Tule_E0026_RMS	360725	David Fenn	No	395	395	N/A	N/A	150	300	U	6535440	1919750
	N/A	21S/27E-23	N/A	Tule_E0027_RMS	C-1	N/A	Yes	457	457	220	220	160	220	U	6557880	1908420
	N/A	21S/27E-30	N/A	Tule_E0028_RMS	R-11	City of Porterville	Yes	403	400	216	216	N/A	216	U	6531870	1909110
	22S26E13R010M	22S/26E-13R010	N/A	Tule_E0029_RMS	243293	Saucelito ID	Yes	396	395	385	380	240	380	U	6529360	1886160
	22S26E25J001M	22S/26E-25J01	N/A	Tule_E0040_RMS	25j hyder	Saucelito ID	Yes	254	252	N/A	N/A	N/A	N/A	U	6529800	1876860
	N/A	21S/26E-24	D1017	Tule_E0081_ILP	508057	Christian Crouzet	No	384	382	N/A	N/A	N/A	N/A	U	6527930	1916670
	N/A	21S/26E-36	D1018	Tule_E0082_ILP	29615	David Gill	No	395	394	N/A	N/A	N/A	N/A	U	6529860	1905060
	N/A	22S/27E-11	D1049	Tule_E0094_ILP	E0053801	Khalid Arain	No	474	473	N/A	N/A	N/A	N/A	U	6552780	1891300
	N/A	22S/27E-23	D1053	Tule_E0098_ILP	E0214187	John Corkins	No	486	485	N/A	N/A	N/A	N/A	U	6553980	1882600
	N/A	22S/28E-29	D1057	Tule_E0102_ILP	E0078689	Michael Hernandez	No	649	647	N/A	N/A	N/A	N/A	U	6570890	1875390
	N/A	23S/27E-09	D1060	Tule_E0104_ILP	48307	Roger Everett	No	477	476	N/A	N/A	N/A	N/A	U	6542940	1860940
	N/A	N/A	D1066	Tule_E0109_ILP	N/A	N/A	No	479	478	N/A	N/A	N/A	N/A	U	6564340	1903730
	N/A	22S/27E-23	IR1068	Tule_E0144_ILP	E0214187	John Corkins	No	487	486	N/A	N/A	N/A	N/A	U	6553810	1882550
	N/A	22S/28E-11	IR1069	Tule_E0145_ILP	E0125774	Jason Willard	No	738	736	N/A	N/A	N/A	N/A	U	6584220	1896110
	N/A	N/A	IR1070	Tule_E0146_ILP	N/A	N/A	No	479	478	N/A	N/A	N/A	N/A	U	6550590	1888780
	N/A	22S/28E-19	IR1071	Tule_E0147_ILP	E0334821	Dyson Schneider	No	561	560	N/A	N/A	N/A	N/A	U	6564210	1885780
	N/A	ETGSA-1U	N/A	N/A	N/A	N/A	Yes	478	0	N/A	N/A	N/A	N/A	U	6563730	1900790
	N/A	TSMW 4S	N/A	N/A	N/A	N/A	Yes	369	0	N/A	N/A	N/A	N/A	U	6518680	1870060
	N/A	22S/26E-24	N/A	Tule_E0030_RMS	N/A	N/A	Yes	397	397	1,270	1,240	670	1,220	L	6529810	1881990
	N/A	24S/27E-23	IR1081	Tule_E0038_RMS	N/A	N/A	No	654	652	N/A	N/A	1,090	1,500	L	6553130	1821710
	N/A	23S/27E-21	D1037	Tule_E0087_ILP	N/A	Ramon Carranza	No	501	500	N/A	N/A	N/A	N/A	L	6544250	1852770

GSA Name	CASGEM State Well Number	Short State Well Number	ILRP_ID	Master Well ID	Well Name/ Well Log	Owner	RMS	Ref. Point Elev (ft amsl)	Ground Surface Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
															X-Coordinate	X-Coordinate
	N/A	22S27E09	D1051	Tule_E0096_ILP	AP-1	City of Porterville	No	447	446	N/A	N/A	N/A	N/A	L	6544630	1893860
	N/A	N/A	IR1035	Tule_E0122_RMS	N/A	N/A	No	433	433	N/A	N/A	N/A	N/A	L	6536880	1866980
Eastern Tule GSA	N/A	N/A	IR1036	Tule_E0123_ILP	956181	Perry Lau	No	499	498	N/A	N/A	N/A	N/A	L	6543540	1852810
	N/A	24S27E01	IR1040	Tule_E0124_ILP	E0146035	Dyson Schneider	No	579	577	N/A	N/A	N/A	N/A	L	6556350	1834770
	N/A	N/A	IR1064	Tule_E0140_ILP	N/A	N/A	No	344	343	N/A	N/A	N/A	N/A	L	6510430	1864870
	N/A	22S27E11	IR1065	Tule_E0141_RMS	415241	N/A	No	471	470	N/A	N/A	N/A	N/A	L	6552540	1892600
	N/A	N/A	IR1066	Tule_E0142_ILP	N/A	N/A	No	416	415	N/A	N/A	N/A	N/A	L	6539370	1885140
	N/A	24S27E18	IR1080	Tule_E0155_ILP	E0052358	N/A	No	478	477	N/A	N/A	N/A	N/A	L	6532530	1828020
	N/A	23S27E27	M1039	Tule_E0160_ILP	154514	Ducor CSD	No	543	542	N/A	N/A	N/A	N/A	L	6548290	1844210
	N/A	N/A	M1049	Tule_E0164_ILP	942425	DDS	No	486	485	N/A	N/A	N/A	N/A	L	6566070	1901360
	N/A	22S28E08	M1050	Tule_E0165_ILP	165452	DDS	No	486	485	N/A	N/A	N/A	N/A	L	6566220	1901140
	23S26E23R001M	23S/26E-23R01	N/A	N/A	N/A	N/A	No	418	417	N/A	N/A	N/A	N/A	L	6522980	1849120
	N/A	ETGSA-1L	N/A	N/A	ETGSA 01L	N/A	Yes	478	476	162	140	120	140	L	6563730	1900790
	N/A	TSMW 4M	N/A	N/A	TSMW 4M	N/A	No	369	367	N/A	875	630	870	L	6518680	1870060
	N/A	TSMW 4D	N/A	N/A	TSMW 4D	N/A	Yes	369	367	N/A	1,360	1,050	1,350	L	6518680	1870060
	N/A	23S/27E-27	M1038	Tule_E0036_RMS	M1038	Ducor CSD	Yes	539	538	1,425	1,405	1,035	1,038	SM	6546660	1844920
	N/A	TSMW 4SM	N/A	N/A	N/A	N/A	Yes	369	0	N/A	N/A	N/A	N/A	SM	6518680	1870060
	N/A	N/A	N/A	N/A	N/A	N/A	No	439	438	N/A	N/A	N/A	N/A	C	6550710	1912480
	N/A	N/A	N/A	N/A	N/A	N/A	No	454	453	N/A	N/A	N/A	N/A	C	6554900	1901620
	N/A	22S/27E-08	N/A	N/A	C-32	City of Porterville	No	N/A	425	820	780	240	760	C	6540120	1891350
	21S27E35F001M	21S/27E-35F01	C7	N/A	C-7	City of Porterville	No	446	446	593	587	160	593	C	6553350	1905540
	21S26E23D001M	21S/26E-23D01	185	N/A	N/A	N/A	No	371	370	710	N/A	N/A	N/A	C	6520680	1917540
	N/A	21S/27E-27	N/A	Tule_E0035_RMS	C-16	City of Porterville	Yes	432	431	560	548	240	548	C	6546910	1912290
	23S28E04K001M	23S/28E-04K01	D1062	Tule_E0037_RMS	500094	Mike Riley	Yes	662	661	N/A	N/A	160	530	C	6573260	1865680
	N/A	22S/27E-02	D1050	Tule_E0095_ILP	C-27	City of Porterville	No	457	456	N/A	N/A	N/A	N/A	C	6553770	1899080
	N/A	N/A	D1052	Tule_E0097_ILP	AP-2	City of Porterville	No	424	423	N/A	N/A	N/A	N/A	C	6538850	1892590
	N/A	22S/28E-05	D1054	Tule_E0099_ILP	26857	DDS	No	490	489	N/A	N/A	N/A	N/A	C	6567080	1900990
	N/A	22S/28E-06	D1055	Tule_E0100_ILP	30402	DDS	No	484	483	N/A	N/A	N/A	N/A	C	6565210	1901580
	N/A	N/A	D1061	Tule_E0105_ILP	N/A	N/A	No	491	490	N/A	N/A	N/A	N/A	C	6546860	1863910
	N/A	22S/26E-13	IR1062	Tule_E0138_ILP	E0307516	Bert Berra	No	388	388	N/A	N/A	N/A	N/A	C	6527340	1891170
	N/A	22S/26E-17	IR1063	Tule_E0139_ILP	373266	Roby Batth	No	338	337	N/A	N/A	N/A	N/A	C	6508550	1890720
	N/A	N/A	IR1075	Tule_E0151_ILP	N/A	N/A	No	385	384	N/A	N/A	N/A	N/A	C	6523210	1866260
	N/A	22S/27E-23	IR1084	Tule_E0158_ILP	516902	John Corkins	No	485	484	N/A	N/A	N/A	N/A	C	6553760	1881350
	N/A	21S/27E-21	M1045	Tule_E0161_ILP	943181	City of Porterville	No	421	420	N/A	N/A	N/A	N/A	C	6541830	1912590
	N/A	21S/27E-21	M1046	Tule_E0162_ILP	1086588	City of Porterville	No	429	428	N/A	N/A	N/A	N/A	C	6543250	1905330
	N/A	N/A	IR1088	Tule_E0171_ILP	N/A	N/A	No	594	593	N/A	N/A	N/A	N/A	C	6570420	1887170
Kern-Tulare GSA	N/A	TSMW 6L	N/A	Tule_KT041_RMS	TSMW-6L	Tule Subbasin TAC	Yes	519	518	610	605	350	600	L	6539210	1822270
	24S27E32M001M	24S/27E-32M01	N/A	Tule_KT0039_RMS	N/A	N/A	Yes	536	536	N/A	1,800	1,002	1,800	SM	6536530	1808340
	N/A	TSMW 6SM	N/A	Tule_KT042_RMS	TSMW 6SM	Tule Subbasin TAC	Yes	517	515	2,000	1,600	1,950	2,020	SM	6539200	1822170

