APPENDIX M
WATER SUPPLY ASSESSMENT

Water Supply Assessment

Seville Solar Farm Complex

Final

December 26, 2013

TODD ENGINEERS
Alameda, California

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Table of Contents

Appendices

Figures (follow text)

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1 Introduction

This Water Supply Assessment (WSA) was prepared for the Seville Solar Farm Complex (Project) located on the Allegretti Farms property (property) in west Imperial County, California. It was prepared in conjunction with an Environmental Impact Report (EIR) for the proposed project prepared for Imperial County by Ericsson-Grant, Inc. The primary purpose of a WSA is to determine if there is sufficient water supply to meet demands of the Project and future water demands within the project area under normal and dry hydrologic conditions for the next 20 years.

1.1 Proposed Project

Regenerate Power LLC (Regenerate) is proposing to build up to five solar photovoltaic (PV) energy generation facilities on portions of the approximately 2,440-acre Allegretti Farms property in west-central Imperial County. The Project is about eight miles west of the intersection of State Highways 78 and 86 (**Figure 1**). The property would be reconfigured into eight individual lots (Lots 1 through 8) and four common development interest lots (Lots A through D) (**Figure 2**). Lots A and B are transmission line corridors and common access roads and are not shown on Figure 2. It is estimated that 650 acre-feet (AF) of water would be needed during construction of the five solar projects and 190 AF per year (AFY) would be needed during normal operations. An additional 25 AFY of water would be needed for potential future non-solar development (residential/ancillary uses).

Farming began on the property in the early 1950s and peaked in the 1970s with approximately 1,700 acres of the property planted with various crops. Farmed acreage decreased to an average of 500 acres in the 1980s through the 2000s and then to 80 acres in 2010 and 2011. Reduction of farmed acreage was due, in part, to poor soil and groundwater quality and increased cost of electricity to pump the water. Little to no farming has occurred on the property in 2012 and 2013.

Groundwater would be supplied to the property from up to nine wells. As shown on Figure 2, seven of these wells exist on the property (three are currently operational). Two new wells would be drilled. Water would be provided by each lot owner or by the Ranch Oasis Mutual Water Company, which was established in 1994 for this purpose. Water will be needed for domestic use, solar panel washing and fire protection. Water system facilities would include a 20,000 gallon storage tank on each of the five solar project areas. Wastewater would go to septic systems on each of the five solar project sites or to underground storage tanks for periodic pumping and off-site disposal.

1.2 Background

Enacted in 2001 (effective January 1, 2002), Senate Bill 610 (SB 610) amended section 21151.9 of the Public Resources Code to require cities and counties to determine, for each project subject to the California Environmental Quality Act (CEQA), if the proposed activity is a “project” as defined in section 10912 of the California Water Code. If the activity is a “project,” then the city or county

must comply with Water Code section 10910, et seq. Water Code section 10910 requires the preparation of a Water Supply Assessment (WSA), either by the public water system which would serve the "project" or, if no public water system is identified, by the city or county. Water Code section 10910 also establishes what should be included in a WSA. This WSA follows the guidelines set out in the Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 (Guidebook) and subsequent clarification posted on the California Department of Water Resources website (CDWR, 2013). For reference, Water Codes Sections 10910 through 10915 have been provided in Appendix A.

The Seville Solar Farm Project is subject to CEQA, in part, because it requires issuance of discretionary permits (well use permits) from a public agency. The next step is to determine if it is considered a project as defined by SB 610 requirements (section 10912). A project can be any of the following:

- Residential development of more than 500 dwelling units;
- Shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- Commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- Hotel or motel, or both, having more than 500 rooms;
- Industrial, manufacturing, or processing plan, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- Mixed-use project that includes one or more of the projects specified above;
- Project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.
- If a public water system has fewer than 5,000 service connections, then project means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

SB 267, approved in 2011, exempts proposed photovoltaic and wind energy projects that have an annual water demand of 75 AF or less from the requirement to prepare a WSA. The Seville Solar Farm Complex does not fall under this exemption since annual water demands will be above 75 AFY.

A public water system does not serve the Seville Solar Farm site and an Urban Water Management Plan (UWMP) does not exist for the property or proposed Project. Under Water Code section 10910(b), if there is no public water system (or associated UWMP) available to serve the project, the CEQA lead agency must prepare the WSA. In this case, the project applicant prepared a WSA for the lead agency (Imperial County) to approve and adopt.

