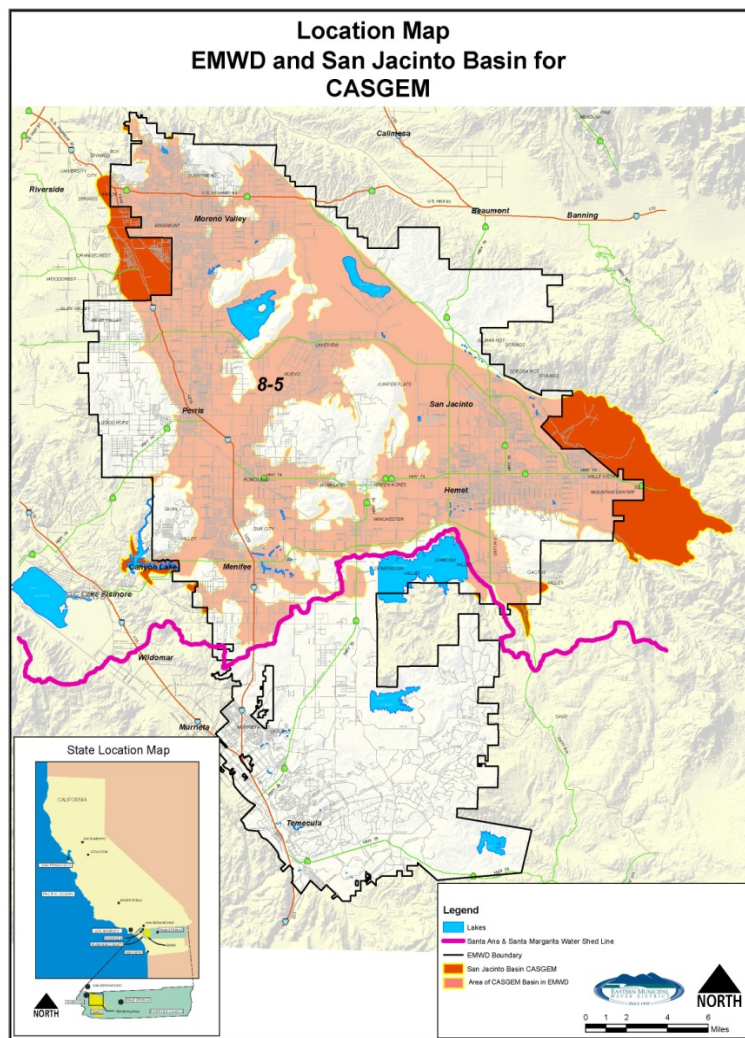


Water Level Monitoring Plan for the San Jacinto Groundwater Basin for Submittal to California State Department of Water Resources Under the California Statewide Groundwater Elevation (CASGEM) Program December 2011



UMBRELLA MONITORING ENTITY

Eastern Municipal Water District

COOPERATING AGENCIES

Eastern Municipal Water District
Lake Hemet Municipal Water District
City of Hemet
City of San Jacinto
City of Perris
Nuevo Water Company
Box Springs Mutual Water Company
California Department of Fish and Game

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Executive Summary

This Monitoring Plan (Plan) has been prepared to satisfy the requirements of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program. CASGEM was developed by the Department of Water Resources (DWR) in response to the passing of Senate Bill Number SBx7-6 in November 2009. The law directs that groundwater elevations in all basins and subbasins in California be regularly and systematically monitored, preferably by local entities, with the goal of demonstrating seasonal and long-term trends in groundwater elevations. DWR is directed to make the resulting information readily and widely available to the public. The CASGEM program will establish a permanent, locally-managed system to monitor groundwater elevation in California's alluvial groundwater basins and subbasins identified in California's Groundwater Bulletin 118. The CASGEM program will rely and build on the many, established local long-term groundwater monitoring and management programs. Through the CASGEM program, local monitoring parties with appropriate authority may notify DWR of their intent to be a Monitoring Entity. A Monitoring Entity is a local agency or group that voluntarily takes responsibility for conducting or coordinating groundwater level monitoring and reporting for all or part of a groundwater basin. The Eastern Municipal Water District is acting as the Umbrella Monitoring Entity for the entire San Jacinto Groundwater Basin and will be collecting and reporting groundwater elevation data from cooperating agencies to DWR for the San Jacinto Groundwater Basin.

This Plan presents the groundwater level monitoring plan for the San Jacinto Groundwater Basin, however it is not a basin management plan. This Plan contains a general description of the San Jacinto Groundwater Basin along with the number of wells being monitored and maps of the spatial distribution of the wells. The techniques and instruments used to collect water level data are described in this document along with how reference points and ground surface elevations are determined.

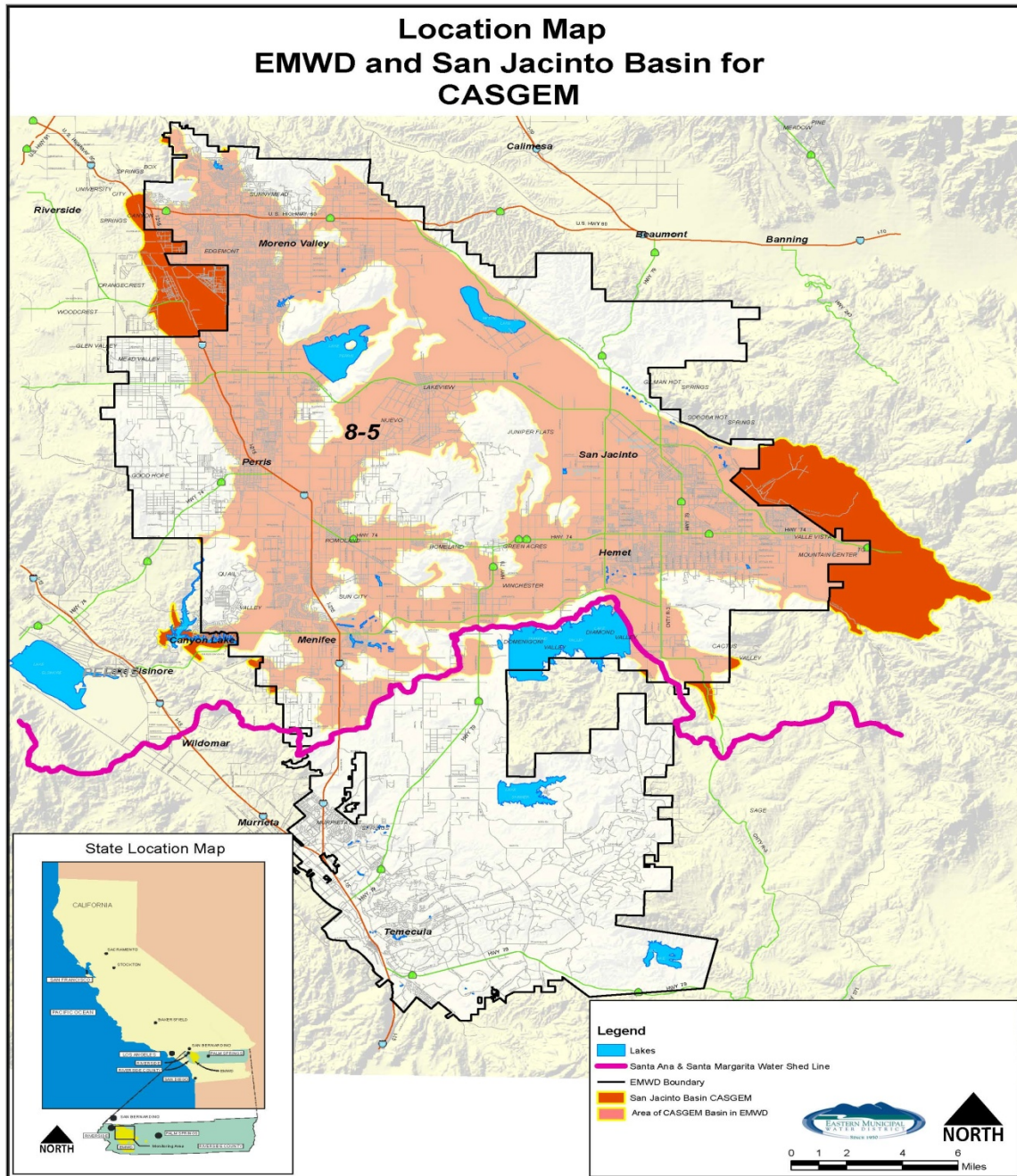
Water level monitoring of the San Jacinto Groundwater Basin is performed to determine the seasonal fluctuation of groundwater and to track trends in groundwater levels. The data obtained is used for the purpose of land use planning and to assist with monitoring groundwater conservation efforts in over-drafted areas. To meet these objectives, water levels are measured by EMWD staff twice per year. Water levels are measured by cooperating agencies monthly and reported to EMWD.

This Water Level Monitoring Plan is subject to change as the monitoring network changes. Revisions will be submitted to DWR when additions or removal of wells from the monitoring network occurs.

1.0 Introduction

The Eastern Municipal Water District (EMWD) encompasses an area of 555 square miles in western Riverside County and overlies the cities of Moreno Valley, Perris, Menifee, Murrieta, Temecula, Hemet and San Jacinto, as well as other unincorporated areas. A vast majority of the San Jacinto Groundwater Basin (8-5) as defined in California's Groundwater Bulletin 118 lies with EMWD's boundary (See Figure 1).