GSA Name	CASGEM State Well Number	Short State Well Number	ILRP_ID	Master Well ID	Well Name/ Well Log	Owner	RMS	Ref. Point Elev (ft amsl)	Ground Surface Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
															X-Coordinate	X-Coordinate
	N/A	21S/27E-12	D1009	Tule_K0075_ILP	243056	Dominic Pitigliano	No	698	697	N/A	N/A	N/A	N/A	U	6560270	1923930
	N/A	21S/27E-06	D1014	Tule_K0078_ILP	516921	Salud Tapia	No	377	376	N/A	N/A	N/A	N/A	U	6532740	1932670
	N/A	21S/26E-11	D1015	Tule_K0079_ILP	E0212720	Jeff Beck	No	369	368	N/A	N/A	N/A	N/A	U	6524550	1925970
Kern-Tulare GSA	N/A	20S/27E-19	D1064	Tule_K0107_ILP	503656	John Holworthy	No	384	383	N/A	N/A	N/A	N/A	U	6535230	1947100
	N/A	20S/27E-22	IR1007	Tule_K0113_ILP	349117	Guy Wollenman	No	460	459	N/A	N/A	N/A	N/A	U	6552770	1947040
	N/A	20S/26E-21	IR1045	Tule_K0128_ILP	957243	Ron Shock	No	332	330	N/A	N/A	N/A	N/A	U	6513720	1949170
	N/A	N/A	D1085	Tule_K0170_ILP	N/A	N/A	No	395	394	N/A	N/A	N/A	N/A	U	6537720	1926910
	N/A	20S/27E-35	IR1008	Tule_K0114_ILP	E0159252	David Tomlinson	No	453	452	N/A	N/A	N/A	N/A	C	6558090	1933420
	N/A	N/A	IR1013	Tule_K0115_ILP	N/A	N/A	No	381	379	N/A	N/A	N/A	N/A	C	6534820	1936000
	24S26E24Q1M	24S/26E-24Q1	N/A	N/A	N/A	N/A	No	492	492	N/A	N/A	N/A	N/A	SM	6528460	1818790
	24S27E08L001M	24S/27E-08L01	N/A	N/A	N/A	N/A	No	517	504	N/A	1,747	522	1,747	SM	6537760	1830620
Lower Tule River ID GSA	21S26E06A001M	21S/26E-06A01	N/A	N/A	N/A	S.A Knapp	No	328	326	202	N/A	N/A	N/A	U	6503520	1932570
	22S26E10J001M	22S/26E-10J01	N/A	N/A	10J1	Charley Soak	No	373	373	351	351	N/A	N/A	U	6519180	1893210
	21S24E14P001M	21S/24E-14P01	N/A	N/A	14P1	De Campus	No	249	248	623	551	160	551	U	6458530	1919560
	21S26E22A001M	21S/26E-22A01	N/A	N/A	22A1	N/A	No	369	368	174	N/A	118	162	U	6519210	1917010
	N/A	21S/23E-31	IR1047	Tule_L0002_RMS	E0047650	Tim Cooper	No	192	190	N/A	N/A	N/A	N/A	U	6408330	1907220
	21S23E32K001M	21S/23E-32K01	N/A	Tule_L0003_RMS	32K1	N/A	Yes	190	190	N/A	406	104	402	U	6412360	1903980
	21S24E35A01M	21S/24E-35A01	N/A	Tule_L0004_RMS	35A1	N/A	Yes	244	243	315	328	245	302	U	6461050	1906560
	21S26E32B002M	21S/26E-32B02	D1019	Tule_L0007_RMS	E049930	Leal Joseph	Yes	341	340	327	280	200	260	U	6507610	1906660
	21S26E32A001M	21S/26E-32A01	N/A	Tule_L0008_RMS	32A1	Homer Smartt	No	348	347	267	N/A	153	261	U	6508780	1906870
	N/A	21S/26E-34	N/A	Tule_L0009_RMS	27803	N/A	Yes	378	377	400	400	120	400	U	6519270	1903300
	22S23E30J001M	22S/23E-30J01	N/A	Tule_L0011_RMS	Angiola #1	N/A	Yes	180	180	460	450	240	450	U	6408060	1878090
	N/A	LTRID TSS U	N/A	Tule_L0015_RMS	LTRID TSS U	N/A	Yes	263	262	1,560	290	150	280	U	6469280	1930940
	N/A	21S/25E-13	D1001	Tule_L0071_ILP	153207	Jim Costa	No	319	317	N/A	N/A	N/A	N/A	U	6497080	1917950
	N/A	21S/25E-11	D1003	Tule_L0072_ILP	489364	Rob Nagel	No	298	295	N/A	N/A	N/A	N/A	U	6488410	1926860
	N/A	21S/26E-16	D1016	Tule_L0080_ILP	E0114156	Anil Kumar	No	345	344	N/A	N/A	N/A	N/A	U	6508850	1917850
	N/A	20S/25E-33	D1045	Tule_L0090_ILP	E0000637	Cindy Huerta	No	295	294	N/A	N/A	N/A	N/A	U	6484320	1935560
	N/A	20S/25E-35	D1046	Tule_L0091_RMS	48963	Cindy Huerta	No	308	308	N/A	N/A	N/A	N/A	U	6494690	1934370
	N/A	20S/25E-35	D1047	Tule_L0092_ILP	286242	Cindy Huerta	No	308	308	N/A	N/A	N/A	N/A	U	6494650	1934190
	N/A	21S/24E-28	D1048	Tule_L0093_ILP	773622	Allison Steltzner	No	299	228	N/A	N/A	N/A	N/A	U	6448400	1912350
	N/A	21S/24E-26	D1065	Tule_L0108_ILP	773615	Armando Leal	No	240	239	N/A	N/A	N/A	N/A	U	6460800	1907490
	N/A	N/A	IR1002	Tule_L0111_RMS	N/A	N/A	No	317	315	N/A	N/A	N/A	N/A	U	6496930	1917740
	N/A	21S/26E-08	IR1005	Tule_L0112_RMS	488430	Dominic Pitigliano	No	343	342	N/A	N/A	N/A	N/A	U	6508890	1924200
	N/A	21S/23E-31	IR1048	Tule_L0129_ILP	E0252293	Tim Cooper	No	190	189	N/A	N/A	N/A	N/A	U	6408470	1904890
	N/A	21S/23E-31	IR1049	Tule_L0130_ILP	E0291815	Tim Cooper	No	189	188	N/A	N/A	N/A	N/A	U	6408460	1904010
	N/A	21S/24E-25	IR1050	Tule_L0131_ILP	N/A	Armando Leal	No	246	244	N/A	N/A	N/A	N/A	U	6463830	1912410
	N/A	N/A	IR1051	Tule_L0132_ILP	N/A	N/A	No	223	222	N/A	N/A	N/A	N/A	U	6440040	1905970
	N/A	20S26E-32	IR1046	Tule_L0001_RMS	E0090245	Cindy Huerta	Yes	330	329	680	680	320	680	L	6507630	1933580
	N/A	21S/25E-36	D1020	Tule_L0006_RMS	N/A	Doug Van Beek	Yes	313	310	640	640	320	640	L	6493640	1905220

GSA Name	CASGEM State Well Number	Short State Well Number	ILRP_ID	Master Well ID	Well Name/ Well Log	Owner	RMS	Ref. Point Elev (ft amsl)	Ground Surface Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
															X-Coordinate	X-Coordinate
	N/A	22S/23E-08	N/A	Tule_L0010_RMS	E0094101	N/A	Yes	187	185	N/A	1,000	660	1,000	L	6410340	1896240
	N/A	LTRID TSS L	N/A	Tule_L0013_RMS	LTRID TSS L	N/A	Yes	263	262	1,560	1,480	1,100	1,470	L	6469280	1930940
	N/A	LTRID TSS M	N/A	Tule_L0014_RMS	LTRID TSS M	N/A	Yes	263	262	1,560	815	500	805	L	6469280	1930940
	N/A	N/A	D1029	Tule_L0083_ILP	E076023	Claudio Basei	No	263	262	N/A	N/A	N/A	N/A	L	6478820	1868660
Lower Tule River ID GSA	N/A	N/A	IR1021	Tule_L0116_ILP	715324	Nikki Galvan	No	308	307	N/A	N/A	N/A	N/A	L	6492700	1898470
	N/A	N/A	N/A	Tule_L0177_ILP	N/A	N/A	No	341	340	N/A	N/A	N/A	N/A	L	6508810	1920290
	21S26E05P001M	21S/26E-05P01	N/A	N/A	05P1	N/A	No	337	336	720	N/A	N/A	N/A	C	6506190	1928390
	21S26E06R001M	21S/26E-06R01	N/A	N/A	06R1	Sheldon Rising	No	329	328	>698	N/A	N/A	N/A	C	6503510	1928470
	22S24E01Q001M	22S/24E-01Q01	N/A	Tule_L0012_RMS	01Q1	N/A	Yes	253	251	720	700	480	700	C	6465170	1896730
	N/A	22S/24E-17	IR1061	Tule_L0137_ILP	E0330539	Bill Hesse	No	208	207	N/A	N/A	N/A	N/A	C	6440910	1888590
	N/A	22S/24E-14	IR1083	Tule_L0157_ILP	560270	Daryl Barsoom	No	239	238	N/A	N/A	N/A	N/A	C	6461110	1886490
	N/A	22S/26E-03	IR1089	Tule_L0174_RMS	IR1089	N/A	Yes	364	364	N/A	400	140	400	C	6516600	1899270
	N/A	22S/24E-01	IR1091	Tule_L0176_RMS	N/A	N/A	No	251	250	N/A	N/A	N/A	N/A	C	6461770	1899310
Pixley ID GSA	22S24E23J001M	22S/24E-23J01	N/A	Tule_P0016_RMS	22/24-23J1	N/A	Yes	239	235	N/A	400	N/A	N/A	U	6460930	1883360
	22S25E25N001M	22S/25E-25N01	N/A	Tule_P0017_RMS	N/A	N/A	Yes	307	306	N/A	437	N/A	N/A	U	6494110	1875970
	23S24E28J002M	23S/24E-28J02	N/A	Tule_P0020_RMS	28J2	N/A	Yes	204	203	N/A	N/A	200	500	U	6450370	1846350
	23S25E08G001M	23S/25E-08G01	D1028	Tule_P0021_RMS	724662	Harvinder S. Toor	No	248	247	N/A	N/A	320	420	U	6471860	1863520
	N/A	23S/25E-17	N/A	Tule_P0022_RMS	N/A	N/A	No	252	251	N/A	N/A	N/A	N/A	U	6476970	1854790
	N/A	PIDGSA-01U	N/A	Tule_P0024_RMS	PIDGSA TSS U	Tule Subbasin TAC	Yes	298	297	1,020	280	180	280	U	6492780	1857680
	N/A	22S/25E-22	IR1022	Tule_P0117_ILP	415133	Mel Cardoza	No	276	275	N/A	N/A	N/A	N/A	U	6483580	1885940
	N/A	22S/23E-22	IR1053	Tule_P0133_ILP	E000731	Ron Fanucchi	No	186	185	N/A	N/A	N/A	N/A	U	6423890	1880820
	N/A	22S/23E-22	IR1054	Tule_P0134_ILP	290327	Ron Fanucchi	No	187	186	N/A	N/A	N/A	N/A	U	6424030	1883490
	N/A	TSMW 1L	N/A	Tule_P0023_RMS	TSMW-1L	Tule Subbasin TAC	Yes	223	222	1,050	1,005	550	1,000	L	6455520	1866660
	N/A	PIDGSA-01L	N/A	Tule_P0025_RMS	PIDGSA-01L	Tule Subbasin TAC	Yes	298	297	1,020	1,015	400	1,005	L	6492780	1857680
	N/A	N/A	D1059	Tule_P0103_ILP	E0072752	Lance Mouw	No	351	350	N/A	N/A	N/A	N/A	L	6510120	1858430
	N/A	23S25E10	IR1030	Tule_P0121_ILP	E01033591	Aldo Risi	No	274	272	N/A	N/A	N/A	N/A	L	6484820	1860420
	N/A	N/A	IR1076	Tule_P0152_ILP	N/A	N/A	No	323	323	N/A	N/A	N/A	N/A	L	6502390	1862340
	N/A	22S/25E-30	IR1023	Tule_P0018_RMS	E0259438	George Rispens	No	261	260	N/A	N/A	340	840	C	6474480	1882570
	N/A	23S/26E-08	D1063	Tule_P0106_ILP	1091925	Lance Mouw	No	329	329	N/A	N/A	N/A	N/A	C	6503920	1864910
Tri-County Water Authority	N/A	22S/23E-25	N/A	N/A	E25	Angiola W.D.	No	N/A	197	N/A	N/A	N/A	N/A	U	6434580	1879530
	N/A	22S/23E-28	N/A	N/A	G23	Angiola W.D.	No	N/A	200	438	430	210	420	U	6416160	1882060
	N/A	22S/23E-28	N/A	N/A	G24	Angiola W.D.	No	N/A	198	435	430	210	420	U	6416140	1880170
	N/A	22S/23E-25	N/A	N/A	G25	Angiola W.D.	No	N/A	200	460	460	210	450	U	6419990	1875800
	N/A	22S/23E-28A1	N/A	N/A	G3	Angiola W.D.	No	N/A	198	N/A	520	200	500	U	6417590	1880760
	N/A	22S/23E-27	N/A	N/A	G30	Angiola W.D.	No	N/A	200	N/A	N/A	N/A	N/A	U	6420250	1876130
	N/A	22S/23E-28J1	N/A	N/A	G5	Angiola W.D.	No	N/A	203	N/A	504	200	504	U	6418760	1878170
	N/A	22S/23E-33	N/A	N/A	W18	Angiola W.D.	No	N/A	199	N/A	N/A	N/A	N/A	U	6417590	1875510
	N/A	22S/23E-27F1	N/A	N/A	W6	Angiola W.D.	No	N/A	203	478	468	258	468	U	6420550	1878270
	22S23E25C001M	22S/23E-25C01	IR1060	Tule_T0058_RMS	E20	Anigola W.D.	Yes	195	194	N/A	N/A	240	480	U	6430890	1880680