The Seville Solar Farm Complex Project is considered a project as defined by section 10912 because it occupies more than 40 acres of land. Consequently, the required WSA should include:

- Quantification of the proposed project's water demands,
- Description and documentation of water supplies,
- Sufficiency analysis.

This WSA documents water supply sources, quantifies water demands, evaluates drought impacts, and provides a comparison of water supply and demand that is the basis for an assessment of water supply sufficiency.

1.3 Purpose

The purpose of this WSA is to document the Project area's existing and future water supplies and compare them to the area's future water demand including that of the proposed Project. This comparison, conducted for both normal and drought conditions during a 20 year projection, is the basis for an assessment of water supply sufficiency in accordance with the requirements of California Water Code section 10910.

Section 2 of this WSA discusses water demands of the Project and surrounding area in normal and drought years. Water supply information pertinent to the Project area is provided in Section 3. Water supply and demand in normal and drought years are compared in Section 4 while Section 5 presents conclusions.

2 Water Demands

This section summarizes water demands for the Project area. Water Code section 10910 requires that a WSA quantify water demands associated with the proposed project. Water demand projections for each land use type need to be made over a 20-year period in 5-year increments. Although not specifically required in Section 10910, water demands associated with the proposed project should be estimated for normal, dry and multiple dry-year hydrologic years. The first part describes the factors affecting total water demand, including climate, land use, and historic and current water use. The second part documents future water demands not only under normal climatic conditions, but also during drought.

2.1 Climate

The Project area receives very little rainfall. **Table 1** summarizes representative climate data for the Project area, including average monthly and annual rainfall and temperature (WRCC, 2013 Ocotillo Wells 2W #046386 Station). The area has a warm, dry desert climate, with extremely hot and dry summers and temperate winters. Average monthly maximum temperatures range between 67 and 109 degrees and average annual rainfall is 3.69 inches for the 2003 to 2012 period. Most rainfall occurs in the winter and can vary from gentle to extreme. Intense rainstorms can also occur in summer months. Annual precipitation at a station with a longer record of data (WRCC, 2013 Borrego Desert Park #040983) is shown graphically on **Figure 3** for the 1953 to 2013 period. This station is about 14 miles northwest of the Ocotillo Wells 2W #046386 station. Rainfall has ranged from less than an inch to a high of 18.73 inches (in 1983). Average rainfall at the Borrego Desert Park station was 6.05 inches for the 1953 to 2013 period and was 4.05 inches for the July 2003 through September 2012 period. In comparison, rainfall at the Ocotillo Wells 2W station was 3.69 inches for the same July 2003 through September 2012 period.

Climate change may reduce water availability. It can affect future water supply in the southwest by:

- Increasing temperatures
- Decreasing springtime precipitation
- Decreasing groundwater recharge
- Increasing frequency and severity of droughts (USEPA, 2013).

2.2 Land Use

The Project in located in the rugged desert with intense summer heat, far from population centers. Only sparse rural development is in the area. The small rural community of Ocotillo Wells is about 7 miles to the west along Highway 78 and the Ocotillo Wells State Vehicular Recreation Area is to the north. The landscape gently slopes to the south from the Santa Rosa Mountains in the north and to the east toward the Salton Sea. Elevations on the property range from 5 feet below mean sea level (msl) in the northwest to 40 feet below msl in the southeast (Petra, 2012).

The property was first developed in early 1950s. Two wells (Jabobs and San Felipe) supplied water to the property referred to as Ranch Oasis or Jacobs Ranch. The following information was obtained

from an agricultural history of Allegretti Farms report (EMA, 2013). Estimated farmed acreage, crops grown, and property owners between 1954 and 2011 are shown in **Table 2**. Between 1954 and 1973 about 180 to 320 acres were farmed. Agriculture peaked in the mid to late 1970s with 1,700 acres farmed in 1978. From 1983 to 2009, up to about 1,024 acres were farmed, although no farming reportedly occurred in 1990. Only 80 acres were farmed in 2010 and 2011. **Figure 4** is a graphic representation of estimated agricultural acreage of the site. Flood irrigation, pivot and lateral move sprinkler systems, and drip systems have all been used on the property. Non-agricultural vegetation consists of several rows of windbreaker trees and scattered weeds (Petra, 2012).