Figure 1. Map of Eastern Municipal Water District and San Jacinto Groundwater Basin Boundaries



1.1 Plan Organization

This Plan is meant to be a guide in implementing groundwater monitoring within the San Jacinto Groundwater Basin and is organized into the following sections:

- Section 1.0 describes the general locale of the San Jacinto Groundwater Basin along with the basis and rationale of the overall monitoring plan as well as cooperating agencies and their respective roles.
- Section 2.0 provides an overview of the San Jacinto Groundwater Basin **geology** and briefly describes the **hydrogeologic conditions**.
- Section 3.0 describes the **monitoring network** including factors that affect groundwater levels.
- Section 4.0 discusses the water level monitoring **data collection methods** for measurements, and any equipment calibration/standardization if required. It also describes how the water level data is managed and stored, as well as reporting requirements for the CASGEM program.
- Section 5.0 lists **cited references**.
- Appendix A lists all wells used for water level monitoring along with selected attribute information for each well.
- Appendix B shows an example of a general well data form (DWR Form 429).
- Appendix C shows an example of a groundwater level data form for manual measurements (DWR Form 1213).
- Appendix D shows an example of a groundwater level data form for vented or non-vented pressure transducer with data logger.

1.2 Scope and Purpose

The purpose of this Plan is to provide a detailed description of the strategies and activities of the groundwater level monitoring program to satisfy the CASGEM program requirements. The basic components of a CASGEM plan are:

- A discussion of the well network.
- Identify the wells in the monitoring network including maps of the wells.
- Discussion of the monitoring schedule.
- Description of the field methods used to collect water level data.
- Discussion of the roles of cooperating agencies, if applicable.
- Description of the monitoring plan rationale.

1.3 Monitoring Objectives

The San Jacinto Groundwater Basin provides water for domestic, industrial, municipal, and agricultural uses. Some estimates place groundwater as providing approximately forty percent of total water use in the basin, while some of the more remote areas in the basin are completely reliant upon groundwater as their sole source of water. The objectives of collecting water level data for EMWD, and other water agencies, are to track trends in water level change for policy making decisions and also to monitor water production, conservation, and recharge.

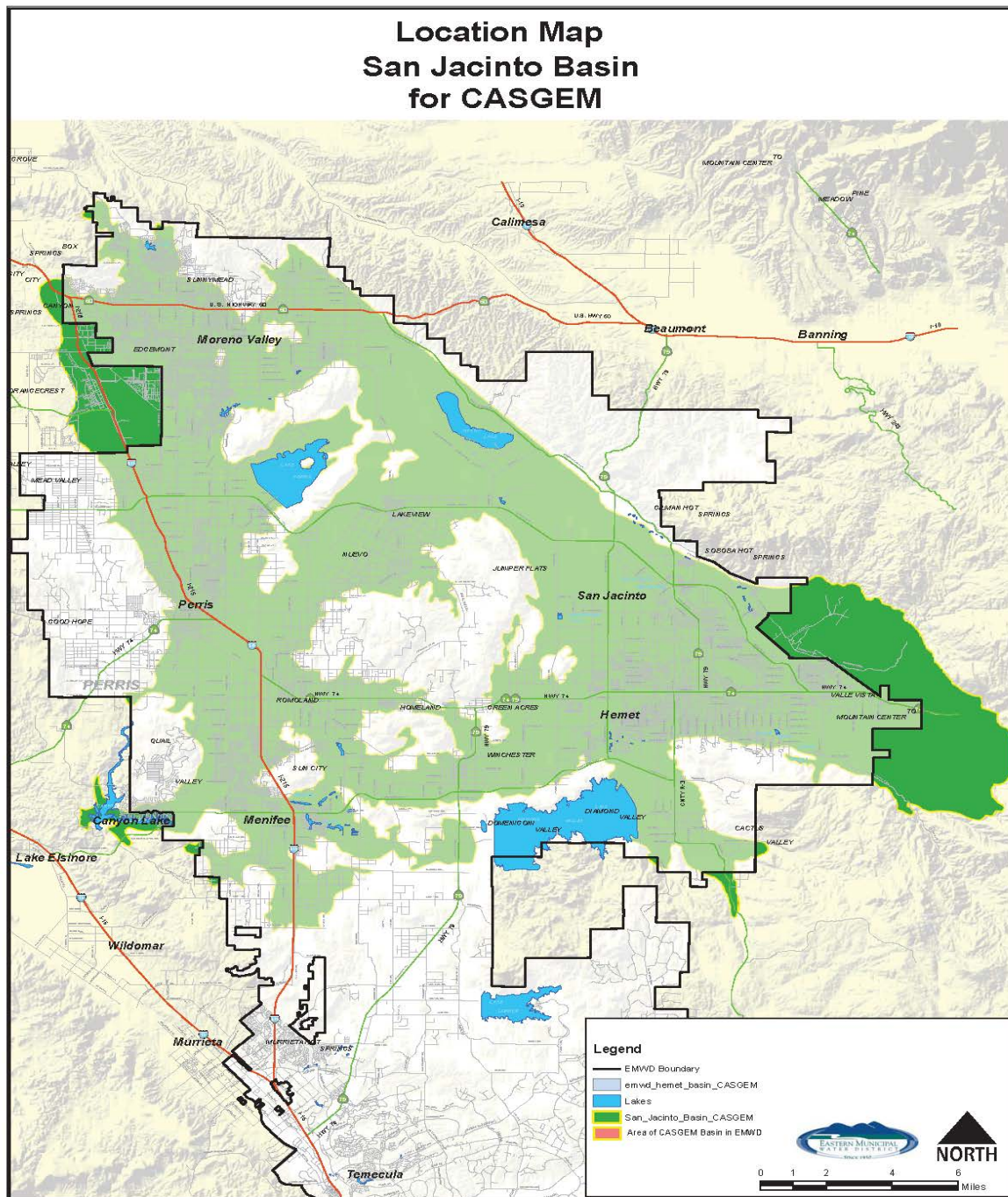
1.4 Cooperating Agencies and Respective Roles

Cooperating agencies within San Jacinto Groundwater Basin include, but are not limited to: EMWD, Lake Hemet Municipal Water District, City of Hemet, City of San Jacinto, City of Perris, Nuevo Water Company, Box Springs Mutual Water Company, and California Department of Fish and Game. The roles of these cooperating agencies are to: allow EMWD access to their wells for monitoring purposes, or to monitor their wells and report the results to EMWD.

2.0 San Jacinto Groundwater Basin Hydrogeology

This section provides a brief description of the geologic and hydrogeologic setting for the San Jacinto Groundwater Basin as described in California's Groundwater Bulletin 118 (See Figure 2). The geology and hydrology of the San Jacinto Groundwater Basin has been reported in numerous available studies and thesis, and therefore, are not gone into detail in this Plan.

Figure 2. Map of the San Jacinto Groundwater Basin Boundary



2.1 Basin Boundaries and Hydrology

The San Jacinto Groundwater Basin underlies San Jacinto, Perris, Moreno, and Menifee Valleys in western Riverside County and encompasses 293 square miles. This basin is bounded by the San Jacinto Mountains on the east, the San Timoteo Badlands on the northeast, the Box Mountains on the north, the Santa Rosa Hills and Bell Mountain on the south, and unnamed hills on the west. Lake Perris is located in the eastern part of Perris Valley. The valleys are drained by the San Jacinto River and its tributaries. Average annual precipitation ranges from 10 to 18 inches.

2.2 Hydrogeologic Information

2.2.1 Water Bearing Formations

The San Jacinto Groundwater Basin contains sediments that have filled faulted and fractured valleys and canyons incised into crystalline basement rock. The municipal aquifer is comprised of younger and older alluvium (TechLink 2002). Maximum depths of valley fill reach about 900 feet in the western and northern parts of the basin, but may exceed 5,000 feet in the eastern part of the basin between the Casa Loma and Claremont faults (TechLink 2002). Unconfined to confined groundwater conditions are found in the eastern part of the basin between the Casa Loma and Claremont fault (DWR 1959; TechLink 2002). Wells in this basin produce 200 to 2,600 gpm.

2.2.2 Younger Alluvium

The younger alluvium in the southeastern part of the basin is generally coarse and permeable with specific yield estimated to range from about 12 to 15 percent (TechLink 2002). In other parts of the basin, specific yield is estimated at about 5 to 10 percent.

2.2.3 Older Alluvium

The older alluvium may correlate to sediments of Pleistocene age that are exposed in the San Timoteo Badlands and underlies the San Jacinto River near the confluence of Bautista Creek (DWR 1959). These sediments generally contain more fine material and are believed to have lower specific yield and transmissivity values than the younger alluvium.

2.2.4 Restrictive Structures

The San Jacinto fault zone cuts through the eastern part of the basin and is composed of five northwest trending segments: the San Jacinto, Claremont, Hot Springs, Park Hill, and Casa Loma faults (DWR 1978). These active faults vary from impermeable to semi-permeable barriers to groundwater movement (DWR 1959; TechLink 2002).

2.2.5 Recharge Areas

Natural recharge to the basin is primarily from percolation of flow in the San Jacinto River and its tributary streams; less recharge is from infiltration of rainfall on the valley floor. The primary recharge area for the confined aquifers is found where the San Jacinto River and Bautista Creek enter the San Jacinto Valley (DWR 1959). Natural recharge is augmented by spreading of State Water Project (SWP) and reclaimed water through infiltration ponds in the upper reaches of the San Jacinto River (EMWD 2002; TechLink 2002). Percolation of water stored in Lake Perris has been an additional source of recharge since construction of the lake in the 1970s, and incidental recharge occurs at several reclaimed water storage ponds distributed throughout the valley. Artificial percolation can exceed natural recharge, particularly in years with low precipitation (EMWD 2003).