GSA Name	CASGEM State Well Number	Short State Well Number	ILRP_ID	Master Well ID	Well Name/ Well Log	Owner	RMS	Ref. Point Elev (ft amsl)	Ground Surface Elev (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
															X-Coordinate	X-Coordinate
	24S23E22E001M	24S/23E-22E01	N/A	Tule_T0061_RMS	N/A	N/A	Yes	211	210	N/A	N/A	400	1000	U	6419300	1820860
	N/A	TSMW 5U	N/A	Tule_T0064_RMS	TSMW-5U	Tule Subbasin TAC	Yes	200	198	310	285	170	280	U	6413220	1823390
	N/A	22S/23E-33	IR1052	Tule_T0066_ILP	E054456	Angiola W.D.	No	183	182	N/A	N/A	N/A	N/A	U	6418670	1873390
	N/A	22S/23E-26	IR1057	Tule_T0069_ILP	E062799	Angiola W.D.	No	194	193	N/A	N/A	N/A	N/A	U	6429500	1879340
	N/A	22S/23E-25F1	N/A	N/A	N/A	Anigola W.D.	No	N/A	217	N/A	1,798	598	1,798	L	6431100	1878270
Tri-County Water Authority	N/A	22S/23E-23J1	N/A	N/A	N/A	Anigola W.D.	No	N/A	216	N/A	1,788	597	1,788	L	6429360	1883350
	N/A	22S/23E-25	N/A	N/A	E15	Anigola W.D.	No	N/A	223	1,000	969	500	930	L	6434040	1880680
	N/A	22S/23E-26	N/A	N/A	E16	Anigola W.D.	No	N/A	213	980	960	500	940	L	6429300	1880750
	N/A	N/A	N/A	N/A	E23	Anigola W.D.	No	N/A	214	1,220	1,202	602	1,202	L	6429640	1878240
	N/A	N/A	N/A	N/A	E4	Anigola W.D.	No	N/A	210	N/A	1,236	N/A	N/A	L	6428190	1880920
	N/A	22S/23E-23	N/A	N/A	E26	Anigola W.D.	No	N/A	188	N/A	N/A	N/A	N/A	L	6424630	1881020
	N/A	22S/23E-23	N/A	N/A	E27	Anigola W.D.	No	N/A	213	N/A	N/A	N/A	N/A	L	6428310	1883430
	N/A	22S/23E-23	N/A	N/A	E5	Anigola W.D.	No	N/A	211	N/A	1,447	N/A	N/A	L	6427880	1882010
	N/A	22S/23E-27	N/A	N/A	G11	Anigola W.D.	No	N/A	203	N/A	1,541	N/A	N/A	L	6421170	1878030
	N/A	22S/23E-21	N/A	N/A	G18	Anigola W.D.	No	N/A	205	980	940	620	940	L	6416270	1883410
	N/A	22S/23E-34	N/A	N/A	G26	Anigola W.D.	No	N/A	203	1,160	1,120	680	1,100	L	6423690	1873680
	N/A	22S/23E-34	N/A	N/A	G27	Anigola W.D.	No	N/A	199	1,160	1,120	760	1,100	L	6420010	1871630
	N/A	22S/23E-28	N/A	N/A	G29	Anigola W.D.	No	N/A	198	1,010	992	632	992	L	6416210	1878490
	N/A	N/A	N/A	N/A	W15	Anigola W.D.	No	N/A	198	1,160	1,140	830	1,130	L	6418620	1870510
	N/A	N/A	N/A	N/A	W16	Anigola W.D.	No	N/A	198	1,332	1,312	870	990	L	6418610	1867980
	24S24E03A001M	24S/24E-03A01	N/A	Tule_T0046_RMS	N/A	N/A	Yes	206	205	1,602	1,602	804	1,602	L	6455610	1838580
	22S23E27F001M	22S/23E-27F01	N/A	Tule_T0059_RMS	G13	Angiola W.D.	Yes	201	200	N/A	1,604	782	1,604	L	6420050	1878150
	24S23E15R001M	24S/23E-15R01	N/A	Tule_T0060_RMS	N/A	N/A	Yes	211	210	1,150	1,150	600	1,150	L	6423800	1822840
	24S23E22R002M	24S/23E-22R02	N/A	Tule_T0062_RMS	22R02	N/A	Yes	213	212	1,205	1,200	500	1,200	L	6423800	1817750
	24S24E04R001M	24S/24E-04R01	N/A	Tule_T0063_RMS	N/A	N/A	No	272	271	N/A	N/A	800	1,600	L	6476850	1833420
	N/A	TSMW 5L	N/A	Tule_T0065_RMS	TSMW-5L	Tule Subbasin TAC	Yes	199	197	1,010	955	670	950	L	6413220	1823290
	N/A	N/A	IR1058	Tule_T0068_ILP	E0078570	Angiola W.D.	No	198	197	N/A	N/A	N/A	N/A	L	6434660	1878340
	N/A	22S23E22	IR1055	Tule_T0070_ILP	E072308	Angiola W.D.	No	188	187	N/A	N/A	N/A	N/A	L	6418970	1881710
	N/A	24S24E20	IR1025	Tule_T0119_ILP	E0083113	Samantha Lopes	No	208	206	N/A	N/A	N/A	N/A	L	6441270	1819420
	N/A	24S24E29	IR1026	Tule_T0120_ILP	E0077871	Samantha Lopes	No	211	210	N/A	N/A	N/A	N/A	L	6442560	1815500
	N/A	N/A	IR1043	Tule_T0127_ILP	N/A	N/A	No	222	220	N/A	N/A	N/A	N/A	L	6451850	1812290
	N/A	N/A	IR1056	Tule_T0135_ILP	489856	Angiola W.D.	No	187	186	N/A	N/A	N/A	N/A	L	6426910	1880800
	N/A	22S23E34	IR1059	Tule_T0136_ILP	E054498	Angiola W.D.	No	181	179	N/A	N/A	N/A	N/A	L	6423820	1870500
	N/A	23S23E04	IR1072	Tule_T0148_ILP	E077033	Angiola W.D.	No	180	180	N/A	N/A	N/A	N/A	L	6418620	1870400
	N/A	N/A	N/A	N/A	W17	Angiola W.D.	No	N/A	202	1,090	1,050	670	1,030	L	6418970	1881710
	N/A	24S/24E-16	IR1078	Tule_T0153_ILP	942276	Dennis Hutson	No	206	206	N/A	N/A	N/A	N/A	C	6446360	1825380

Notes:
Aquifer: U = Well Perforated in Upper Aquifer; L = Well Perforated in Lower Aquifer; C = Well Perforated in Composite Aquifer; SM = Well Perforated in Santa Margarita
N/A = Not Available; ft amsl = feet above mean sea level; ft bgs = feet below ground surface

Table 4-2. Upper Aquifer RMS Network

GSA Name	CASGEM	Short	Master Well ID	Well Name/ Well Log	Reference Point Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	State Plan Zone 4 (ft)	
											X-Coordinate	X-Coordinate
DEID GSA	23S26E29D001M	23S/26E-29D01	Tule_D0045_RMS	E0119660	345	343	310	298	160	300	6504545	1847738
	24S25E35H001M	24S/25E-35H01	Tule_D0047_RMS	1095774	321	320	360	340	160	320	6489468	1811332
	24S26E04P001M	24S/26E-04P01	Tule_D0048_RMS	P-24	390	390	402	393	216	393	6511204	1834634
	N/A	M-19U	Tule_D0055_RMS	M-19U	373	373	810	350	200	350	6500623	1828030
	24S26E32G001M	24S/26E-32G01	Tule_D0050_RMS	67	400	398	470	470	23	461	6507272	1810870
	N/A	24S/26E11	Tule_D0049_RMS	36201	438	437	399	399	301	399	6521732	1830686
LTRID GSA	21S23E32K001M	21S/23E-32K01	Tule_L0003_RMS	32K1	190	190	N/A	406	104	402	6412096	1903994
	21S26E32B002M	21S/26E-32B02	Tule_L0007_RMS	E049930	341	340	327	280	200	260	6507613	1906655
	N/A	21S/26E-34	Tule_L0009_RMS	27803	378	377	400	400	120	400	6519268	1903301
	22S23E30J001M	22S/23E-30J01	Tule_L0011_RMS	Angiola #1	180	180	460	450	240	450	6408171	1878179
	N/A	LTRID TSS U	Tule_L0015_RMS	LTRID TSS U	263	262	1560	290	150	280	6469280	1930941
	21S24E35A001M	21S/24E-35A01	Tule_L0004_RMS	35A1	244	243	315	328	245	302	6461001	1906318
		21S/25E-03R01									6487723	1929458
PIXID GSA	22S24E23J001M	22S/24E-23J01	Tule_P0016_RMS	22/24-23J1	239	235		400			6460931	1883356
	22S25E25N001M	22S/25E-25N01	Tule_P0017_RMS		307	306		437			6494108	1875965
	23S24E28J002M	23S/24E-28J02	Tule_P0020_RMS	28J2	204	203			200	500	6450366	1846351
	N/A	PIDGSA TSS U	Tule_P0024_RMS	PIDGSA TSS U	298	297	1020	280	180	280	6492780	1857678
		23S/25E-08G01	Tule_P0021_RMS		248	247			320	420	6471862	1863514
TCWA	22S23E25C001M	22S/23E-25CO1	Tule_T0058_RMS	E20	195	194			240	480	6430891	1880679
	24S23E22E001M	24S/23E-22E01	Tule_T0061_RMS	N/A	211	210			400	1000	6430891	1880679
	N/A	TSMW-5U	Tule_T0064_RMS	TSMW-5U	200	198	310	285	170	280	6413217	1823385
-	N/A	21S/27E-23	Tule_E0027_RMS	C-1	457	457	220	220	160	220	6557877	1908424
Tea Pot Dome GSA		22S/28E-19	Tule_E0147_ILP		561	560					6564628	1886755
PID GSA	N/A	21S/27E-30	Tule_E0028_RMS	R-11	403	400	216	216		216	6531870	1909109
SID GSA	22S26E13R001M	22S/26E-13R01	Tule_E0029_RMS	243293	396	395	385	380	240	380	6529364	1886159
	N/A	N/A	N/A	TSMW-4S	379	379	300	300	190	300	6518754	1870002
	22S26E25J001M	22S/26E-25J01	Tule_E0040_RMS	N/A	254	252					6529609	1876738
VWD GSA		22S/27E-01G01	VID #21								6558714	1901316
		22S/28E-06	ETGSA TSS-1U								6563669	1900781
	22S28E18H001M	22S/28E-18H01				395					6567585	1890395

Table 4-4. Lower Aquifer RMS Network

GSA Name	CASGEM State Well Number	Short State Well Number	Master Well ID	Well Name/ Well Log	Reference Point Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	State Plan Zone 4 (ft)	
											X-Coordinate	Y-Coordinate
Alpaugh GSA	23S23E25N001M	23S/23E-25N01	Tule_A0056_RMS	25N01	211	210	N/A	N/A	702	1504	6429320	1845090
	N/A	24S/23E-23	Tule_A0057_RMS	Well 55		199	N/A	1459	707	1459	6432067	1849112
DEID GSA	25S26E09C001M	25S/26E-09C01	Tule_D0053_RMS	N/A	398	398	N/A	N/A	450	1002	6509076	1797597
	N/A	24S/26E-17	Tule_D0054_RMS	M19-L	373	373	810	805	705	805	6500623	1828030
	N/A	23S/25E-27	Tule_D0043_RMS	N/A	286	286	810	800	300	800	6487400	1846610
	N/A	24S/27E-31	Tule_D0051_RMS	M1054	495	495		800	300	800	6530710	1812190
KTGSA	24S27E32M001M	24S/27E-32	Tule_KT0039_RMS	N/A	536	536		1800	1002	1800	6536530	1808340
	N/A	N/A	Tule_KT042_RMS	TSMW 6SM	515	515	2000	1600	1950	2020	6539196	1822172
	N/A	N/A	Tule_KT041_RMS	TSMW-6L	518	518	610	605	350	600	6539196	1822172
LTRID GSA	N/A	20S/26E-32	Tule_L0001_RMS	N/A	329	329	680	680	320	680	6507628	1933560
	N/A	21S/25E-36	Tule_L0006_RMS	N/A	310	310	640	640	320	640	6493618	1905179
	N/A	N/A	Tule_L0013_RMS	LTRID TSS L	262	262	1560	1480	1100	1470	6469280	1930941
	N/A	N/A	Tule_L0014_RMS	LTRID TSS M	262	262	1560	815	500	805	6469280	1930941
	N/A	22S/23E-08	Tule_L0010_RMS	E0094101	185	185	N/A	1000	660	1000	6410339	1896242
	22S24E01Q001M	22S/24E-01	Tule_L0012_RMS	N/A	251	251	720	700	480	700	6465170	1896730
	N/A	22S/26E-03	Tule_L0174_RMS	IR1089	364	364	N/A	400	140	400	6516600	1899270
PIXID GSA	N/A	N/A	Tule_P0023_RMS	TSMW-1L	222	222	1050	1005	550	1000	6455530	1866658
	N/A	N/A	Tule_P0025_RMS	PIDGSA-01L	297	297	1020	1015	400	1005	6492772	1857660
		22S/25E-30									6469124	1878052
TCWA	24S24E03A001M	24S/24E-03A01	Tule_T0046_RMS	N/A		205	1602	1602	804	1602	6455570	1838610
	22S23E27F001M	22S/23E-27F01	Tule_T0059_RMS	G13		200	N/A	1604	782	1604	6420049	1878149
	24S23E15R001M	24S/23E-15R01	Tule_T0060_RMS	N/A		210	1150	1150	600	1150	6423853	1823274
	N/A	N/A	Tule_T0065_RMS	TSMW-5L		197	1010	955	670	950	6413230	1823472
	24S23E22R002M	24S/23E-22R02	Tule_T0062_RMS	22R02		212	1205	1200	500	1200	6423826	1817704
SID GSA	N/A	22S/26E-24	Tule_E0030_RMS	N/A	397	397	1270	1240	670	1220	6529809	1881991
	N/A	N/A	N/A	TSMW-4M	379	379	300	300	190	300	6518680	1870002
	N/A	N/A	N/A	TSMW 4D	379	379	300	300	190	300	6518680	1870060
-	N/A	21S/27E-27	Tule_E0035_RMS	C-16	431	431	560	548	240	548	6546910	1912290
-	N/A	23S/27E-27	Tule_E0036_RMS	M1038							6546660	1844920
Tea Pot Dome GSA		22S/27E-07		T-1							6532544	1893832
		22S/27E-15	Tule_E0146_ILP		478	478					6549841	1890397
TBID GSA		23S/28E-04K01	Tule_E0037_RMS		661	661			160	530	6573260	1865680
WVD GSA		22S/28E-06	ETGSA TSS-1L (ETGSA-01L)								6563730	1900746
		22S/28E-07M01	22S28E07M001M								6561670	1894035

N/A = Not Available; ft amsl = feet above mean sea level; ft bgs = feet below ground surface