Information on wells on the property is tabulated in **Table 3**. The Jacobs well has long been abandoned and the San Felipe well was converted to a USGS monitoring well in the 1960s. Locations of these wells are shown on **Figure 2**. Wells 1 through 7 were drilled between 1961 and 1982. Only three (Wells 4, 6, and 7) are currently operational. Well 7 is a domestic well that provides water to an existing residence. Two wells (Wells 8 and 9) are proposed.

2.3 Past and Current Water Demand

Table 4 documents estimated historical and current water demand at the property. Past pumping could have exceeded 10,000 AFY in the late 1970s and was reportedly 3,250 to 6,050 AFY between 1983 and 1996, with the exception of 1990 when no pumping occurred (Borrego Water District, 2012). Pumping averaged 4,400 AFY between 1993 and 1996 (Borrego Water District, 2012). Between 1996 and 2009, pumping was estimated to average around 2,800 AFY assuming an average of 500 acres were planted and a water application rate of 5.6 AF/acre per year (**Table 4**). The property was leased to another tenant in 2010 and 2011 and the planted acreage and crops changed. Pumping decreased to an estimated 200 AFY to 225 AFY during these two years. This estimate is based on planted acreages and application rates of 2.4 AFY/acre and 2.6 AFY/acre for onions and wheat, respectively. It also includes a very rough estimate of water used to fill an onsite reservoir for water fowl hunting. Information on water use in 2012 is not available but most likely less than 2010 and 2011 use. The existing residential well supports one residence, a swimming pool, a lawn, about six citrus trees, and a number of palm, tamarisk and pine trees (Carey, October 24, 2013). It was assumed that the existing residence has used about 1 AFY.

2.4 Projected Water Demand

Proposed future water use is shown on **Table 5**. The projections assume that construction will occur in stages with one solar project built by 2015, three solar projects completed by 2020 and five completed by 2025. Each solar project will need 30 to 50 AFY for a total combined usage of 190 AFY at build out. Water will also be needed during construction of the solar sites. Each solar project will need 100 to 175 AF for construction. Construction is assumed to occur in stages between 2015 and 2020 with a combined water use total of 650 AF for all five solar projects (second row in **Table 5**).

Regenerate has applied for conditional use permits (CUP) from Imperial County for Wells #1 through #9. An additional 25 AFY of water is being requested for existing and potential future non-solar development (residential/ancillary uses). It has been assumed that three homes could be built

on the non-solar lots (Lots 6, 7, and 8) in addition to the existing home on Lot 5. The three homes would be built sequentially between 2015 and 2030. Lot use, approximate size and supply well are listed below.

Solar Farm Lots:

- Lot 1 (185 acres): Well 4
- Lot 2 (185 acres): Proposed Well 8
- Lot 3 (185 acres): Well 6
- Lot 4 (319 acres): Well 5
- Lot 5 (307 acres): Well 1 [and Well 7 (domestic)]

Non Solar Farm Lots:

- Lot 6 (266 acres): Well 3
- Lot 7 (339 acres): Well 2
- Lot 8 (599 acres): Proposed Well 9

Common Development Interest Lots:

- Lot A (34 acres): Solar projects transmission line corridors
- Lot B (11 acres): Common access road corridors
- Lot C (5 acres): Site for Imperial Irrigation District switch station
- Lot D (5 acres): Site for solar project substations.

Water use per well would be:

Solar Farm Wells

Lots 1-5 Wells 1, 4, 5, 6, 8: 38 AFY average for each (190 AFY total combined)

Domestic Wells

Lot 5	Well 7:	10 AFY
Lot 6	Well 3:	5 AFY
Lot 7	Well 2:	5 AFY
Lot 8	Well 9 (proposed):	5 AFY
	Total	**215 AFY**

No additional future water demand other than the proposed project was identified in the Allegretti Subbasin.

2.5 Drought Water Demands

During times of drought, future water use is anticipated to remain about the same at the solar facilities and four residences. These demands are shown in **Table 6**.

3 Water Supply

Water Code section 10910 requires that a WSA document the supply available to the project including the supply quantities received in past years, an analysis of supplies under normal, dry, and multiple-dry year projections, and documentation of rights or legal agreements associated with the water supplies. If groundwater will be a source of supply, the WSA should also include a description of any groundwater basin, whether the groundwater basin has been subject to any adjudication proceedings or has been identified by the California DWR as overdrafted and efforts being undertaken to eliminate the long-term overdraft condition, and an analysis of the sufficiency of the groundwater to meet the projected project water demand.