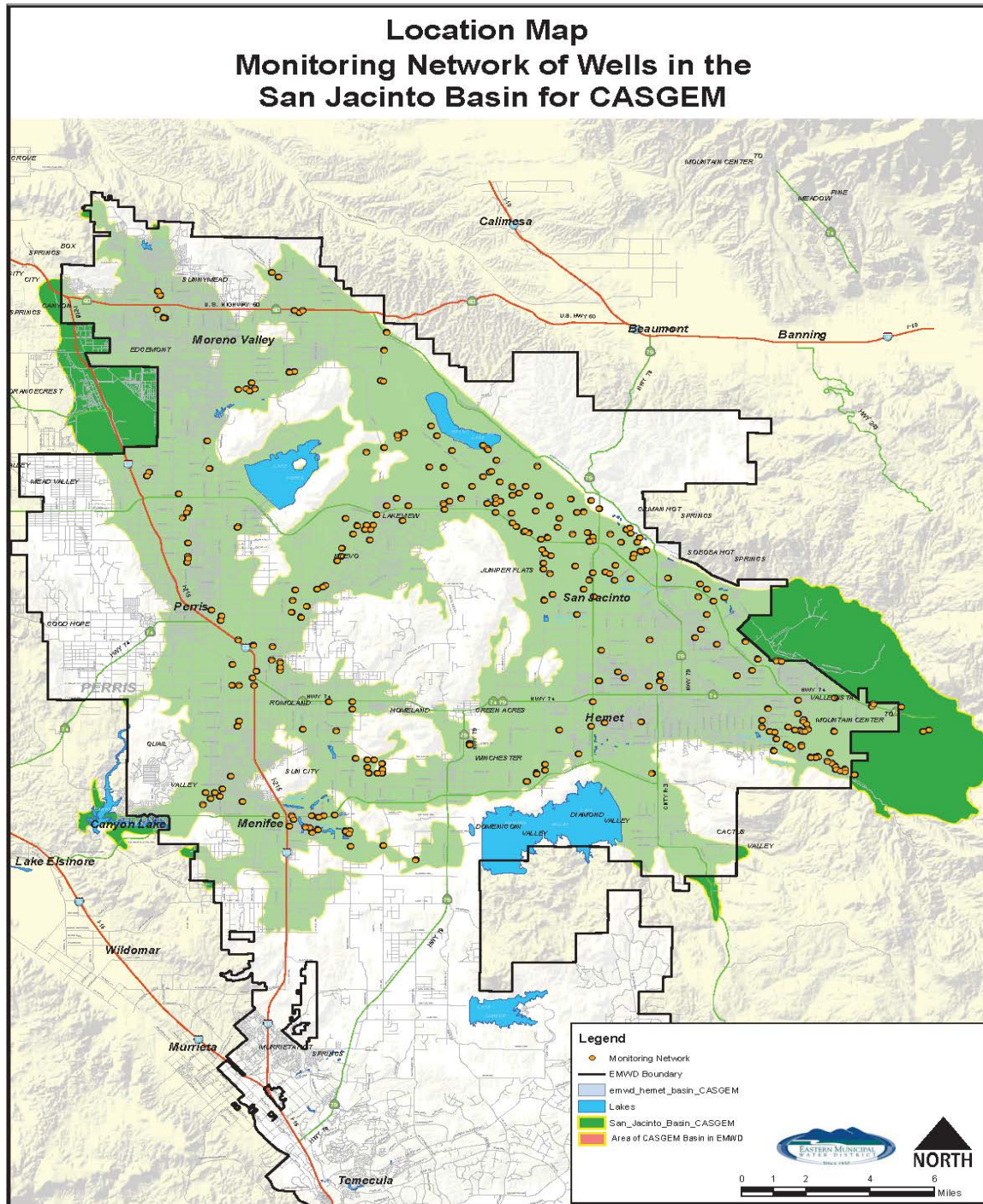
2.3 Groundwater Level Trends

Prior to the extraction of groundwater from the basin, groundwater flow was generally toward the course of the San Jacinto River trending to the southwest (Techlink 2002). High extraction rates have produced groundwater depressions and locally reversed the historical flow pattern (TechLink 2002). During the 1960s, groundwater levels in the western and central parts of the basin declined; whereas, in the south-central part of the basin, they were moderately stable (DWR 1978). During the 1970s through the 1990s, groundwater levels declined about 20 to 40 feet in the northern and southeastern parts of the basin and were relatively stable in the southern part of the basin. During the 1970s through the 1980s, groundwater levels rose 80 to 200 feet in the western part of the basin because of infiltration from Lake Perris (Techlink 2002). During 2001 and 2002, groundwater levels generally rose in the central part of the basin and declined in the northeastern and southern parts of the basin (EMWD 2002; 2003).

3.0 Groundwater Level Monitoring in the San Jacinto Groundwater Basin

The following subsections discuss the water level monitoring efforts in the San Jacinto Groundwater Basin including historical background and current wells being monitored by participating agencies. Currently, there are approximately 312 wells in the Monitoring Network (see Figure 3 and Appendix A).

Figure 3. Map of Monitoring Network of Wells in the San Jacinto Groundwater Basin



3.1 Monitoring History

EMWD as well as other cooperating agencies have a long history of measuring groundwater levels throughout the San Jacinto Groundwater Basin. Water level records go back to the early 1900's, but can be very sparse in certain areas. The most comprehensive records begin in the early 1990's. Wells added to the network have always been on a voluntary basis with the permission of the owner. As such, the monitoring network has had additions and deletions over time as ownership has changed hands and the new owners have opted out of the program, or when older wells have been destroyed or have become otherwise un-measurable.

3.2 Current Monitoring

Groundwater level monitoring in the San Jacinto Groundwater Basin is currently being performed under the auspices of two groundwater management plans: the West San Jacinto Basin Groundwater Management Plan (WSJBGMP) and the Hemet/San Jacinto Water Management Plan (HSJWMP).

In the western half of the San Jacinto Groundwater Basin, EMWD adopted the WSJBGMP in June 1995 in accordance with Assembly Bill 3030 (AB3030) enacted in 1992, which is now codified in the California Water Code Sections 10750 through 10755.

In the eastern half of the San Jacinto Groundwater Basin, EMWD and other cooperating agencies are working cooperatively toward a Stipulated Judgment that would enact the HSJWMP and form a Watermaster to satisfy the requirements of the previously ratified Soboba Band of Luiseño Indians Water Settlement Agreement. By a Memorandum of Understanding between the cooperating agencies, EMWD is acting in the capacity of the Watermaster until the Stipulated Judgment is ratified in court.

The vast majority of groundwater level monitoring is performed by EMWD. Other municipal water agencies allow EMWD access to their wells for monitoring purposes, or monitor their own wells and report them to EMWD. The frequency of water level measurements varies based on the needs of the monitoring agency, but at a minimum wells are monitored twice per year in the spring and fall to capture the seasonal high and low water level. The wells that will be reported for the CASGEM program are a mixture of production wells and monitoring wells.

3.3 Data Gaps

A data gap refers to an area that lacks the density of monitoring wells that would allow seasonal and long-term trends in groundwater elevations to be determined for the basin, subbasin, or a portion thereof. Data gaps may exist for a variety of reasons, including a lack of suitable monitoring wells, lack of groundwater use, access issues, and jurisdictional issues, among others. DWR may make recommendations for the location of additional wells. However, DWR has no authority to require a Monitoring Entity to install additional wells unless funds are provided for that purpose.

There are currently no plans or funding to install dedicated monitoring wells in the areas where there are no wells monitored or where data gaps exist. EMWD would be interested in discussing the installation of dedicated monitoring wells in areas where data gaps exist should outside funding become available.

4.0 Monitoring Procedures

The procedures and instructions for the use of water level measurement instruments may vary slightly between monitoring agencies, but the basic scientific methods are the same.

4.1 New Wells

A new well may be added to the network to fill data gaps and to replace destroyed wells or wells that have otherwise become un-measurable. New wells are chosen based upon their location, depth, and screened interval. A replacement well should be close enough to and screened in the same zone such that data continuity is maintained for that area. This is especially important in confined basins with multiple aquifers. An agreement with the property owner shall be obtained for entry to the well site and to gather contact information for measurement scheduling purposes.

4.2 Establishment of Reference Point

Wells are surveyed using high precision GPS to obtain good control data. Reference Points (RP) are flush with the top of the well casing or sounding tube. All water level measurements are made from this RP. RP elevations are listed in the table in Appendix A.

4.3 Measurement Methods

All level measurements are intended to reflect static (non-pumping) groundwater conditions. The following procedures are taken in order to ensure static groundwater conditions.

Prior to taking a measurement:

- Determine if any other pumping is taking place in the area that may influence the static water level of the well.
- Confirm the status of the well. The well should have been in static (non-operational) mode for at least 12 hours, preferably 24 hours.

4.3.1 Electric Sounding Tape Method

This type of water level meter uses a battery and a small diameter probe on a narrow Z-wire cable. An electrical circuit is completed when the probe comes in contact with the water, sending a signal back to the reel where a light and alarm are activated. The water level is determined by reading the nearest mark on the cable at the reference point.

Prior to use:

- Check that the tape is clean, free of kinks, cuts, and knots.
- Clean the tape to ensure it is free of dirt and grime and that the markings are readable.
- Check the charge on the batteries and replace as necessary.
- Test the probe in a cup of tap water to ensure it is functioning properly.
- Take an extra set of batteries into the field as backup.