Table 4-5. Upper Aquifer Water Quality Monitoring Wells

GSA	Master Well ID	Reference Point Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
									X-Coordinate	X-Coordinate
SID GSA	Tule_E0184_RMS (SGMA Well ID: TSMW-4S)	369	368	1360	0	190	250	U	-13263189.23	4295676.935
PID GSA	Tule_E0026_RMS	395	395	N/A	N/A	150	300	U	6535440	1919750
	Tule_E0081_ILP	384	382	N/A	N/A	N/A	N/A	U	6527930	1916670
	Tule_E0082_ILP	395	394	N/A	N/A	N/A	N/A	U	6529860	1905060
VDW GSA	Tule_E0031_RMS	518	518	400	0	120	390	U	-13247214.21	4303482.421
TEGSA (Formerly ETGSA)	Tule_E0094_ILP	474	473	N/A	N/A	N/A	N/A	U	6552780	1891300
	Tule_E0098_ILP	486	485	N/A	N/A	N/A	N/A	U	6553980	1882600
	Tule_E0145_ILP	738	736	N/A	N/A	N/A	N/A	U	6584220	1896110
	Tule_E0145_ILP	738	736	N/A	N/A	N/A	N/A	U	6584220	1896110
	Tule_E0171_ILP	594	593	N/A	N/A	N/A	N/A	C	6570420	1887170
	Tule_E0182_RMS (SMGA Well ID: ETGSA-1U)	478	476.67	55	0	24	48	U	-13246266.88	4307301.082
TPD WD GSA	Tule_E0147_ILP	561	560	N/A	N/A	N/A	N/A	U	6564210	1885780
LTRID GSA	Tule_L0007_RMS	341	340	327	280	200	260	U	6507610	1906660
	Tule_L0015_RMS	263	262	1560	290	150	280	U	6469280	1930940
	Tule_L0071_ILP	319	317	N/A	N/A	N/A	N/A	U	6497080	1917950
	Tule_L0072_ILP	298	295	N/A	N/A	N/A	N/A	U	6488410	1926860
	Tule_L0073_ILP	306	306	400	0	340	400	Unknown	-13272653.6	4317233.232
	Tule_L0074_ILP	334	333	500	0	160	360	U	-13268022.05	4317677.728
	Tule_L0080_ILP	345	344	N/A	N/A	N/A	N/A	U	6508850	1917850
	Tule_L0090_ILP	295	294	N/A	N/A	N/A	N/A	U	6484320	1935560
	Tule_L0093_ILP	299	228	N/A	N/A	N/A	N/A	U	6448400	1912350
	Tule_L0108_ILP	240	239	N/A	N/A	N/A	N/A	U	6460800	1907490
	Tule_L0174_RMS	364	364	N/A	400	140	400	C	6516600	1899270

GSA	Master Well ID	Reference Point Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
									X-Coordinate	X-Coordinate
PIXID GSA	Tule_P0020_RMS	204	203	N/A	N/A	200	500	U	6450370	1846350
	Tule_P0021_RMS	248	247	N/A	N/A	320	420	U	6471860	1863520
	Tule_P0021_RMS	248	247	N/A	N/A	320	420	U	6471860	1863520
	Tule_P0024_RMS	298	297	1020	280	180	280	U	6492780	1857680
DEID GSA	Tule_P0117_ILP	276	275	N/A	N/A	N/A	N/A	U	6483580	1885940
	Tule_P0133_ILP	186	185	N/A	N/A	N/A	N/A	U	6423890	1880820
	Tule_D0045_RMS	345	343	310	298	160	300	U	6504550	1847740
	Tule_D0047_RMS	321	320	360	340	160	320	U	6489730	1809700
	Tule_D0050_RMS	400	398	470	470	23	461	U	6507230	1810860
	Tule_D0084_ILP	314	313	N/A	N/A	N/A	N/A	U	6493150	1841080
	Tule_D0085_ILP	343	342	N/A	N/A	N/A	N/A	U	6497960	1826190
	Tule_D0173_RMS	382	381	N/A	N/A	N/A	N/A	U	6505330	1799310
	Tule_D0173_RMS	382	381	N/A	N/A	N/A	N/A	U	6505330	1799310
	Tule_T0058_RMS	195	194	N/A	N/A	240	480	U	6430890	1880680
TCWA GSA	Tule_T0061_RMS	211	210	N/A	N/A	400	1000	U	6419300	1820860
	Tule_T0064_RMS	200	198	310	285	170	280	U	6413220	1823390
	Tule_T0066_ILP	183	182	N/A	N/A	N/A	N/A	U	6418670	1873390
	Tule_T0089_ILP	211	210	0	0	0	0	Unknown	-13290816.94	4275546.86
	Tule_T0179_RMS	253	245	580	0	400	580	U	-13283298.54	4275697.047
KTWD GSA	Tule_K0170_ILP	395	394	N/A	N/A	N/A	N/A	U	6537720	1926910

Notes:
Aquifer: U = Well Perforated in Upper Aquifer
N/A = Not Available; ft amsl = feet above mean sea level; ft bgs = feet below ground surface

Table 4-6. Lower Aquifer Water Quality Monitoring Wells

GSA	Master Well ID	Reference Point Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
									X-Coordinate	Y-Coordinate
TBID GSA	Tule_E0034_RMS	501.9	500.9	600.0	0.0	200.0	590.0	C	-13251997.6	4294744.8
	Tule_E0037_RMS	662.0	661.0	N/A	N/A	160.0	530.0	C	6573260.0	1865680.0
SID GSA	Tule_E0186_RMS (SGMA Well ID: TSMW-4D)	369.1	368.0	1360.0	0.0	1050.0	1350.0	L	-13263189.2	4295676.9
	Tule_E0140_ILP	344.0	343.0	N/A	N/A	N/A	N/A	L	6510430.0	1864870.0
TE GSA (formerly ETGSA)	Tule_E0036_RMS	539.0	538.0	1425.0	1405.0	1035.0	1038.0	SM	6546660.0	1844920.0
	Tule_E0038_RMS	654.0	652.0	N/A	N/A	1090.0	1500.0	L	6553130.0	1821710.0
	Tule_E0123_ILP	499.0	498.0	N/A	N/A	N/A	N/A	L	6543540.0	1852810.0
	Tule_E0142_ILP	416.0	415.0	N/A	N/A	N/A	N/A	L	6539370.0	1885140.0
	Tule_E0142_ILP	416	415	N/A	N/A	N/A	N/A	L	6539370	1885140
	Tule_E0160_ILP	543.0	542.0	N/A	N/A	N/A	N/A	L	6548290.0	1844210.0
	Tule_E0164_ILP	486.0	485.0	N/A	N/A	N/A	N/A	L	6566070.0	1901360.0
	Tule_E0165_ILP	486.0	485.0	N/A	N/A	N/A	N/A	L	6566220.0	1901140.0
LTRID GSA	Tule_L0006_RMS	313.0	310.0	640.0	640.0	320.0	640.0	L	6493640.0	1905220.0
	Tule_L0014_RMS	263.0	262.0	1560.0	815.0	500.0	805.0	L	6469280.0	1930940.0
	Tule_L0083_ILP	263.0	262.0	N/A	N/A	N/A	N/A	L	6478820.0	1868660.0
PIXID GSA	Tule_P0018_RMS	261.0	260.0	N/A	N/A	340.0	840.0	C	6474480.0	1882570.0
	Tule_P0022_RMS	252.0	251.0	N/A	N/A	N/A	N/A	U	6476970.0	1854790.0
	Tule_P0023_RMS	223.0	222.0	1050.0	1005.0	550.0	1000.0	L	6455520.0	1866660.0
	Tule_P0025_RMS	298.0	297.0	1020.0	1015.0	400.0	1005.0	L	6492780.0	1857680.0
	Tule_P0121_ILP	274.0	272.0	N/A	N/A	N/A	N/A	L	6484820.0	1860420.0
DEID GSA	Tule_D0043_RMS	287.0	286.0	810.0	800.0	300.0	800.0	C	6487400.0	1846610.0
	Tule_D0051_RMS	495.0	495.0	N/A	800.0	300.0	800.0	C	6530710.0	1812190.0
	Tule_D0166_ILP	275.0	271.0	N/A	N/A	N/A	N/A	L	6478960.0	1839770.0
	Tule_D0168_ILP	512.0	511.0	N/A	N/A	N/A	N/A	L	6528610.0	1808190.0
	Tule_D0168_ILP	512.000	511.000	N/A	N/A	N/A	N/A	L	6528610.0	1808190.0

GSA	Master Well ID	Reference Point Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Borehole Depth (ft bgs)	Casing Depth (ft bgs)	Top of Perfs (ft bgs)	Bottom of Perfs (ft bgs)	Aquifer	State Plan Zone 4 (ft)	
									X-Coordinate	Y-Coordinate
TCWA GSA	Tule_T0046_RMS	206.0	205.0	1602.0	1602.0	804.0	1602.0	L	6455610.0	1838580.0
	Tule_T0059_RMS	201.0	200.0	N/A	1604.0	782.0	1604.0	L	6420050.0	1878150.0
	Tule_T0060_RMS	211.0	210.0	1150.0	1150.0	600.0	1150.0	L	6423800.0	1822840.0
	Tule_T0062_RMS	213.0	212.0	1205.0	1200.0	500.0	1200.0	L	6423800.0	1817750.0
	Tule_T0065_RMS	199.0	197.0	1010.0	955.0	670.0	950.0	L	6413220.0	1823290.0
	Tule_T0127_ILP	222.0	220.0	N/A	N/A	N/A	N/A	L	6451850.0	1812290.0
	Tule_T0135_ILP	187.0	186.0	N/A	N/A	N/A	N/A	L	6426910.0	1880800.0
	Tule_T0135_ILP	187	186	N/A	N/A	N/A	N/A	L	6426910	1880800
	Tule_T0148_ILP	180.0	180.0	N/A	N/A	N/A	N/A	L	6418620.0	1870400.0
	Tule_E0183_RMS (SGMA Well ID: ETGSA-1L)	478.1	476.8	164.0	0.0	190.0	140.0	L	-13246261.3	4307301.1
Alpaugh GSA	Tule_A0056_RMS	211.0	210.0	N/A	N/A	702.0	1504.0	L	6429260.0	1845240.0
	Tule_A0159_ILP	204.0	202.0	N/A	N/A	N/A	N/A	L	6418750.0	1842030.0
KTWD GSA	Tule_KT155_ILP	477.71	476.75	1870.00	0.00	1281.00	1860.00	PMD	-13257962.11	4279810.29
	Tule_KT041_RMS	519.0	518.0	610.0	605.0	350.0	600.0	L	6539210.0	1822270.0
	Tule_KT042_RMS	517.0	515.0	2000.0	1600.0	1950.0	2020.0	SM	6539200.0	1822170.0
	Tule_KT042_RMS	517	515	2000	1600	1950	2020	SM	6539200	1822170

Notes:
Aquifer: L = Well Perforated in Lower Aquifer; C = Well Perforated in Composite Aquifer; SM = Well Perforated in Santa Margarita: PMD = Well Perforated in Pliocene Marine Deposits
N/A = Not Available; ft amsl = feet above mean sea level; ft bgs = feet below ground surface

Table 4-9. Land Subsidence RMS Monitoring Network

GSA Name	RMS Data Source	RMS ID	Status
Saucelito ID GSA	Benchmark	S0035_B_RMS	Active
		S0047_B_RMS	Active
		S0048_B_RMS	Active
		S0049_B_RMS	Active
	InSAR	S0047_InSAR	Active
Porterville ID GSA	Benchmark	PD0050_B_RMS	Active
Terra Bella ID GSA	InSAR	TB0092_InSAR	Active
Tea Pot Dome WD GSA	InSAR	TP0050_InSAR	Active
		TP0051_InSAR	Active
		TP0052_InSAR	Active
		TP0053_InSAR	Active
Alpaugh GSA	Benchmark	A0013_B_RMS	Active
		A0017_B_RMS	Active
		A0018_B_RMS	Active
		A0019_B_RMS	Active
		A0020_B_RMS	Active
	InSAR	A0077_InSAR	Active
		A0078_InSAR	Active
		A0079_InSAR	Active
Delano-Earlimart ID GSA	Benchmark	D0012_B_RMS	Active
		D0030_B_RMS	Active
		D0031_B_RMS	Active
		D0032_B_RMS	Active
		D0033_B_RMS	Active
		D0034_B_RMS	Active
		D0089_B_RMS	Active
	InSAR	D0080_InSAR	Active
		D0081_InSAR	Active
		D0082_InSAR	Active
		D0083_InSAR	Active
		D0084_InSAR	Active
		D0085_InSAR	Active
		D0086_InSAR	Active
		D0087_InSAR	Active
		D0088_InSAR	Active
		D0089_InSAR	Active

GSA Name	RMS Data Source	RMS ID	Status
Tule East GSA (formerly Eastern Tule GSA)	Benchmark	E0085_B_RMS	Active
		E0086_B_RMS	Active
		E0087_B_RMS	Active
	InSAR	E0043_InSAR	Active
		E0044_InSAR	Active
		E0045_InSAR	Active
		E0046_InSAR	Active
Kern-Tulare WD GSA	Benchmark	KT088_B_RMS	Active
	InSAR	K0090_InSAR	Active
		K0091_InSAR	Active
Lower Tule River ID GSA	Benchmark	L0001_B_RMS	Destroyed
		L0002_B_RMS[3]	Active
		L0003_B_RMS	Active
		L0004_B_RMS	Active
		L0005_B_RMS	Active
		L0006_B_RMS	Destroyed
		L0022_B_RMS[3]	Active
		L0023_B_RMS	Active
		L0024_B_RMS	Active
		L0038_B_RMS	Active
		L0039_B_RMS	Active
		L0040_B_RMS	Active
		L0041_B_RMS	Active
		L0042_B_RMS	Active
		L0043_B_RMS	Active
		L0044_B_RMS	Active
		L0045_B_RMS[3]	Active
		L0046_B_RMS	Active
	InSAR	L0001_InSAR	Active
		L0002_InSAR[3]	Active
		L0003_InSAR	Active
		L0004_InSAR	Active
		L0005_InSAR	Active
		L0006_InSAR	Active
		L0007_InSAR	Active
		L0008_InSAR	Active
		L0009_InSAR	Active
		L0010_InSAR	Active
		L0011_InSAR	Active
		L0012_InSAR	Active
Lower Tule River ID GSA	InSAR	L0013_InSAR	Active