Groundwater from private wells is the sole source of water provided to the Allegretti Farm property. The property is within the Colorado River Basin and the Salton Sea Transboundary Watershed (CDPR, 2013). There are no plans to use recycled water, desalinated water or imported water. The following sections provide information on the groundwater basin and local groundwater use.

3.1 Ocotillo-Clark Valley Groundwater Basin

Long-term reliability of the groundwater supply is dependent upon the overall state of the groundwater basin. Groundwater is available from the Ocotillo-Clark Valley Groundwater Basin (Basin Number 7-25) shown on **Figure 1**. The basin is bounded by the Santa Rosa Mountains to the north and northeast, Coyote Creek and Superstition Mountain faults to the west and south, and the Salton Sea and surface drainage divides to the east. Clark Valley (to the northwest) drains toward Clark Lake (which is dry) while the rest of the area drains toward the Salton Sea. The basin is an alluvial filled valley of stream, alluvial fan, lake and aeolian deposits (CDWR, 2004). Recharge is from mountain runoff in the north and east, estimated to be 1,200 AFY for the Clark Valley portion of the basin and 1,100 AFY for the Ocotillo Valley portion of the basin (CDWR, 2004). Groundwater generally flows southeastward. The Ocotillo-Clark Valley Groundwater Basin has not been adjudicated.

The property lies within the Allegretti Subbasin (**Appendix A**) which is bounded by the Salton Sea to the east, Ocotillo Badlands and Coyote Creek fault to the southwest, Superstition Hills and the topographic divide between Coyote Creek fault and Superstition Hills faults to the south, and the San Felipe Hills fault and the topographic divide between Tule Wash and San Felipe Creek to the north (Borrego Water District, 2012). There is a shallow and deep aquifer in the vicinity of the Project. Water levels in the shallow aquifer are about 100 feet higher than the deep aquifer and total dissolved solids (TDS) concentrations are about three to four times greater in the shallow aquifer. The shallow aquifer is unconfined and appears to feed the San Felipe and Fish creek springs located southeast of the property (**Figure 2**) (Krieger & Stewart, 1995). The deep aquifer is at least partially confined. The current Allegretti wells pump water from the deep aquifer. In the vicinity of the Project area, irrigation return flows do not return to the deep aquifer because of the presence of a perched shallow aquifer.

The deep aquifer has better water quality than the shallow aquifer. TDS concentrations in the Allegretti wells have been on the order of 1,200 to 1,800 milligrams per liter (mg/L) between 1962 and 2002. Allegretti Well #7 had slightly better quality (880 and 930 mg/L) when sampled in 1982 and 1995, indicative of better water quality in the upper part of the deep aquifer (Borrego Water District, 2012). The secondary maximum contaminant level (MCL), derived from human welfare considerations (e.g., taste, odor, laundry staining), for TDS is 500 mg/L.

In 1998, the County adopted a comprehensive Groundwater Management Ordinance for the express purpose of preserving and managing groundwater resources within the County (Imperial County, 1998). The Groundwater Ordinance, codified as Chapter 1 of Title 9 of the Imperial County Code, is implemented by the Planning Commission acting upon the direction of the Board of Supervisors.

The Commission, charged by the Board of Supervisors with the regulation of groundwater, can request preparation of an annual report on groundwater supplies and conditions, determine the need for and recommend groundwater management activities (see Section 92202.00), recommend groundwater extraction standards and charges, and establish standards for artificial recharge, among other things.

The Groundwater Ordinance provides the County with various regulatory tools that are designed to avoid or minimize the impact of existing and proposed groundwater extraction activities on groundwater resources and other users. For example, Section 92201.13 provides a remedy for water users who are aggrieved by well interference (defined as a substantial water level decline in a short time period in a localized area caused by extraction) or other impairment or infringement of the groundwater use caused by the extraction activities of another party. In such cases, the Commission may issue any order that it determines necessary to provide the petitioning water user with an adequate remedy. The Groundwater Ordinance also requires that existing extraction facilities be registered with the County.