Taking a measurement:

- Check the previous reading on the fieldsheet to get an estimate of where the water level in the well may be. Look at previous measurements from the same season to get a better estimate of where the water level may be.
- Lower the tape into the well casing at the reference point. The tape should not be allowed to rub over the edge of the casing to avoid wear on the tape. While lowering the tape, ensure that the tape does not become hung up on the side of the casing or any obstructions in the well by monitoring the weight, or tension, of the hanging tape as it is lowered into the well. If the tape becomes hung up a change in this weight will occur.
- The water surface is reached when the circuit is closed and the indicator light and alarm on the instrument are activated. Hold the tape at the nearest tenth mark at the RP with the nail of your index finger then raise the probe a couple of feet to open the circuit. Lower the probe until the circuit closes to check the accuracy of the reading. Mark the reading on the fieldsheet.
- Reel in the tape taking care not to allow the tape to rub across the casing edge. Rinse and dry the bottom portion of the tape to prevent cross contamination between wells.
- Before storing the tape at the end of the water level run remove the batteries from the instrument.

4.3.2 Pressure Transducer Method

In addition to regular monitoring of water levels by electric sounding tape, EMWD monitors groundwater elevations in selected key monitoring wells in the San Jacinto Groundwater Basin using pressure transducers with internal data loggers (transducers). Transducers are deployed in key monitoring wells for the frequent and regular recording of groundwater elevations in wells where semi-annual hand measurements do not adequately document the variability of water levels in the well.

EMWD's transducers are suspended by a direct-read cable allowing the download of records from the device without removing it from the well. The cables are designed such that they do not stretch under the weight of the transducer. Special well caps are used on most installations that hang the cables in a secure manner and eliminate the potential for cable slip that can occur when the cable is secured by winding or knotting excess cable to a stationary object.

4.4 Data Handling and Reporting

After completion of all fieldwork, datasheets are collected and data is checked for any errors. The water level data are then entered into EMWD's Regional Water Resources Database (RWRD), an Oracle platform database.

As per the guidelines for the State's CASGEM program, the data will be uploaded electronically to the CASGEM website at a minimum twice per year (no later than Jan 1st and July 1st). The following is the standard information required to be uploaded for each measurement point. The guidelines are from the *CASGEM Procedures for Monitoring Entity Reporting*.

Each groundwater level data measurement submitted to the online system should include:

- Submitting agency ID
- Well name
- State well number

- Measurement date
- Reference point and ground surface elevation
- Depth to water
- Measurement method and accuracy
- Qualifying codes and (or) comments about the measurement

The entity information, well information, and groundwater level information will be provided by the Monitoring Entity. Items labeled as required shall be submitted to DWR to accurately record and report groundwater elevations. Items labeled as recommended should be submitted to DWR if they are available, as they assist in fully evaluating the quality of measurements. Items labeled as optional should be submitted if certain conditions related to the measurement apply. DWR will provide standard form(s) for Monitoring Entities to submit groundwater elevation data online. However, if Monitoring Entities cannot use the standard form(s) or provide the data elements listed below, DWR will work cooperatively with Monitoring Entities to develop alternate methods of submitting data.

4.4.1 Entity Information

All entities assuming groundwater monitoring functions as delineated in Section 10927 (a)-(f), shall submit the following information:

- **Required:** Monitoring Entity's name, address, telephone number, contact person name and email address and any other relevant contact information (Section 10928 (a) (1), 10928 (b) (1))
- **Required:** Name, address, telephone number, email address and any other relevant contact information for entities collecting data that is submitted by a designated submitting entity (Monitoring Entity)
- **Required:** Groundwater basins being monitored
 - Identify entire basins monitored
 - Identify partial basins monitored

4.4.2 Well Information

We request that each submitting agency submit the following information for each well in the groundwater monitoring network (see Appendix B).

- **Required:** Unique local well designation or identification name, using the following protocol:
 - Agency name, abbreviation, or acronym followed by a sequential number (EMWD25342)
 - Groundwater basin – followed by a sequential number (Llagas 03)
 - Geographic name – followed by a sequential number (Yolo 12)
 - Well names should be 15 characters long or less
 - Avoid using owner/business names or specific locational information for privacy and security
- **Recommended:** State Well Number – assigned by DWR in most cases
- **Required:** Decimal latitude/longitude coordinates of well using horizontal datum NAD83, method of determining coordinates, and accuracy to which locations were determined
- **Required:** Groundwater basin or sub-basin

- **Required:** Reference point elevation of the well, feet using NAVD88 vertical datum
- **Required:** Elevation of land surface datum at the well, feet using NAVD88 vertical datum
- **Recommended:** Method by which land surface elevation was determined
- **Recommended:** Accuracy of land surface datum measurement, in feet
- **Required:** Use of well (e.g., dedicated monitoring, irrigation, domestic, etc.)
- **Required:** Well completion type (e.g. single well, nested, or multi-completion wells)
- **Required (if available):** Depth of screened interval(s) and total depth of well
- **Recommended:** Written description of location of well, including distance from nearby landmarks and location of reference point in relation to well appurtenances (DWR Form 429)
- **Recommended:** Well Completion Report (DWR Form 188) or equivalent, which includes the following data
 - Lithologic log
 - Well construction log
 - Total depth of well
 - Screened interval(s) of well
 - Geophysical log (recommended)
- **NOTE:** Well Completion Reports will not be posted online. However the reports, which are made confidential by Water Code Section 13752, if voluntarily disclosed by a Monitoring Entity, become records that the Department may be required to disclose in response to a request for public records. Permission of the well owner should be obtained prior to submitting any well completion reports.
- **Optional:** Well information comments
- **Optional:** Record overwrites existing data (specifies that information is an update of record already in the database)

4.4.3 Groundwater Elevation Information

The following information shall be provided for each groundwater level measurement submitted by the Monitoring Entity (see Appendices C and D).

- **Required:** Unique local station ID (or Station ID) (see naming procedure in Well Info, above)
- **Required:** Measurement date
- **Optional:** Measurement time military time (PST)
- **Required:** Reference point elevation of the well, feet using NAVD88 vertical datum
- **Required:** Elevation of land surface datum at the well, feet using NAVD88 vertical datum
- **Required:** Depth to water below reference point, feet (unless no measurement was taken)
- **Required:** Method of measuring water depth
- **Required:** Accuracy of water depth measurement
- **Required/Optional:** No measurement code (required if depth to water is null; must be null if depth to water is not null)
- **Optional:** Questionable measurement code (must be null if depth to water is null)
- **Required:** Measuring agency identification (limited to agencies defined in Monitoring Entity Information, above)
- **Optional:** Comments about measurement
- **Optional:** Record overwrites existing data (specifies that info is an update of record already in the database)

All required and requested groundwater level data shall be submitted electronically to DWR's online system. As stated above, if Monitoring Entities cannot use the standard form(s) or provide the necessary groundwater elevation data elements, DWR will work cooperatively with Monitoring Entities to develop alternate methods of submitting data. The CASGEM online data submittal system will be compatible with the Water Data Library (WDL), DWR's existing groundwater level database, and will include data reporting options similar to those in WDL, such as hydrographs, seasonal contour data, and data downloads. The combined accessibility of WDL and CASGEM will be a significant resource for local agencies in making sound groundwater management decisions.

5.0 References

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Appendix A – List Of Monitoring Network Of Wells