GSA Name	RMS Data Source	RMS ID	Status
		L0014_InSAR	Active
		L0015_InSAR	Active
		L0016_InSAR	Active
		L0017_InSAR	Active
		L0018_InSAR	Active
		L0019_InSAR[3]	Active
		L0020_InSAR	Active
		L0021_InSAR[3]	Active
		L0022_InSAR	Active
		L0023_InSAR[3]	Active
		L0024_InSAR[3]	Active
		L0025_InSAR[3]	Active
		L0026_InSAR[3]	Active
		L0027_InSAR	Active
		L0028_InSAR	Active
		L0029_InSAR[3]	Active
		L0030_InSAR[3]	Active
		L0031_InSAR	Active
		L0032_InSAR	Active
Pixley ID GSA	Benchmark	P0007_B_RMS[3]	Active
		P0008_B_RMS[3]	Active
		P0009_B_RMS	Active
		P0010_B_RMS	Active
		P0011_B_RMS	Active
		P0025_B_RMS	Active
		P0026_B_RMS	Active
		P0027_B_RMS	Active
		P0028_B_RMS	Active
		P0029_B_RMS	Active
		P0036_B_RMS[3]	Active
		P0037_B_RMS[3]	Active
		P0090_B_RMS	Active
		P0091_B_RMS	Destroyed
		P0093_B_RMS[3]	Active
		P0094_B_RMS	Active
		P0096_B_RMS	Active
	InSAR	P0033_InSAR	Active
		P0034_InSAR	Active

GSA Name	RMS Data Source	RMS ID	Status
Pixley ID GSA	InSAR	P0035_InSAR	Active
		P0036_InSAR	Active
		P0037_InSAR	Active
		P0038_InSAR	Active
		P0039_InSAR	Active
		P0040_InSAR	Active
		P0041_InSAR	Active
		P0042_InSAR[3]	Active
Tri-County Water Authority GSA	Benchmark	T0014_B_RMS	Active
		T0015_B_RMS	Active
		T0016_B_RMS	Active
		T0021_B_RMS	Active
		T0092_B_RMS	Active
	InSAR	T0054_InSAR	Active
		T0055_InSAR	Active
		T0056_InSAR	Active
		T0057_InSAR	Active
		T0058_InSAR	Active
		T0059_InSAR	Active
		T0060_InSAR	Active
		T0061_InSAR	Active
		T0062_InSAR	Active
		T0063_InSAR	Active
		T0064_InSAR	Active
		T0065_InSAR	Active
		T0066_InSAR	Active
		T0067_InSAR	Active
		T0068_InSAR	Active
		T0069_InSAR	Active
		T0070_InSAR	Active
		T0071_InSAR	Active
		T0072_InSAR	Active
		T0073_InSAR	Active
		T0074_InSAR	Active
		T0075_InSAR	Active
		T0076_InSAR	Active
Vandalia WD GSA	InSAR	V0048_InSAR	Active
		V0049_InSAR	Active

Source: Data provided in the Tule Subbasin 2024/2025 Annual Report, Draft (Thomas Harder & Co, 2026).

RMS = Representative Monitoring Site

Table 4-10. Tule Subbasin Existing Groundwater Quality Monitoring Programs

Programs or Data Portals	Tule Subbasin Agency Coordinating with GSAs	Parameters	Monitoring Frequency	Program Objectives
AB-3030 and SB-1938 Groundwater Management Plans	Tule Subbasin GSAs, requirements incorporated into GSP Annual Reports	• Water levels are typically monitored annually. • Ag Suitability analysis (limited suite of general minerals) monitoring frequency between annual and once every 3 years.	Semiannual to Annual	
California SDWIS	Varies Public Water Systems	Database for all public water system wells and historical sample results. Data available includes all Title 22 regulated constituents.	• Title 22 General Minerals and Metals every 3 years. • Nitrate as N annually, if ≥ 5 ppm, sampled quarterly; VOCs and SOCs are sampled every 3 years. • Uranium sampling depends on historical results but varies between 1 sample every 3 (when ≥ 10 pCi/L), 6 (when < 10 pCi/L), or 9 (when no historical detection) years.	Demonstrate compliance with Drinking Water Standards through monitoring and reporting water quality data.
CV-SALTS	Tule Basin Management Zone, Tule Basin Water Foundation	Waste Discharge Requirements (WDR): monthly sodium, chloride, electrical conductivity, nitrogen species (N, NO2, NO3, NH3), pH, and other constituents of concern. A limited suite of general minerals is required quarterly from the source and annually from the wastewater.	Most constituents are sampled monthly, quarterly, and general minerals from source water, and annual general minerals from waste discharge.	To monitor degradation potential from wastewaters discharged to land application areas and provide interim replacement water when MCL for nitrate as N is exceeded, while developing long-term solutions for safe drinking water.
Department of Pesticide Regulation	County of Tulare	Pesticides	Annual	DPR samples groundwater to determine: (1) Presence of hazardous pesticides (2) extent and source of contamination (3) Assessment of regulatory mitigation actions
GAMA (Collaboration with SWQCB, RWQCB, DWR, DPR, NWIS, LLNL)		• Constituents sampled vary by the Program Objectives. • Typically, USGS is the technical lead in conducting the studies and reporting data.	Varies	• Improve statewide comprehensive groundwater monitoring. • Increase the availability of groundwater quality for the public.
Geotracker and Envirostor Databases		Many contaminants of concern, organic and inorganic.	Individual Program Dependent schedule	Records database for cleanup program sites and permitted waste dischargers.
ILRP	Tule Basin Water Quality Coalition	• Annually: static water level, temperature, pH, electrical conductivity, nitrate as nitrogen, and dissolved oxygen. • Once every five years: general minerals collection	Annual and Every 5 years	Monitor the impacts of agricultural and fertilizer applications on the first encountered groundwater.
USGS California Water Science Center		Conducted multiple groundwater quality studies of the Tule Subbasin.	Reports, factsheets, and data publications range from 1994 through 2017.	Special studies related to groundwater quality that provide comprehensive studies to characterize the basin.

*Source: Information provided by the 2024 Tule Subbasin Coordination Agreement (**Appendix A**)*