3.2 Local Groundwater Use

In the vicinity of the property, five wells exist to the west (Payne, Gann, Scholl, Steinruck, and Blu-In Park wells) and five wells exist to the east (two USGS test wells, Harpers well, and two Three Flags Ranch wells) (Borrego Water District, 2012). The Allegretti wells are the main pumpers of the deep aquifer. Pumping estimates are shown in **Table 4**. Other wells that pump the deep aquifer (Payne, Gann, and Blu-In Park) pump small quantities for dust control and landscape irrigation. Historic use for the Blu-In Park well has been about 2 AFY (Imperial County, 2007). A conditional use permit (CUP) has been issued allowing for a new well on an adjacent parcel to supply up to 10 AFY to the 187-space Blu-In RV Park. Water use for the existing Blu-In Park well will be limited to 2 AFY (Imperial County, 2007). The Three Flags Ranch wells were pumped briefly in the mid-1980s to irrigate 1,000 to 1,200 acres of citrus. Pumping was soon replaced with Colorado River water from the Imperial Irrigation District (Borrego Water District, 2012).

The groundwater basin has been in a state of overdraft as indicated by the water levels in the USGS (San Felipe) well shown on **Figure 3** (USGS, 2013). The USGS well is next to Allegretti Well 1 (**Figure**

2). Water levels declined about 163 feet between 1953 and 2001. Due to an obstruction in the well, the USGS was not able to measure water levels in 2012 and 2013. There is also evidence of land subsidence at the Allegretti property due to groundwater withdrawals (Van Zandt, 2004). Recovery in groundwater levels is apparent since about 2002, corresponding to a reduction in farming and irrigation on the property. Pumping volumes (and corresponding agricultural acreage) for the 1995 to 2009 period are unknown and have been estimated in **Table 4** and **Figure 4** using data from **Table 2**. Pumping volumes were not recorded and very little data exists regarding acres in production, crops grown, number of plantings per year, etc. However, 2004 to 2013 electricity usage for Wells 1 through 6 was compiled using data from Imperial Irrigation District (IID) energy bills (Carey, December 23, 2013). Electricity usage and depth to water have been plotted on **Figure 5**. The reduction in annual electricity usage (and resulting pumping reduction) corresponds well with the increase in groundwater levels for the same time period as shown in **Figure 5** indicating that reduction in on-site pumping has resulted in the recovery of groundwater levels.

While the water levels have shown a long term downward trend, water levels in the vicinity of the property are generally characterized by little or no short term variation. Although rainfall in the region is flashy both seasonally and annually, water levels exhibit little fluctuation over time. For comparison, **Figure 3** illustrates the highly variable annual precipitation, as measured at the Borrego Desert Park station. The lack of groundwater level response to precipitation may reflect a significant lag time between rainfall events and recharge. This lag time probably reflects the distance from the washes to the property and in some areas, the significant thickness of the unsaturated (vadose) zone or the presence of a clay layer separating the shallow aquifer from the deep aquifer. Because groundwater levels in the vicinity do not respond to short term drought events, the supply of groundwater is effectively the same through normal and drought periods.

3.3 Future Water Supply Estimates

Table 7 presents the water supplies needed to meet demands. A detailed water balance of the Ocotillo-Clark Valley Groundwater Basin has not been conducted; however, the recovering water levels on **Figure 3** indicate that the pumping between 2002 and 2011 was within sustainable rates. The lower end of this pumping occurred in 2010 and 2011 and was estimated to be on the order of 200 AFY to 225 AFY. Water levels increased at a steeper angle during this time (**Figure 3**). Crop acreages and associated pumpage between 2002 and 2009 were greater (but not quantifiable with available data at this time) indicating that the 215 AFY of pumping proposed for this Project and property area is sustainable.

4 Comparison of Supply and Demand

Table 8 presents the supply needed to meet demands under normal climatic conditions and in single-year and multiple-year droughts. The use of water in drought years was assumed to be the same as normal years because operations at the solar farms will be similar during droughts. Residential water use will stay within the pumping volumes stated in the conditional use permits granted for each residential well. When granted, the conditional use permits will expressly limit the annual amount of water which can be produced from each well. Current permits require the installation of a flow meter and annual reports of water use to the Imperial County Planning Department.

5 Conclusions

The Project and property will need 215 AFY of groundwater at build out. Groundwater pumping in the Ocotillo-Clark Valley Groundwater Basin has been much greater in the past, leading to groundwater level declines and reported land subsidence. Groundwater levels have been recovering since about 2002 because of a reduction in groundwater use. The current pumping estimates of 200 AFY to 250 AFY coupled with the groundwater level increases indicate that the proposed pumping of 215 AFY is within sustainable levels during normal and drought conditions.