CASGEM ID	Latitude	Longitude	Basin	RP Elevation (ft above MSL)	GS Elevation (ft above MSL)	Well Use	Completion Type	Cased Depth (ft below GS)	Perforated Depth (ft below GS)
EMWD10081	33.94803624	117.24436587	San Jacinto	1,658	1,654	Monitoring	Single	440	360-430
EMWD10091	33.91919323	117.12131012	San Jacinto	1,577	1,585	Monitoring	Single	1100	504-1080
EMWD10099	33.88135532	117.09538648	San Jacinto	1,425	1,427	Irrigation	Single	1035	735-1035
EMWD10100	33.87652955	117.09216687	San Jacinto	1,425	1,428	Irrigation	Single	640	
EMWD10106	33.86070048	117.08855161	San Jacinto	1,431	1,433	Irrigation	Single	1020	700-1000
EMWD10107	33.86911609	117.08386258	San Jacinto	1,423	1,428	Irrigation	Single	400	140-400
EMWD10110	33.87043838	117.06504135	San Jacinto	1,422	1,421	Monitoring	Single	720	350-720
EMWD10112	33.86968680	117.06440838	San Jacinto	1,421	1,421	Monitoring	Single	500	160-480
EMWD10119	33.86151602	117.03753499	San Jacinto	1,483	1,485	Monitoring	Single	960	460-950
EMWD10123	33.94598811	117.24309276	San Jacinto	1,652	1,653	Monitoring	Single	428	170-420
EMWD10140	33.90831559	117.16980788	San Jacinto	1,550	1,554	Irrigation	Single	490	270-470
EMWD10141	33.90793677	117.17236472	San Jacinto	1,544	1,546	Irrigation	Single	392	162-392
EMWD10154	33.89946803	117.19582120	San Jacinto	1,503	1,505	Irrigation	Single	450	175-450
EMWD10155	33.89912605	117.19996979	San Jacinto	1,493	1,510	Irrigation	Single	750	175-750
EMWD10194	33.81178157	117.01683173	San Jacinto	1,462	1,461	Monitoring	Single	824	377-814
EMWD10196	33.84540349	117.01958497	San Jacinto	1,473	1,471	Irrigation	Single	870	440-860
EMWD10201	33.84196942	117.03050474	San Jacinto	1,446	1,449	Monitoring	Single	702	352-702
EMWD10202	33.83548908	117.02572440	San Jacinto	1,447	1,448	Irrigation	Single	810	380-800
EMWD10205	33.84052395	117.00410319	San Jacinto	1,475	1,476	Irrigation	Single	900	45-205
EMWD10208	33.84453180	117.00844236	San Jacinto	1,459	1,461	Monitoring	Single	900	440-900
EMWD10213	33.83016696	116.98932743	San Jacinto	1,475	1,482	Domestic	Single	805	370-780
EMWD10215	33.82387121	116.99210556	San Jacinto	1,470	1,473	Irrigation	Single	790	200-790
EMWD10217	33.81780306	116.98521230	San Jacinto	1,485	1,488	Irrigation	Single	520	260-500
EMWD10220	33.82630318	117.00722653	San Jacinto	1,453	1,461	Irrigation	Single	580	300-530
EMWD10221	33.82839453	117.01037944	San Jacinto	1,453	1,454	Irrigation	Single	600	200-600
EMWD10229	33.83106847	117.02644893	San Jacinto	1,445	1,448	Irrigation	Single	850	420-840
EMWD10230	33.82592346	117.03184252	San Jacinto	1,458	1,462	Irrigation	Single	735	400-720
EMWD10233	33.81808861	117.03318127	San Jacinto	1,473	1,474	Irrigation	Single	603	260-560
EMWD10234	33.81672953	117.02991293	San Jacinto	1,473	1,475	Irrigation	Single	574	275-550
EMWD10236	33.80770963	117.03047404	San Jacinto	1,478	1,484	Monitoring	Nested		
EMWD10242	33.80884529	117.00031284	San Jacinto	1,473	1,474	Irrigation	Single	402	156-402
EMWD10243	33.80834341	117.00742911	San Jacinto	1,471	1,468	Monitoring	Single	824	377-814
EMWD10247	33.81591164	116.98534119	San Jacinto	1,488	1,486	Irrigation	Single	648	100-640
EMWD10255	33.80458505	116.99538770	San Jacinto	1,487	1,488	Monitoring	Single	1220	485-964
EMWD10280	33.80559149	116.98694274	San Jacinto	1,495	1,494	Irrigation	Single	264	264-792
EMWD10272	33.80047802	116.94561830	San Jacinto	1,557	1,557	Monitoring	Single	820	170-805
EMWD10273	33.79635941	116.93604652	San Jacinto	1,564	1,574	Monitoring	Single	612	150-612
EMWD10274	33.79451860	116.94195335	San Jacinto	1,571	1,571	Irrigation	Single	528	254-518
EMWD10276	33.78773677	116.94534535	San Jacinto	1,574	1,581	Irrigation	Single	622	

CASGEM ID	Latitude	Longitude	Basin	RP Elevation (ft above MSL)	GS Elevation (ft above MSL)	Well Use	Completion Type	Cased Depth (ft below GS)	Perforated Depth (ft below GS)
EMWD10310	33.79634206	117.00661041	San Jacinto	1,500	1,503	Monitoring	Single	450	126-450
EMWD10311	33.79738028	117.02904833	San Jacinto	1,489	1,493	Monitoring	Single	400	190-380
EMWD10314	33.78746758	117.01578160	San Jacinto	1,500	1,505	Irrigation	Single	310	200-310
EMWD10336	33.77478350	116.97603977	San Jacinto	1,530	1,530	Irrigation	Single	500	300-500
EMWD10346	33.78021236	116.94833265	San Jacinto	1,583	1,582	Monitoring	Single	620	
EMWD10349	33.77610383	116.95179120	San Jacinto	1,575	1,575	Monitoring	Single	1009	500-1002
EMWD10367	33.84676652	117.03723021	San Jacinto	1,442	1,449	Irrigation	Single	758	418-738
EMWD10368	33.85879361	117.06272202	San Jacinto	1,430	1,428	Monitoring	Single	843	700-1187
EMWD10370	33.85622484	117.06725997	San Jacinto	1,430	1,431	Monitoring	Single	704	404-704
EMWD10371	33.85359965	117.05808862	San Jacinto	1,433	1,434	Irrigation	Single	604	283-604
EMWD10375	33.84583024	117.06031856	San Jacinto	1,443	1,446	Irrigation	Single	740	280-697
EMWD10377	33.85122674	117.07303287	San Jacinto	1,434	1,438	Irrigation	Single	920	200-900
EMWD10382	33.82490906	117.03540591	San Jacinto	1,464	1,470	Irrigation	Single	545	310-530
EMWD10383	33.81971396	117.03473346	San Jacinto	1,470	1,475	Irrigation	Single	570	200-560
EMWD10387	33.81297723	117.03405379	San Jacinto	1,476	1,478	Irrigation	Single	544	322-526
EMWD10388	33.80995003	117.03386850	San Jacinto	1,476	1,479	Monitoring	Single	600	144-600
EMWD10389	33.81005044	117.03407022	San Jacinto	1,478	1,478	Monitoring	Single	800	400-780
EMWD10397	33.76489513	116.90670544	San Jacinto	1,668	1,669	Monitoring	Single	503	50-503
EMWD10398	33.76470155	116.90745747	San Jacinto	1,667	1,668	Monitoring	Single	204	18-185
EMWD10401	33.76440993	116.90490527	San Jacinto	1,670	1,670	Monitoring	Single	500	36-500
EMWD10413	33.76565668	116.91752333	San Jacinto	1,654	1,654	Monitoring	Single	1000	136-1000
EMWD10415	33.74507038	116.89665099	San Jacinto	1,770	1,777	Irrigation	Single	603	95-603
EMWD10423	33.74187879	116.83978544	San Jacinto	1,990	1,905	Irrigation	Single	400	140-400
EMWD10427	33.72964747	116.82794449	San Jacinto	2,360	2,415	Irrigation	Single	500	0-500
EMWD10428	33.73054426	116.82477324	San Jacinto	2,360	2,474	Irrigation	Single	580	0-580
EMWD10435	33.73824347	116.89577472	San Jacinto	1,810	1,816	Irrigation	Single	600	320-590
EMWD10439	33.73487721	116.91510344	San Jacinto	1,774	1,772	Irrigation	Single	500	420-500
EMWD10442	33.72887439	116.90802578	San Jacinto	1,800	1,818	Irrigation	Single	480	270-480
EMWD10443	33.72550163	116.90713862	San Jacinto	1,820	1,841	Irrigation	Single	490	422-490
EMWD10444	33.72195050	116.89902098	San Jacinto	1,893	1,892	Monitoring	Single	480	190-390
EMWD10447	33.71688882	116.88434997	San Jacinto	1,948	1,957	Irrigation	Single	394	250-359
EMWD10448	33.71649956	116.88577764	San Jacinto	1,948	1,947	Irrigation	Single	340	280-340
EMWD10451	33.72949705	116.89296028	San Jacinto	1,860	1,877	Irrigation	Single	560	300-560
EMWD10455	33.70916471	116.86996694	San Jacinto	2,062	2,068	Irrigation	Single	347	147-347
EMWD10456	33.71037694	116.87486193	San Jacinto	2,030	2,036	Irrigation	Single	625	605-625
EMWD10459	33.71058882	116.86984883	San Jacinto	2,057	2,060	Monitoring	Single	847	240-445
EMWD10460	33.70780299	116.86469617	San Jacinto	2,098	2,094	Irrigation	Single	335	222-325
EMWD10463	33.71360729	116.87733824	San Jacinto	2,007	2,012	Irrigation	Single	320	165-315
EMWD10464	33.71209799	116.87526559	San Jacinto	2,039	2,021	Irrigation	Single	325	182-322