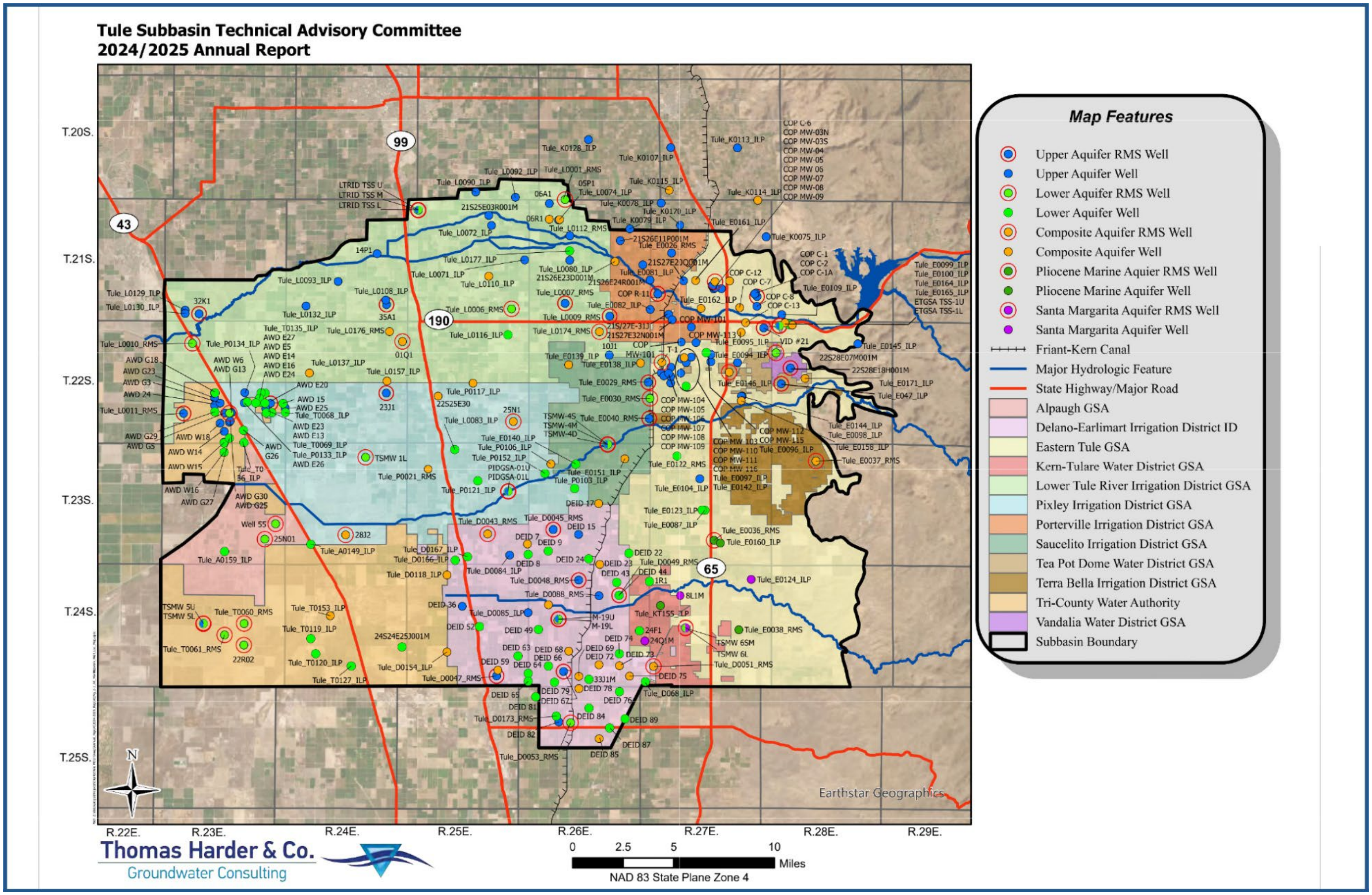

Figure 4-1. Groundwater Monitoring Network

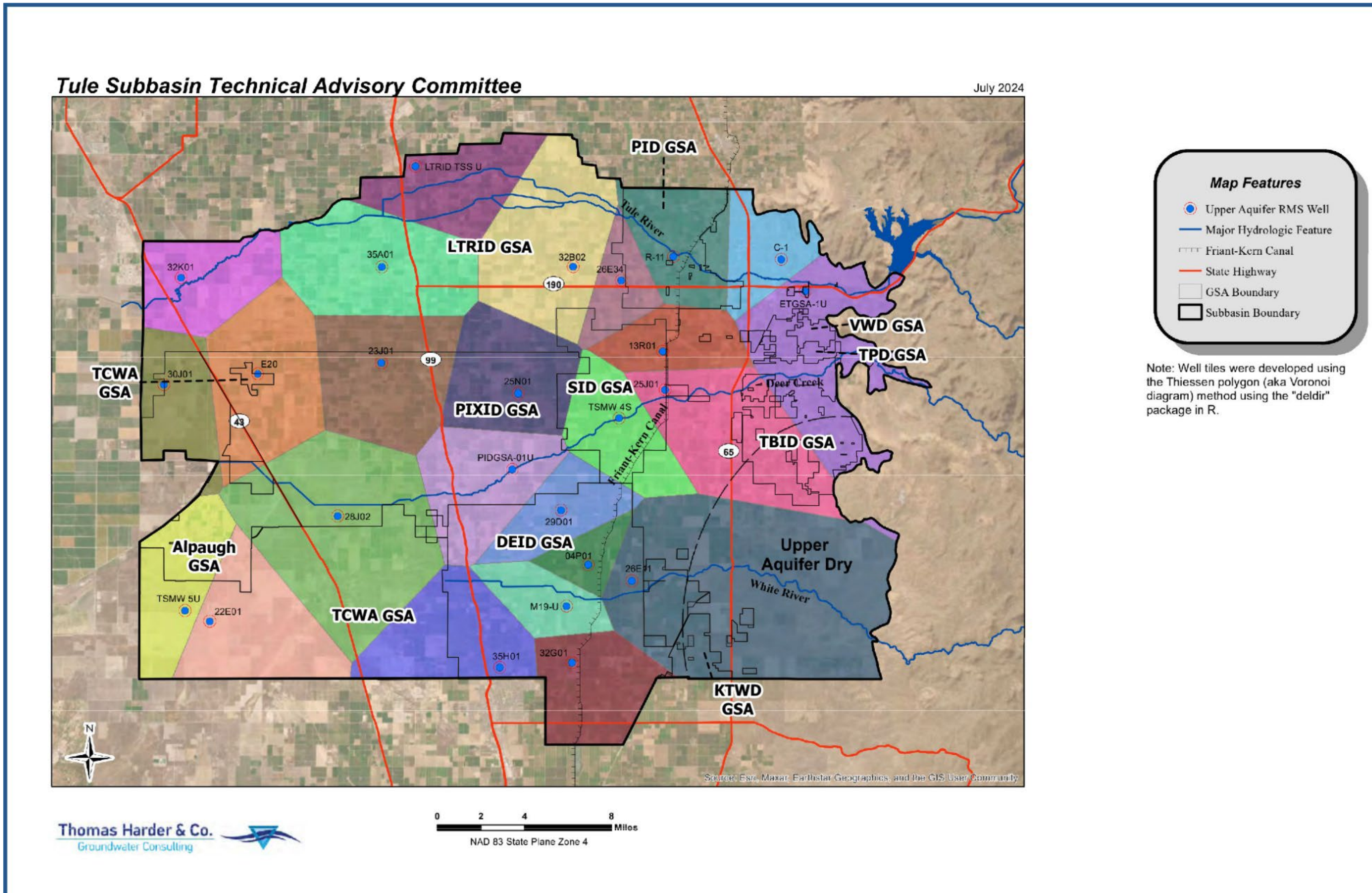

Figure 4-2. Upper Aquifer Groundwater Level RMS Well Tiles

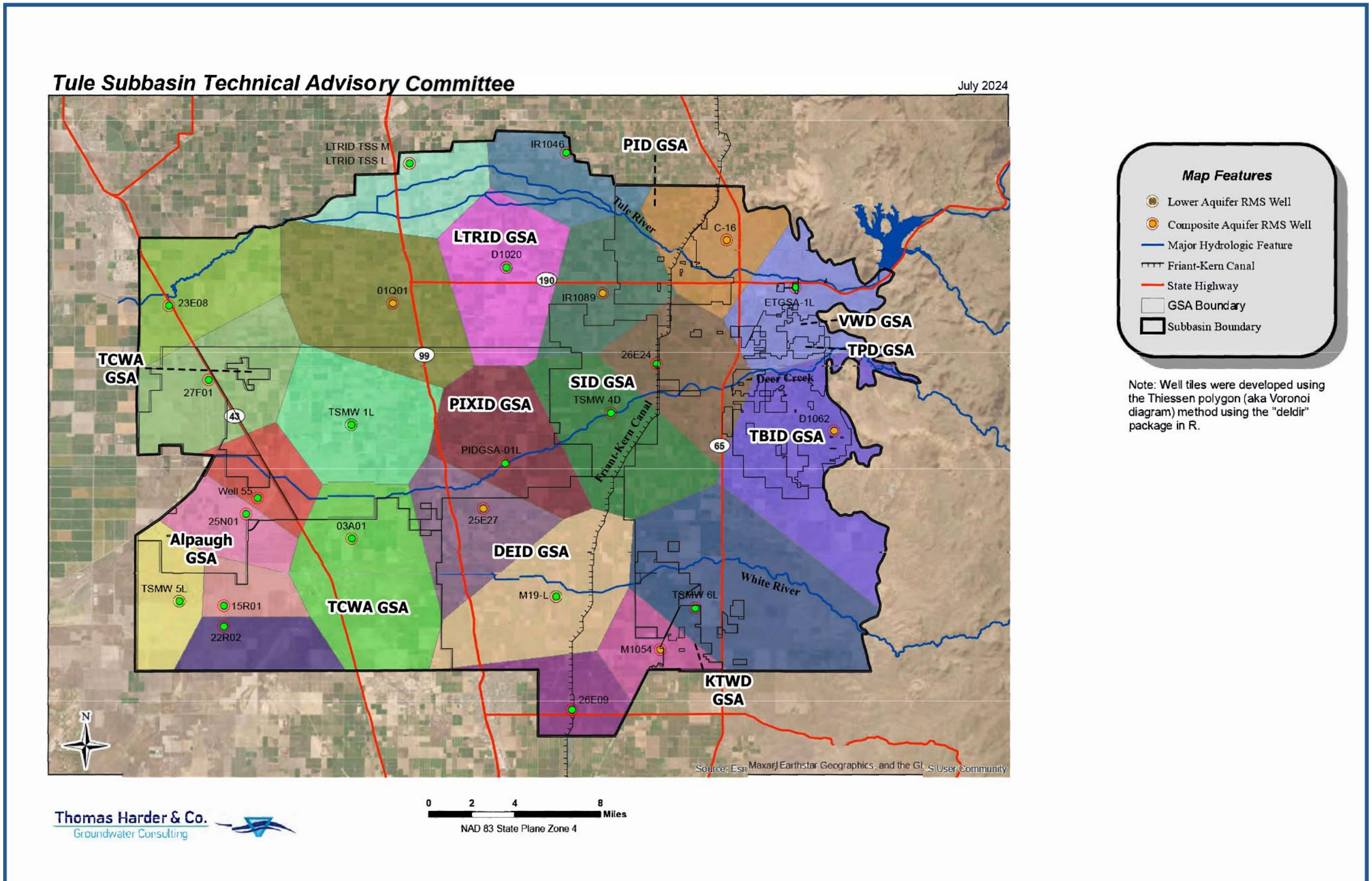

Figure 4-3. Lower Aquifer Groundwater Level RMS Well Tiles

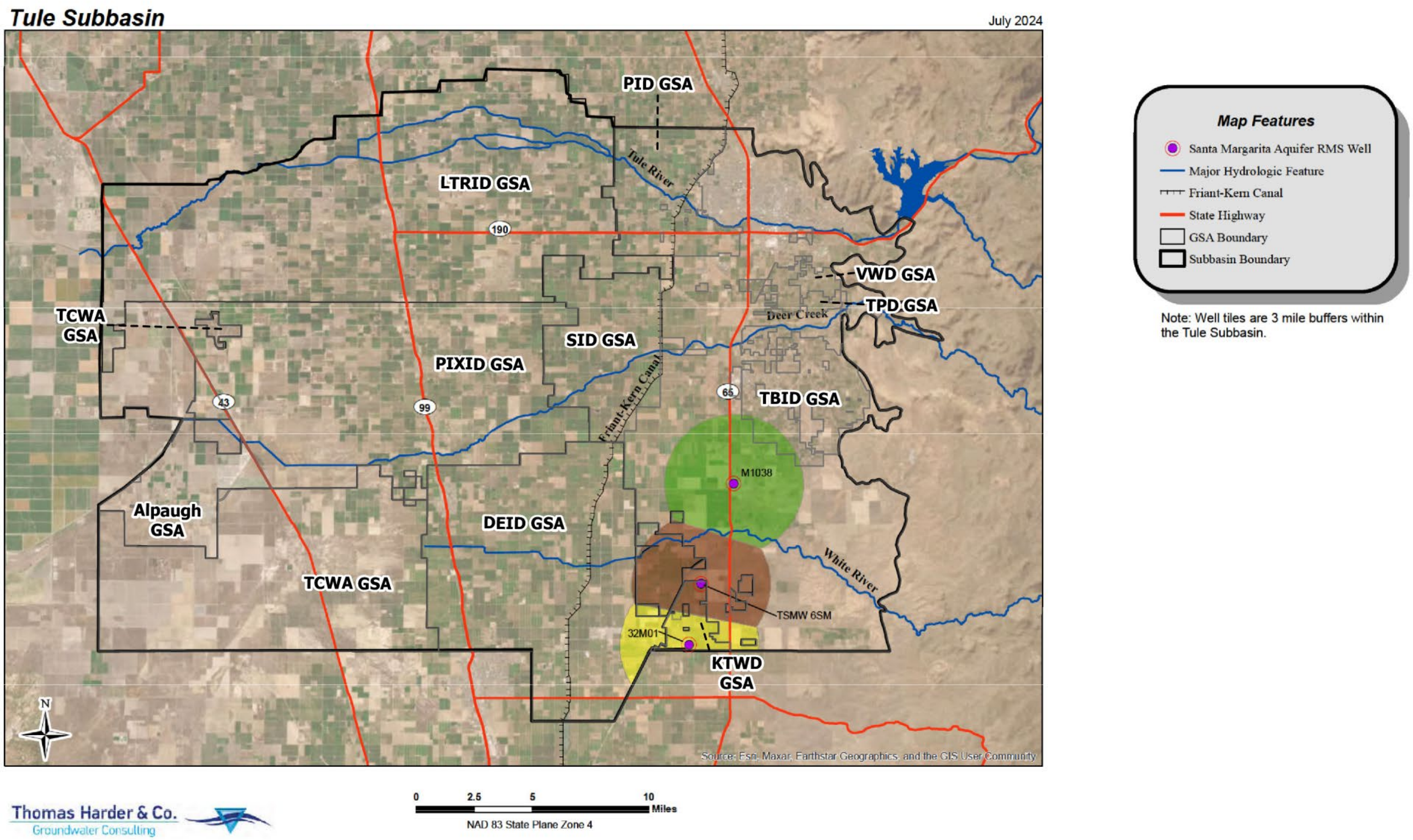

Figure 4-4. Santa Margarita Aquifer Groundwater Level RMS Well Tiles

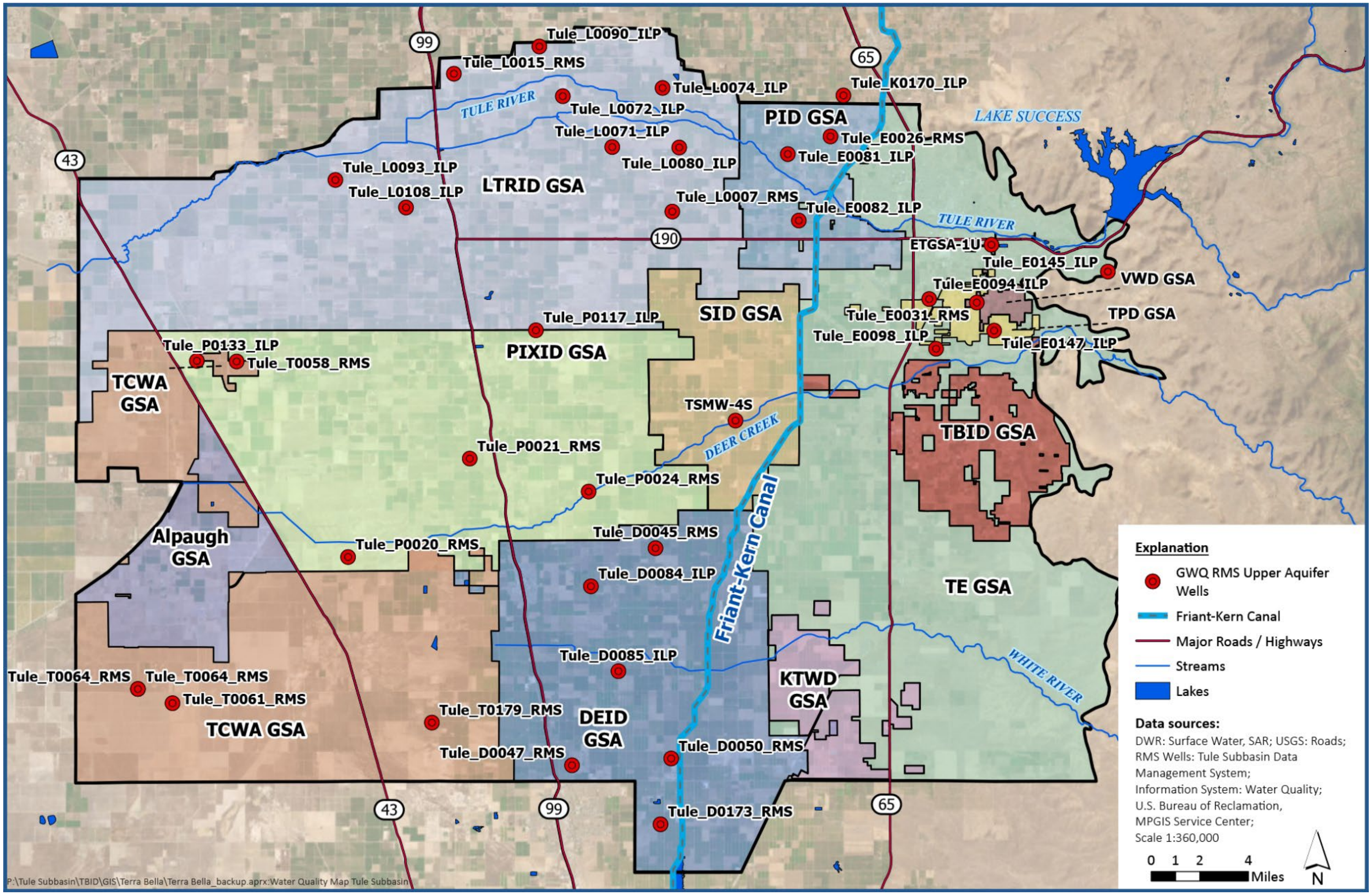