The ongoing monitoring of groundwater levels in the USGS well and the staged implementation of the Project provide progress checks on the impacts of the Project water use on groundwater levels.

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Figures

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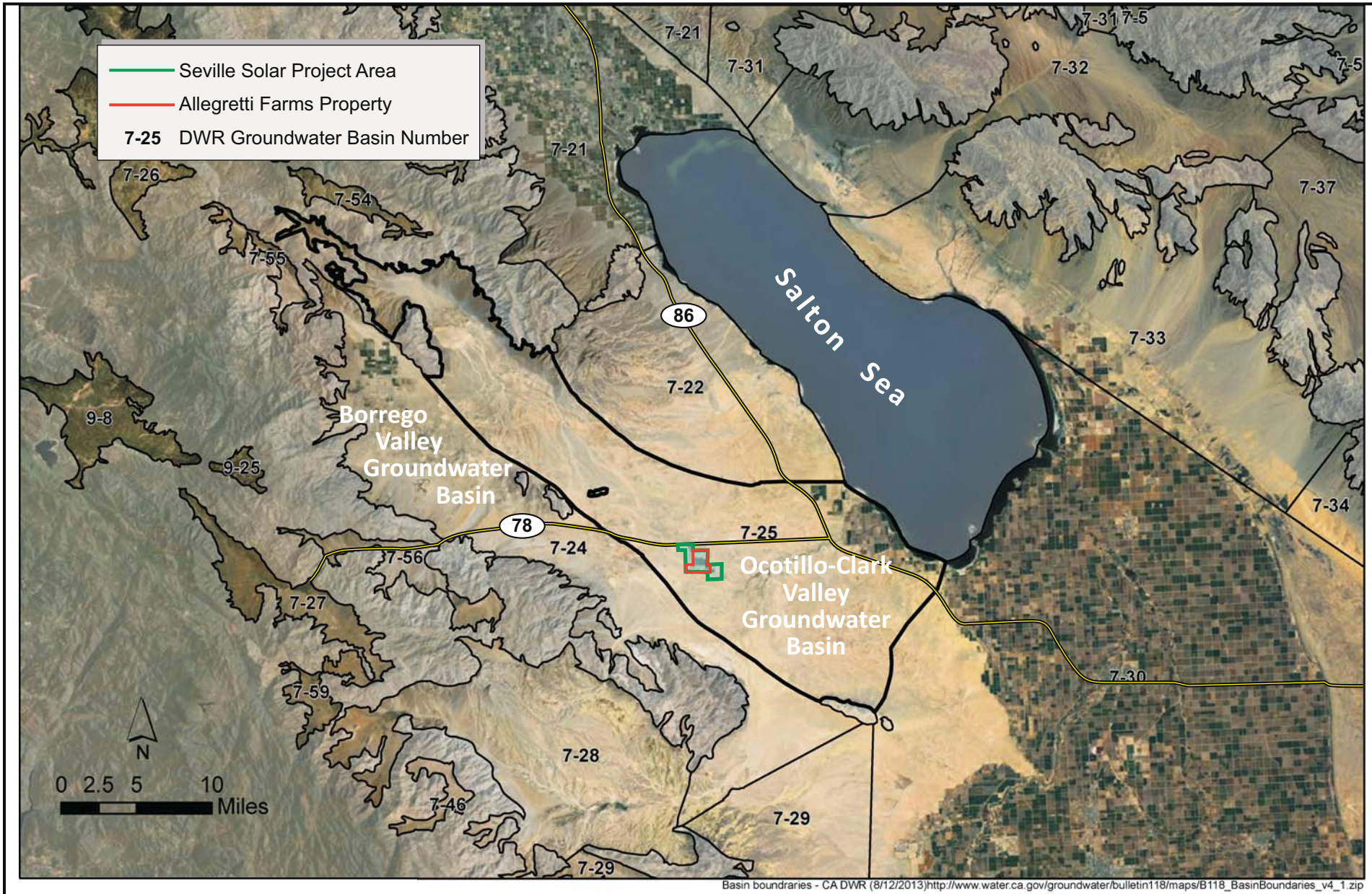