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CASGEM ID	Latitude	Longitude	Basin	RP Elevation (ft above MSL)	GS Elevation (ft above MSL)	Well Use	Completion Type	Cased Depth (ft below GS)	Perforated Depth (ft below GS)
EMWD10465	33.71437154	116.87946807	San Jacinto	1,984	1,999	Irrigation	Single	382	216-368
EMWD10472	33.77297376	116.93995912	San Jacinto	1,604	1,607	Monitoring	Single	1224	124-1224
EMWD10495	33.75863603	116.99326381	San Jacinto	1,553	1,545	Monitoring	Single	820	300-820
EMWD10499	33.75429911	117.00296178	San Jacinto	1,532	1,532	Monitoring	Single	300	100-300
EMWD10500	33.75413951	117.00345061	San Jacinto	1,531	1,531	Irrigation	Single	510	0-510
EMWD10504	33.75563862	116.98943170	San Jacinto	1,544	1,556	Monitoring	Single	455	
EMWD10508	33.75738272	116.96984756	San Jacinto	1,584	1,587	Monitoring	Single	602	322-602
EMWD10509	33.75170144	116.97617963	San Jacinto	1,577	1,581	Monitoring	Single	684	80-684
EMWD10510	33.75420142	116.97062731	San Jacinto	1,585	1,592	Monitoring	Single	563	5-300
EMWD10516	33.75722490	116.92885544	San Jacinto	1,672	1,671	Irrigation	Single	920	360-920
EMWD10520	33.73388223	116.98049780	San Jacinto	1,573	1,577	Monitoring	Single	496	150-496
EMWD10521	33.74374494	117.00683118	San Jacinto	1,522	1,525	Monitoring	Single	554	190-554
EMWD10522	33.73337804	117.00016935	San Jacinto	1,531	1,533	Monitoring	Single	846	364-705
EMWD10523	33.73141775	117.00759240	San Jacinto	1,524	1,525	Monitoring	Single	600	260-580
EMWD10525	33.71746905	117.01421926	San Jacinto	1,512	1,526	Monitoring	Single	600	320-580
EMWD10542	33.70920045	117.03230781	San Jacinto	1,503	1,506	Irrigation	Single	582	130-582
EMWD11001	33.85150417	117.08752757	San Jacinto	1,432	1,435	Monitoring	Single	600	370-600
EMWD11004	33.83682583	117.12457529	San Jacinto	1,444	1,449	Monitoring	Single	595	255-590
EMWD11005	33.83121986	117.13509903	San Jacinto	1,429	1,434	Monitoring	Single	907	367-887
EMWD11006	33.83145139	117.12994469	San Jacinto	1,445	1,447	Monitoring	Single	630	260-630
EMWD11007	33.84512364	117.11370479	San Jacinto	1,428	1,433	Monitoring	Single	910	500-900
EMWD11008	33.84142661	117.10745038	San Jacinto	1,432	1,436	Monitoring	Single	697	390-697
EMWD11012	33.84243077	117.08825038	San Jacinto	1,433	1,436	Irrigation	Single	528	168-528
EMWD11017	33.84510474	117.07875818	San Jacinto	1,439	1,440	Irrigation	Single	643	300-643
EMWD11018	33.84365916	117.08496556	San Jacinto	1,436	1,439	Irrigation	Single	473	113-473
EMWD11019	33.84455360	117.05971057	San Jacinto	1,444	1,450	Irrigation	Single	808	200-808
EMWD11020	33.84382746	117.05768828	San Jacinto	1,445	1,450	Irrigation	Single	600	200-600
EMWD11024	33.83830500	117.06006406	San Jacinto	1,451	1,453	Irrigation	Single	552	200-552
EMWD11044	33.84637532	117.23186105	San Jacinto	1,459	1,460	Irrigation	Single	807	250-790
EMWD11048	33.83917348	117.22648756	San Jacinto	1,453	1,460	Irrigation	Single	465	170-465
EMWD11049	33.83711114	117.22735356	San Jacinto	1,455	1,459	Irrigation	Single	432	
EMWD11059	33.81986173	117.14325419	San Jacinto	1,424	1,428	Monitoring	Single	917	148-917
EMWD11060	33.83007551	117.19926532	San Jacinto	1,448	1,450	Monitoring	Single		
EMWD11067	33.82190272	117.22635961	San Jacinto	1,445	1,447	Monitoring	Single	697	290-665
EMWD11070	33.81493674	117.22630121	San Jacinto	1,438	1,443	Irrigation	Single	465	245-460
EMWD11089	33.78501351	117.16483549	San Jacinto	1,430	1,435	Monitoring	Single	672	
EMWD11114	33.72224632	117.07324503	San Jacinto	1,502	1,510	Irrigation	Single	120	48-104
EMWD11118	33.71204672	117.12038961	San Jacinto	1,474	1,472	Monitoring	Single	70	50-70
EMWD11119	33.71386993	117.12454470	San Jacinto	1,467	1,465	Monitoring	Single	70	50-70

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EMWD11120	33.71372471	117.12839403	San Jacinto	1,454	1,456	Monitoring	Single	70	50-70
EMWD11141	33.73015315	117.19896258	San Jacinto	1,425	1,429	Monitoring	Single	382	
EMWD11157	33.72806995	117.14542769	San Jacinto	1,483	1,485	Irrigation	Single	433	250-433
EMWD11175	33.67092273	117.11924276	San Jacinto	1,442	1,445	Monitoring	Single	509	150-509
EMWD11191	33.67829000	117.13768822	San Jacinto	1,431	1,431	Irrigation	Single	400	160-390
EMWD12003	33.95563317	117.17910687	San Jacinto	1,923	1,921	Monitoring	Single		
EMWD12009	33.92816257	117.12013745	San Jacinto	1,667	1,679	Monitoring	Nested		
EMWD12017	33.87800152	117.11006784	San Jacinto	1,426	1,427	Monitoring	Single		
EMWD12018	33.87783735	117.10996408	San Jacinto	1,428	1,427	Monitoring	Single		
EMWD12026	33.86081016	117.09633312	San Jacinto	1,427	1,429	Monitoring	Single		
EMWD12039	33.86458506	117.05997282	San Jacinto	1,430	1,426	Irrigation	Single		
EMWD12046	33.93889480	117.17024694	San Jacinto	1,783	1,791	Irrigation	Single		
EMWD12047	33.93873148	117.16654041	San Jacinto	1,783	1,791	Irrigation	Single		
EMWD12050	33.94561421	117.24311487	San Jacinto	1,650	1,653	Monitoring	Single		
EMWD12052	33.93468874	117.24027012	San Jacinto	1,619	1,622	Monitoring	Single		130-300
EMWD12077	33.89928042	117.19118570	San Jacinto	1,509	1,507	Irrigation	Single		
EMWD12089	33.93874180	117.24480352	San Jacinto	1,637	1,637	Monitoring	Single		
EMWD12113	33.81987897	116.97845072	San Jacinto	1,493	1,492	Irrigation	Single		
EMWD12119	33.82772288	116.99781837	San Jacinto	1,464	1,469	Irrigation	Single		
EMWD12129	33.81944423	116.98136746	San Jacinto	1,491	1,488	Irrigation	Single		
EMWD12161	33.80477623	117.00927114	San Jacinto	1,478	1,482	Monitoring	Single		
EMWD12206	33.80303999	116.94892397	San Jacinto	1,547	1,548	Monitoring	Single		
EMWD12229	33.79662529	116.95003439	San Jacinto	1,559	1,562	Irrigation	Single		
EMWD12321	33.85101643	117.05126987	San Jacinto	1,433	1,433	Monitoring	Single		
EMWD12322	33.84799690	117.04731619	San Jacinto	1,437	1,440	Monitoring	Single		
EMWD12323	33.85851420	117.06343089	San Jacinto	1,429	1,429	Monitoring	Single	1187	700-1187
EMWD12327	33.85127826	117.05115042	San Jacinto	1,434	1,434	Monitoring	Single		
EMWD12342	33.84700804	117.05111439	San Jacinto	1,437	1,439	Monitoring	Single		
EMWD12349	33.83146264	117.12638846	San Jacinto	1,457	1,461	Monitoring	Single		
EMWD12350	33.84128305	117.11908081	San Jacinto	1,435	1,439	Monitoring	Single	790	
EMWD12354	33.83375904	117.11031875	San Jacinto	1,470	1,470	Irrigation	Single		
EMWD12362	33.83795864	117.05155797	San Jacinto	1,450	1,451	Irrigation	Single		
EMWD12365	33.83130874	117.04892497	San Jacinto	1,458	1,464	Irrigation	Single		
EMWD12367	33.82666989	117.04472879	San Jacinto	1,460	1,463	Irrigation	Single		
EMWD12371	33.82921907	117.12772580	San Jacinto	1,461	1,465	Monitoring	Single	803	123-803
EMWD12372	33.82930711	117.13083512	San Jacinto	1,447	1,450	Monitoring	Single		
EMWD12374	33.82401500	117.12800587	San Jacinto	1,467	1,471	Monitoring	Single		
EMWD12404	33.83432909	117.22958463	San Jacinto	1,462	1,467	Irrigation	Single		
EMWD12414	33.82987104	117.19977348	San Jacinto	1,448	1,450	Monitoring	Single		