Figure 4-5. Groundwater Quality RMS Upper Aquifer Wells

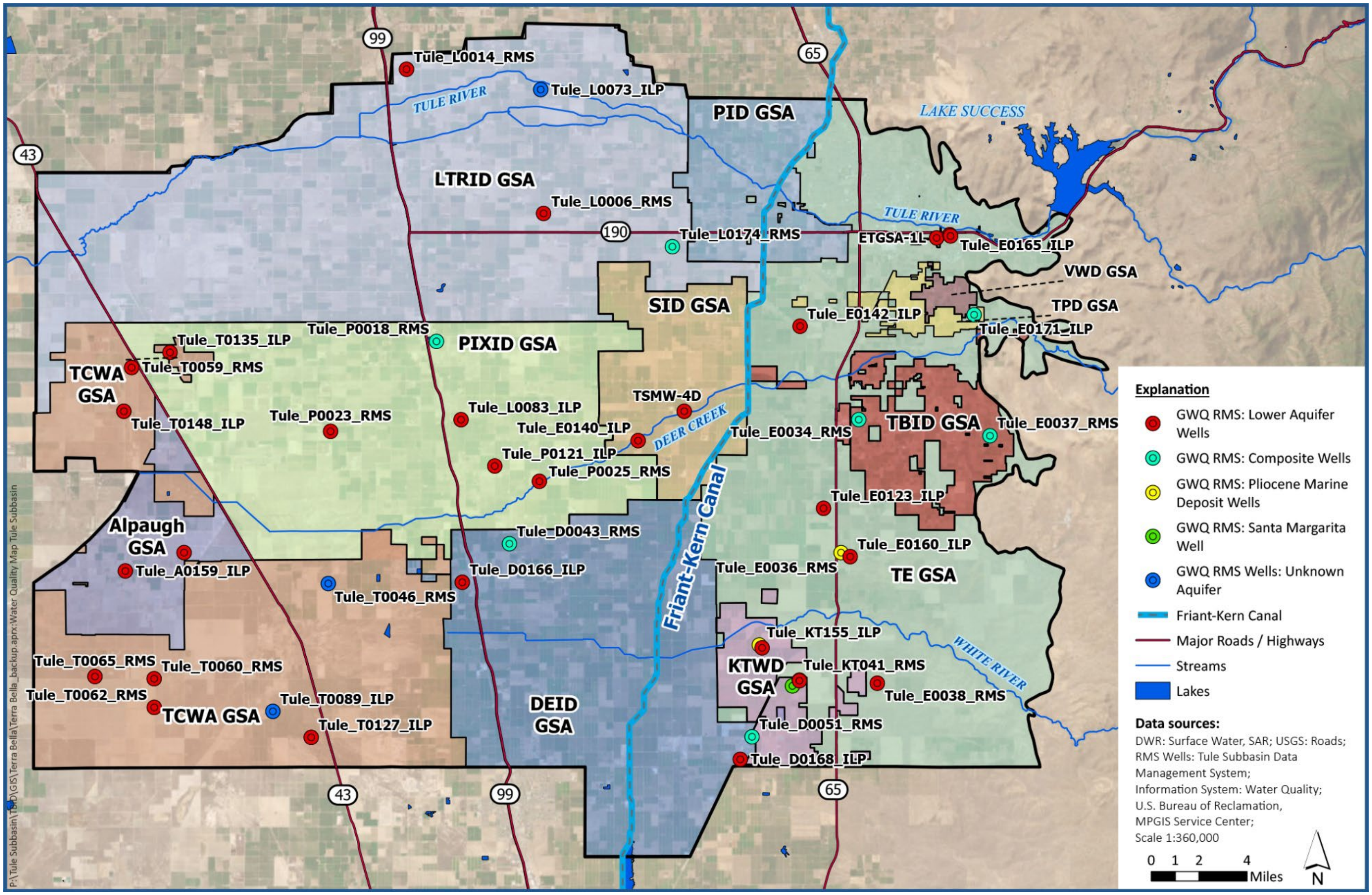

Figure 4-6. Groundwater Quality RMS Lower Aquifer Wells

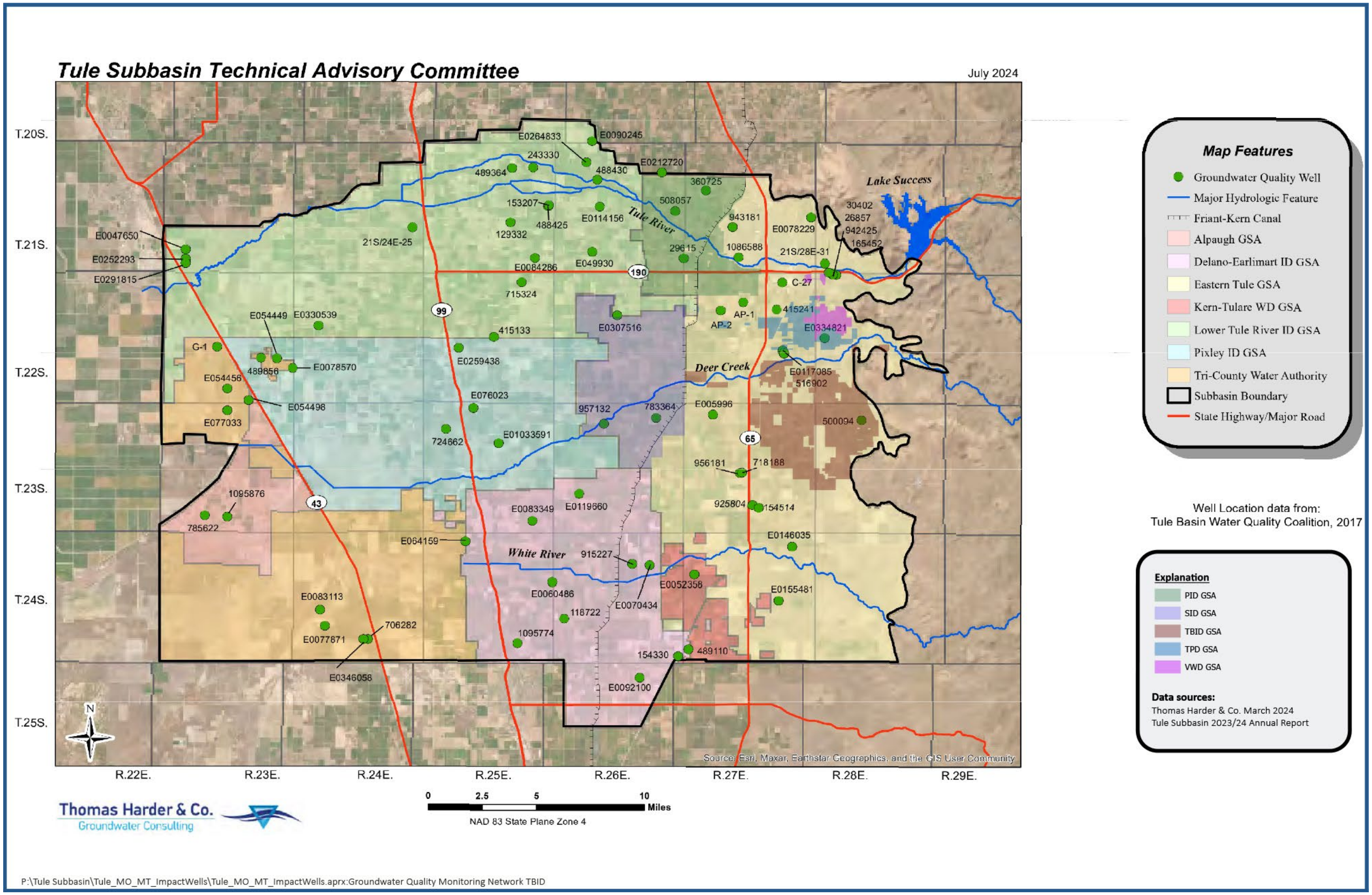

Figure 4-7. Groundwater Monitoring Network

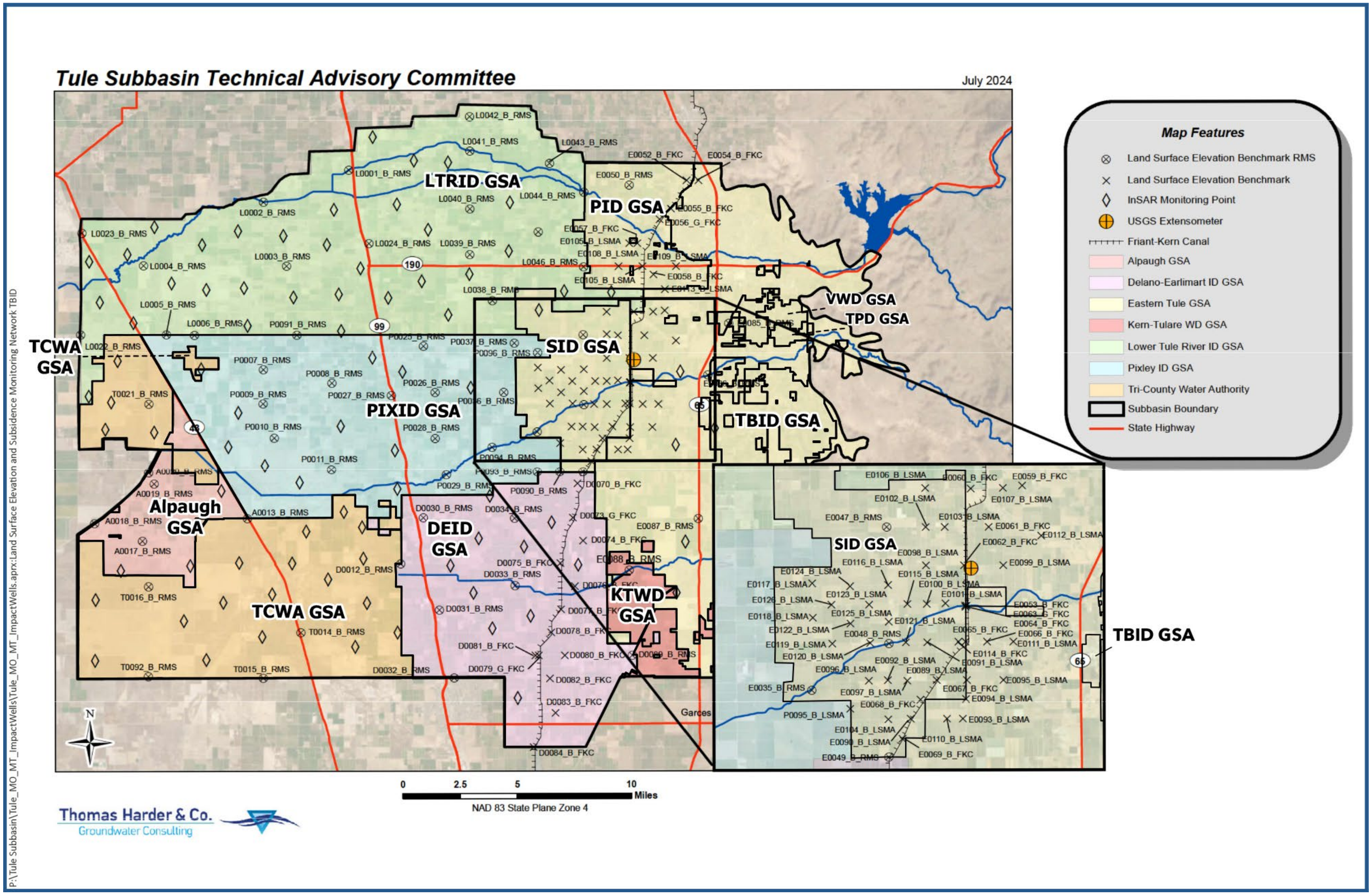

Figure 4-8. Land Surface Elevation and Subsidence Monitoring Network

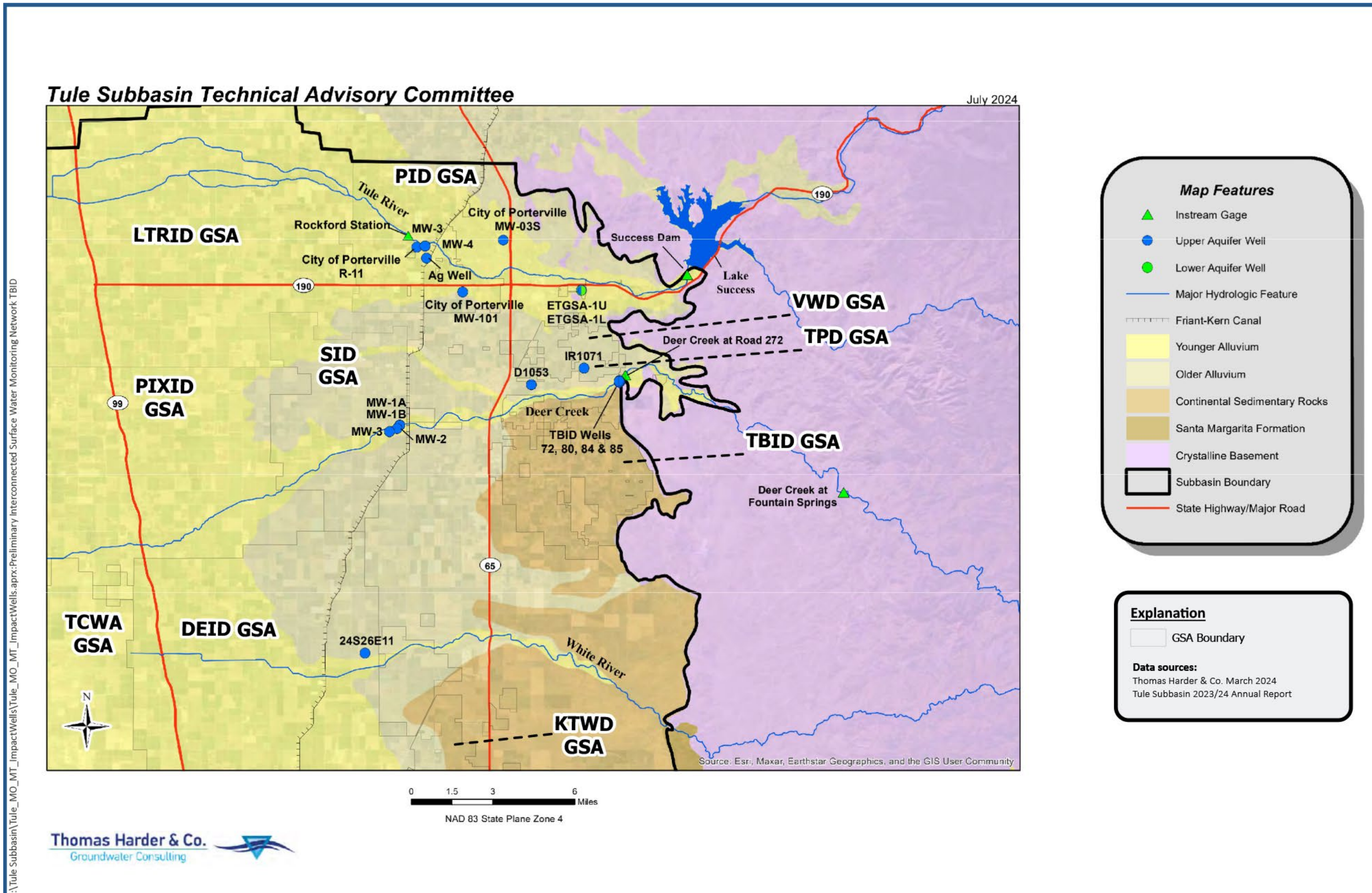

Figure 4-9. Preliminary Interconnected Surface Water Monitoring Network