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EMWD12430	33.81202310	117.22673602	San Jacinto	1,438	1,440	Irrigation	Single		
EMWD12444	33.80104476	117.15177767	San Jacinto	1,449	1,453	Monitoring	Single		
EMWD12446	33.79878609	117.16833446	San Jacinto	1,416	1,418	Monitoring	Single	603	313-567
EMWD12447	33.79329827	117.16943516	San Jacinto	1,415	1,418	Monitoring	Single		
EMWD12448	33.78749458	117.17013744	San Jacinto	1,415	1,417	Monitoring	Single	725	360-720
EMWD12454	33.78827657	117.21329781	San Jacinto	1,418	1,422	Monitoring	Single		
EMWD12466	33.78304233	117.20853363	San Jacinto	1,414	1,419	Monitoring	Single	440	170-430
EMWD12467	33.77327699	117.19861976	San Jacinto	1,414	1,415	Monitoring	Single	445	135-400
EMWD12471	33.85703064	117.24803582	San Jacinto	1,487	1,487	Irrigation	Single		
EMWD12474	33.85532919	117.24911644	San Jacinto	1,488	1,492	Irrigation	Single		
EMWD12494	33.75982288	116.92052858	San Jacinto	1,672	1,677	Irrigation	Single		
EMWD12517	33.74631973	116.87589285	San Jacinto	1,790	1,791	Irrigation	Single		
EMWD12525	33.74212107	116.85575744	San Jacinto	1,850	1,854	Irrigation	Single		
EMWD12529	33.73538279	116.89256297	San Jacinto	1,828	1,833	Irrigation	Single		
EMWD12531	33.73444677	116.89288498	San Jacinto	1,834	1,837	Monitoring	Single		
EMWD12532	33.73316321	116.89078691	San Jacinto	1,848	1,861	Irrigation	Single		
EMWD12538	33.73149758	116.90092803	San Jacinto	1,830	1,831	Monitoring	Nested		
EMWD12539	33.73149758	116.90092803	San Jacinto	1,830	1,831	Monitoring	Nested		
EMWD12542	33.74068921	116.91204589	San Jacinto	1,760	1,759	Irrigation	Single		
EMWD12546	33.72935172	116.91078556	San Jacinto	1,806	1,806	Monitoring	Single		
EMWD12547	33.72276548	116.90171458	San Jacinto	1,877	1,887	Irrigation	Single		
EMWD12553	33.72076570	116.89838793	San Jacinto	1,898	1,892	Irrigation	Single		
EMWD12554	33.71975925	116.90847983	San Jacinto	1,832	1,835	Monitoring	Single		
EMWD12560	33.71646003	116.88867452	San Jacinto	1,934	1,935	Irrigation	Single		
EMWD12613	33.72942601	117.02449710	San Jacinto	1,506	1,509	Monitoring	Single		
EMWD12624	33.70787132	116.97434783	San Jacinto	1,574	1,577	Monitoring	Single		
EMWD12676	33.70779608	117.03668825	San Jacinto	1,498	1,502	Irrigation	Single		
EMWD12677	33.70725956	117.03678862	San Jacinto	1,500	1,502	Monitoring	Single		
EMWD12678	33.70331336	117.04154367	San Jacinto	1,492	1,495	Monitoring	Single		
EMWD12681	33.70359206	117.04223012	San Jacinto	1,490	1,493	Monitoring	Nested		630-640
EMWD12682	33.70359206	117.04223012	San Jacinto	1,490	1,493	Monitoring	Nested		450-460
EMWD12683	33.70359206	117.04223012	San Jacinto	1,490	1,493	Monitoring	Nested		231-236
EMWD12684	33.70359206	117.04223012	San Jacinto	1,490	1,493	Monitoring	Nested		148-158
EMWD12685	33.70359206	117.04223012	San Jacinto	1,490	1,493	Monitoring	Nested		72-82
EMWD12697	33.70712643	117.12760411	San Jacinto	1,447	1,453	Monitoring	Single	70	50-70
EMWD12698	33.71010028	117.12833776	San Jacinto	1,448	1,455	Monitoring	Single	72	52-72
EMWD12699	33.70886480	117.11993035	San Jacinto	1,464	1,459	Monitoring	Single	70	
EMWD12700	33.70718295	117.12032130	San Jacinto	1,463	1,457	Monitoring	Single	70	50-70
EMWD12701	33.70715436	117.12283978	San Jacinto	1,453	1,455	Monitoring	Single	70	50-70

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EMWD12722	33.77003171	117.18032486	San Jacinto	1,423	1,424	Monitoring	Single	250	230-250
EMWD12724	33.76224500	117.17605641	San Jacinto	1,433	1,436	Irrigation	Single		
EMWD12726	33.76330906	117.18042085	San Jacinto	1,426	1,425	Monitoring	Single	250	230-250
EMWD12727	33.75788161	117.18884484	San Jacinto	1,419	1,424	Monitoring	Single	585	290-575
EMWD12730	33.75812079	117.17595662	San Jacinto	1,439	1,445	Irrigation	Single		
EMWD12731	33.75970670	117.17592413	San Jacinto	1,437	1,442	Monitoring	Single		
EMWD12732	33.77068023	117.19059854	San Jacinto	1,414	1,417	Monitoring	Single	210	190-210
EMWD12733	33.76097056	117.20190428	San Jacinto	1,413	1,416	Monitoring	Single	250	230-250
EMWD12742	33.75063980	117.20196574	San Jacinto	1,417	1,419	Monitoring	Single	240	220-240
EMWD12743	33.75433832	117.19079381	San Jacinto	1,418	1,418	Monitoring	Single	240	220-240
EMWD12744	33.75056884	117.18993392	San Jacinto	1,420	1,422	Monitoring	Single	250	240-250
EMWD12757	33.74288433	117.13670145	San Jacinto	1,524	1,527	Irrigation	Single	431	231-431
EMWD12759	33.74287013	117.14943849	San Jacinto	1,491	1,494	Monitoring	Single		
EMWD12761	33.73902065	117.13667199	San Jacinto	1,519	1,522	Irrigation	Single		
EMWD12765	33.73266322	117.19774661	San Jacinto	1,423	1,427	Monitoring	Single		
EMWD12774	33.72888192	117.16345337	San Jacinto	1,447	1,448	Irrigation	Single		
EMWD12795	33.69869011	117.20640574	San Jacinto	1,414	1,414	Monitoring	Single	590	560-580
EMWD12796	33.69658996	117.21076538	San Jacinto	1,416	1,416	Monitoring	Single	220	200-220
EMWD12797	33.69655646	117.21581512	San Jacinto	1,420	1,425	Monitoring	Single	220	200-220
EMWD12798	33.69381297	117.21271726	San Jacinto	1,416	1,412	Monitoring	Single	220	200-220
EMWD12799	33.69500969	117.20791389	San Jacinto	1,410	1,414	Monitoring	Single	221	200-220
EMWD12800	33.69053129	117.21702394	San Jacinto	1,415	1,411	Monitoring	Single	221	200-220
EMWD12802	33.69244355	117.19557993	San Jacinto	1,414	1,417	Monitoring	Single	630	170-620
EMWD12807	33.68528453	117.16873297	San Jacinto	1,424	1,436	Monitoring	Single	650	250-600
EMWD12809	33.68542786	117.15816878	San Jacinto	1,427	1,428	Monitoring	Single	600	160-580
EMWD12816	33.68590275	117.14570457	San Jacinto	1,427	1,429	Monitoring	Single	750	
EMWD12836	33.67793678	117.13980124	San Jacinto	1,428	1,428	Irrigation	Single		
EMWD12837	33.67661230	117.13785165	San Jacinto	1,428	1,428	Irrigation	Single		
EMWD12840	33.68482781	117.15413878	San Jacinto	1,427	1,432	Monitoring	Single		
EMWD12841	33.68365715	117.16804849	San Jacinto	1,426	1,433	Monitoring	Single	630	200-580
EMWD12842	33.68015272	117.16997733	San Jacinto	1,429	1,444	Monitoring	Single	660	220-640
EMWD12845	33.67961236	117.15934417	San Jacinto	1,430	1,424	Irrigation	Single		
EMWD12846	33.67976004	117.16170262	San Jacinto	1,428	1,432	Irrigation	Single		
EMWD12847	33.67858881	117.15460001	San Jacinto	1,429	1,431	Irrigation	Single		
EMWD12848	33.67709898	117.15804585	San Jacinto	1,428	1,432	Irrigation	Single		
EMWD12901	33.82913133	117.04433457	San Jacinto	1,461	1,463	Irrigation	Single		
EMWD12903	33.90360988	117.12162851	San Jacinto	1,489	1,495	Monitoring	Single		
EMWD12904	33.90412771	117.12303106	San Jacinto	1,499	1,501	Monitoring	Single		
EMWD12905	33.79453125	117.03332480	San Jacinto	1,489	1,496	Irrigation	Single		

Water Level Monitoring Plan for the San Jacinto Groundwater Basin – December 2011

CASGEM ID	Latitude	Longitude	Basin	RP Elevation (ft above MSL)	GS Elevation (ft above MSL)	Well Use	Completion Type	Cased Depth (ft below GS)	Perforated Depth (ft below GS)
EMWD12920	33.81581281	117.14339371	San Jacinto	1,440	1,445	Monitoring	Single		
EMWD12921	33.80770963	117.03047404	San Jacinto	1,478	1,484	Monitoring	Nested		
EMWD13002	33.95780992	117.18275103	San Jacinto	1,947	1,948	Monitoring	Single		
EMWD13050	33.80603674	116.96662556	San Jacinto	1,518	1,527	Irrigation	Single	442	300-442
EMWD13069	33.82705509	117.13723975	San Jacinto	1,427	1,430	Monitoring	Single		
EMWD13089	33.81346001	117.14575642	San Jacinto	1,434	1,435	Monitoring	Single		
EMWD13090	33.80018673	117.15338502	San Jacinto	1,445	1,447	Monitoring	Single	504	140-500
EMWD13108	33.73141466	116.91509016	San Jacinto	1,780	1,780	Irrigation	Single		
EMWD13502	33.81229903	116.99489740	San Jacinto	1,475	1,478	Irrigation	Single		
EMWD14025	33.83879964	117.01246603	San Jacinto	1,454	1,457	Irrigation	Single		
EMWD14029	33.82830335	116.98707582	San Jacinto	1,478	1,483	Domestic	Single		
EMWD14030	33.83090743	116.98725593	San Jacinto	1,475	1,480	Domestic	Single		
EMWD14031	33.82618332	116.98215507	San Jacinto	1,489	1,488	Irrigation	Single		
EMWD14086	33.84651104	117.03677999	San Jacinto	1,442	1,449	Monitoring	Single		
EMWD14099	33.83908758	117.03824748	San Jacinto	1,440	1,440	Irrigation	Single		
EMWD14149	33.83147173	117.12978684	San Jacinto	1,445	1,449	Monitoring	Single		
EMWD14157	33.74327481	116.85471940	San Jacinto	1,850	1,852	Irrigation	Single		
EMWD14170	33.72990090	116.89404864	San Jacinto	1,840	1,863	Irrigation	Single		
EMWD14178	33.73018296	116.89742855	San Jacinto	1,840	1,854	Irrigation	Single		
EMWD14179	33.72945305	116.89189761	San Jacinto	1,860	1,880	Irrigation	Single		
EMWD14180	33.73036770	116.88984871	San Jacinto	1,860	1,868	Irrigation	Single		
EMWD14303	33.81917008	116.98078569	San Jacinto	1,492	1,491	Irrigation	Single		
EMWD14331	33.84270476	117.06004246	San Jacinto	1,445	1,449	Irrigation	Single		
EMWD14332	33.84279327	117.06460453	San Jacinto	1,445	1,448	Irrigation	Single		
EMWD14334	33.83322547	117.05086236	San Jacinto	1,454	1,458	Irrigation	Single		
EMWD14350	33.93472008	117.24082434	San Jacinto	1,620	1,623	Monitoring	Single	320	130-300
EMWD14352	33.93772700	117.16724094	San Jacinto	1,774	1,787	Monitoring	Single		
EMWD14355	33.75046380	117.19800940	San Jacinto	1,417	1,419	Monitoring	Single		
EMWD14357	33.70511294	117.20205367	San Jacinto	1,413	1,413	Monitoring	Nested	430	425-430
EMWD14358	33.67025139	117.13691588	San Jacinto	1,433	1,432	Irrigation	Single		
EMWD14359	33.66367266	117.10176812	San Jacinto	1,450	1,453	Irrigation	Single		
EMWD14400	33.71433713	117.13467791	San Jacinto	1,461	1,460	Monitoring	Single		
EMWD14401	33.72215559	117.07325075	San Jacinto	1,501	1,510	Irrigation	Single		
EMWD14402	33.87688759	117.11370858	San Jacinto	1,424	1,430	Monitoring	Single		
EMWD14403	33.87514835	117.11336054	San Jacinto	1,424	1,429	Monitoring	Single		
EMWD14404	33.87050424	117.12087834	San Jacinto	1,425	1,429	Monitoring	Single		
EMWD14407	33.86798282	117.13050206	San Jacinto	1,468	1,471	Monitoring	Single		
EMWD14408	33.83465621	117.14149282	San Jacinto	1,485	1,422	Monitoring	Single	403	100-403
EMWD14409	33.83964426	117.08783822	San Jacinto	1,434	1,440	Irrigation	Single		

CASGEM ID	Latitude	Longitude	Basin	RP Elevation (ft above MSL)	GS Elevation (ft above MSL)	Well Use	Completion Type	Cased Depth (ft below GS)	Perforated Depth (ft below GS)
EMWD14412	33.71225373	117.03229247	San Jacinto	1,505	1,508	Irrigation	Single		
EMWD14415	33.75103042	116.96818962	San Jacinto	1,594	1,599	Monitoring	Nested		
EMWD14416	33.75103042	116.96818962	San Jacinto	1,594	1,599	Monitoring	Nested		
EMWD14417	33.75103042	116.96818962	San Jacinto	1,594	1,599	Monitoring	Nested		
EMWD14418	33.75103042	116.96818962	San Jacinto	1,594	1,599	Monitoring	Nested		
EMWD14419	33.72204653	116.89356962	San Jacinto	1,898	1,897	Irrigation	Single		
EMWD14420	33.80022963	117.01219071	San Jacinto	1,493	1,497	Monitoring	Single		
EMWD14421	33.71879487	116.87805633	San Jacinto	1,979	1,977	Irrigation	Single		
EMWD14422	33.82390981	116.98324225	San Jacinto	1,488	1,486	Irrigation	Single		
EMWD14423	33.87181773	117.06716929	San Jacinto	1,420	1,421	Monitoring	Single		
EMWD14426	33.85156351	117.04391690	San Jacinto	1,435	1,439	Monitoring	Single		
EMWD14432	33.68547009	117.15159114	San Jacinto	1,428	1,428	Irrigation	Single		
EMWD14437	33.83860873	117.01627123	San Jacinto	1,450	1,454	Monitoring	Single		
EMWD14439	33.82815328	117.04212937	San Jacinto	1,462	1,466	Irrigation	Single		
EMWD14440	33.82756869	117.01824843	San Jacinto	1,453	1,452	Irrigation	Single		
EMWD14441	33.82415891	117.00916697	San Jacinto	1,453	1,459	Monitoring	Single		
EMWD14452	33.70511294	117.20205367	San Jacinto	1,413	1,413	Monitoring	Nested	370	365-370
EMWD14453	33.70511294	117.20205367	San Jacinto	1,413	1,413	Monitoring	Nested	242	237-242
EMWD14454	33.70511294	117.20205367	San Jacinto	1,413	1,413	Monitoring	Nested	160	155-160
EMWD14491	33.80818124	116.98831545	San Jacinto	1,472	1,480	Irrigation	Single		
EMWD14497	33.78533476	117.20811127	San Jacinto	1,414	1,419	Monitoring	Single		
EMWD14498	33.68531099	117.17741198	San Jacinto	1,424	1,428	Monitoring	Single	120	40-120
EMWD25352	33.79913376	117.15648145	San Jacinto	1,446	1,427	Monitoring	Single		
EMWD25364	33.79045339	117.16201929	San Jacinto	1,435	1,437	Monitoring	Single		
EMWD25370	33.70963365	116.87237398	San Jacinto	2,030	2,050	Monitoring	Single		
EMWD25372	33.86915672	117.08395191	San Jacinto	1,423	1,428	Monitoring	Single		
EMWD25378	33.81401497	117.22644890	San Jacinto	1,433	1,440	Monitoring	Single		
EMWD25380	33.72262585	116.89367256	San Jacinto	1,897	1,897	Irrigation	Single		
EMWD25382	33.82444482	117.00733877	San Jacinto	1,453	1,461	Monitoring	Single		
EMWD25429	33.77424798	116.92453256	San Jacinto	1,626	1,626	Monitoring	Single	290	270-290
EMWD25481	33.71035004	116.87419751	San Jacinto	2,039	2,040	Irrigation	Single	450	
EMWD25515	33.87308872	117.21677398	San Jacinto	1,473	1,475	Monitoring	Single	120	70-110
EMWD25517	33.85930145	117.21538550	San Jacinto	1,460	1,459	Monitoring	Single	120	70-110
EMWD25543	33.72166758	117.07307512	San Jacinto	1,507	1,509	Irrigation	Single		
EMWD25545	33.72963777	116.87609532	San Jacinto	2,025	2,025	Irrigation	Single		
EMWD25567	33.76940354	117.00236190	San Jacinto	1,525	1,527	Irrigation	Single		
EMWD25587	33.72197815	116.89987029	San Jacinto	1,893	1,890	Irrigation	Single		
EMWD25695	33.90248330	117.19281874	San Jacinto	1,510	1,507	Irrigation	Single	775	0-755
EMWD25696	33.89821507	117.19398518	San Jacinto	1,495	1,506	Irrigation	Single	615	0-595

Appendix B – General Well Data Form (DWR Form 429)

State of California

DEPARTMENT OF WATER RESOURCES

California Natural Resources Agency

WELL DATA

State No. _____

District _____

OWNER		STATE NO.	
ADDRESS		OTHER NO.	
TENANT			
ADDRESS			
TYPE OF WELL		☐ SPECIAL STUDIES ☐ MONTHLY ☐ SEMI ANNUAL ☐ WATER QUALITY	
LOCATION: COUNTY		BASIN NO.	
U.S.G.S. QUAD.		QUAD NO.	
1/4 SECTION		TWP. RGE.	
COORDINATES X: Y:		SOURCE:	
DESCRIPTION			
REFERENCE POINT DESCRIPTION			
WHICH IS		FT. ABOVE ☐ LAND SURFACE. GROUND ELEVATION FT.	
REFERENCE POINT ELEVATION		FT. DETERMINED FROM	
WELL: USE		CONDITION DEPTH FT.	
CASING, SIZE IN.		PERFORATIONS	
MEASUREMENTS BY: ☐ DWR ☐ USGS ☐ USBR ☐ COUNTY ☐ IRR. DIST. ☐ WATER DIST. ☐ CONS. DIST.			
CHIEF AQUIFER: NAME		DEPTH TO TOP AQ. DEPTH TO BOT. AQ.	
TYPE OF MATERIAL		PERM. RATING THICKNESS	
GRAVEL PACKED? ☐ YES ☐ NO		DEPTH TO TOP GR. DEPTH TO BOT GR.	
SUPP. AQUIFER		DEPTH TO TOP AQ. DEPTH TO BOT. AQ.	
DRILLER		DATE DRILLED: LOG NUMBER:	
EQUIPMENT: PUMP, TYPE		MAKE	
SERIAL NO.	SIZE OF DISCHARGE PIPE IN.	WATER ANALYSIS: MIN. (1)	SAN. (2) H.M. (3)
POWER, KIND	MAKE	WATER LEVELS AVAILABLE: YES (1) NO	
H.P.	MOTOR SERIAL NO	PERIOD OF RECORD: BEGIN	END
ELEC. METER NO.	TRANSFORMER NO.	COLLECTING AGENCY:	
YIELD	G.P.M. PUMPING LEVEL FT.	PROD. REC. (1)	PUMP TEST (2) YIELD (3)
SKETCH		REMARKS	
		RECORDED BY:	
		DATE:	

DWR 429 (Rev. 1/09)

Appendix C – Groundwater Level Data Form for Manual Measurements (DWR Form 1213)

[illegible]

DWR Form 1213 (modified 6/28/2010) (data for Water Data Library)

Appendix D – Groundwater Level Data Form for Vented and Non-vented Pressure Transducer with Data Logger

[illegible]