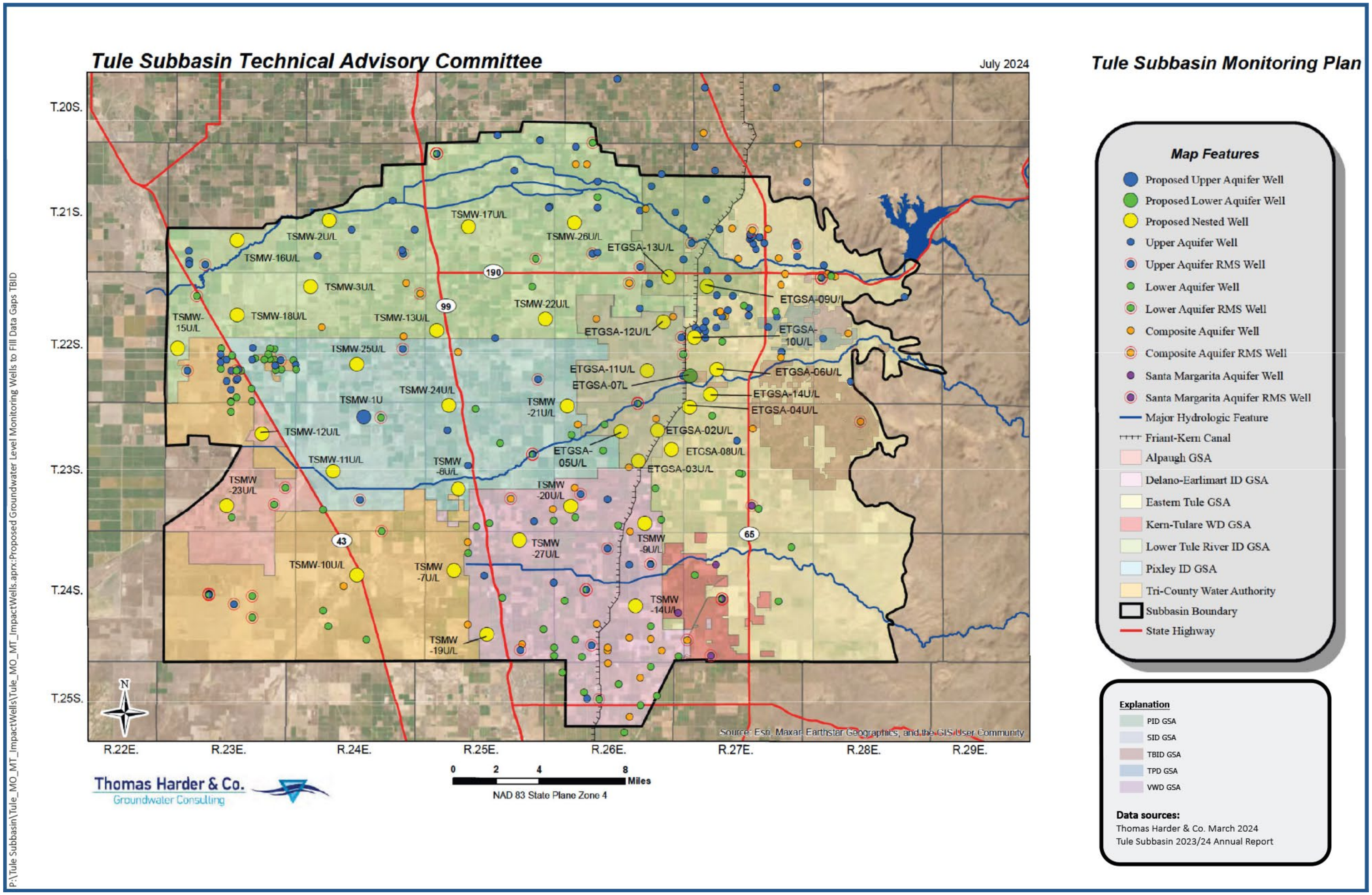

Figure 4-10a. Proposed Tule Subbasin Groundwater Level Monitoring Wells to Fill Data Gaps

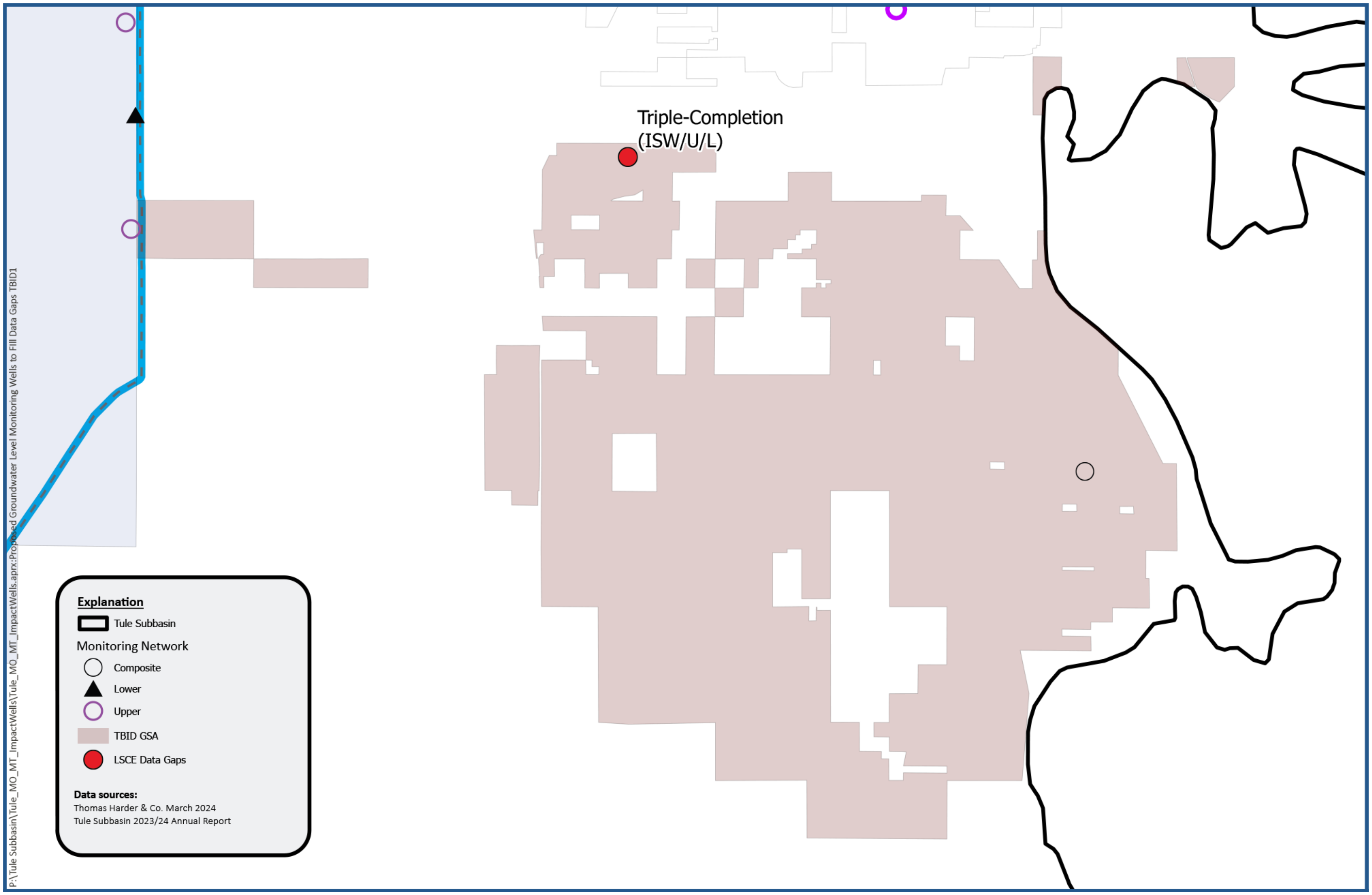

Figure 4-10b. Proposed TBID Groundwater Level Monitoring Wells to Fill Data Gaps

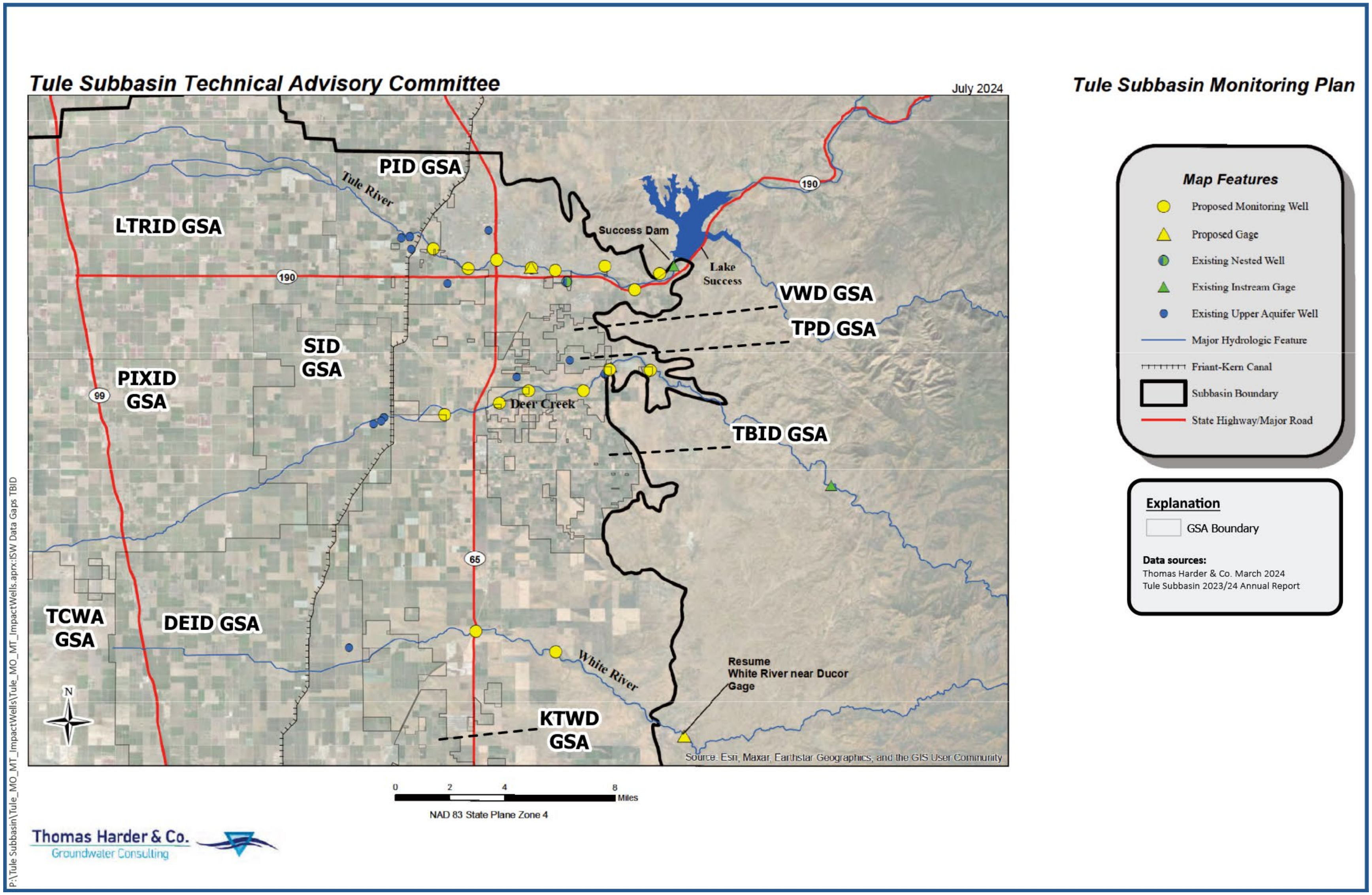

Figure 4-11. Proposed Monitoring Wells and Gages for Interconnected Surface Water Monitoring Network Data Gaps