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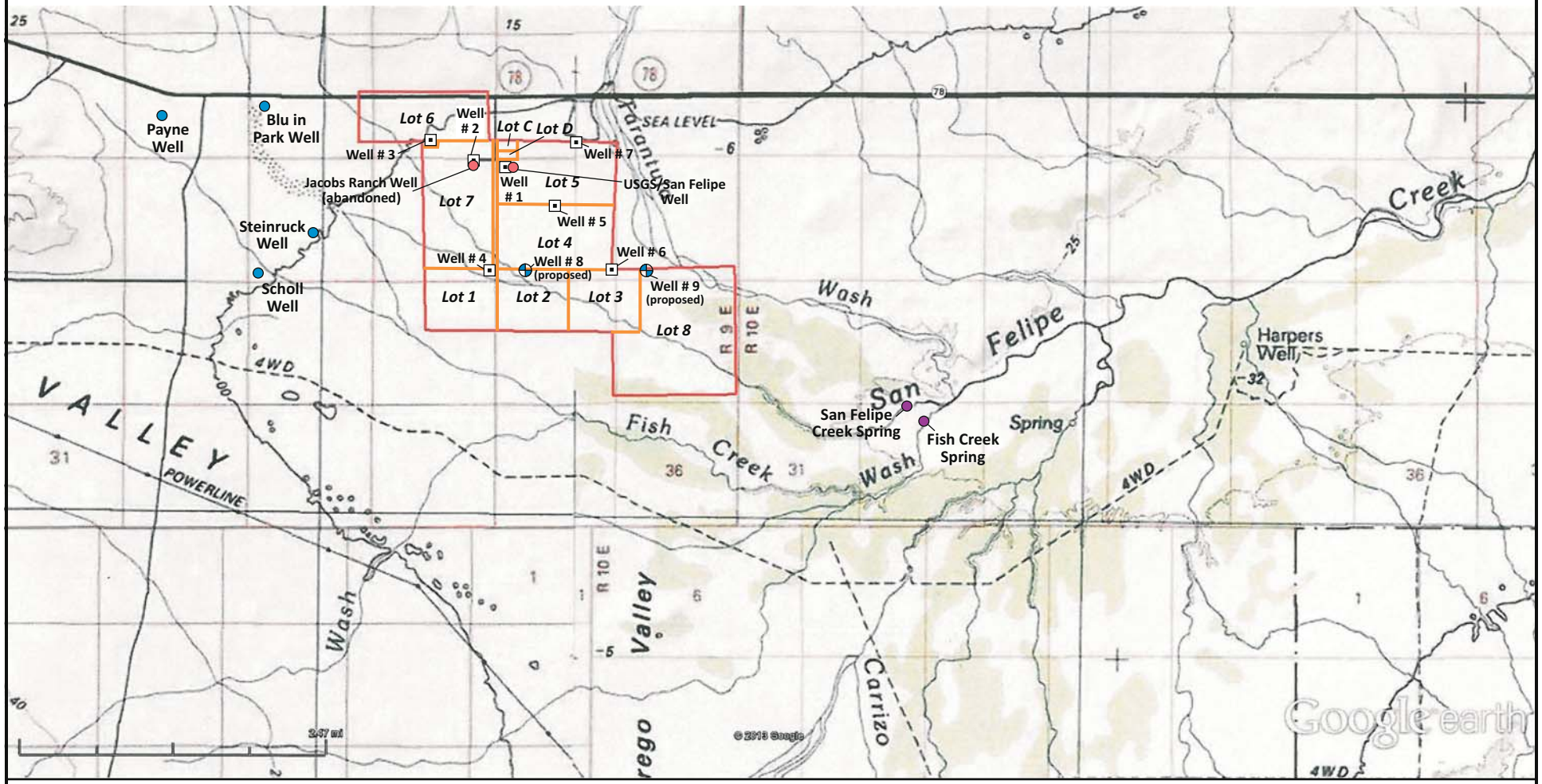
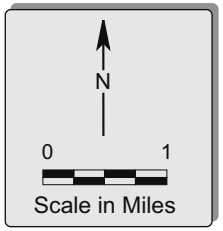
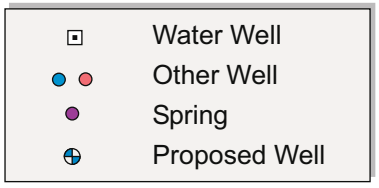
Figure 1
Seville Solar Farm Complex Location







December 2013

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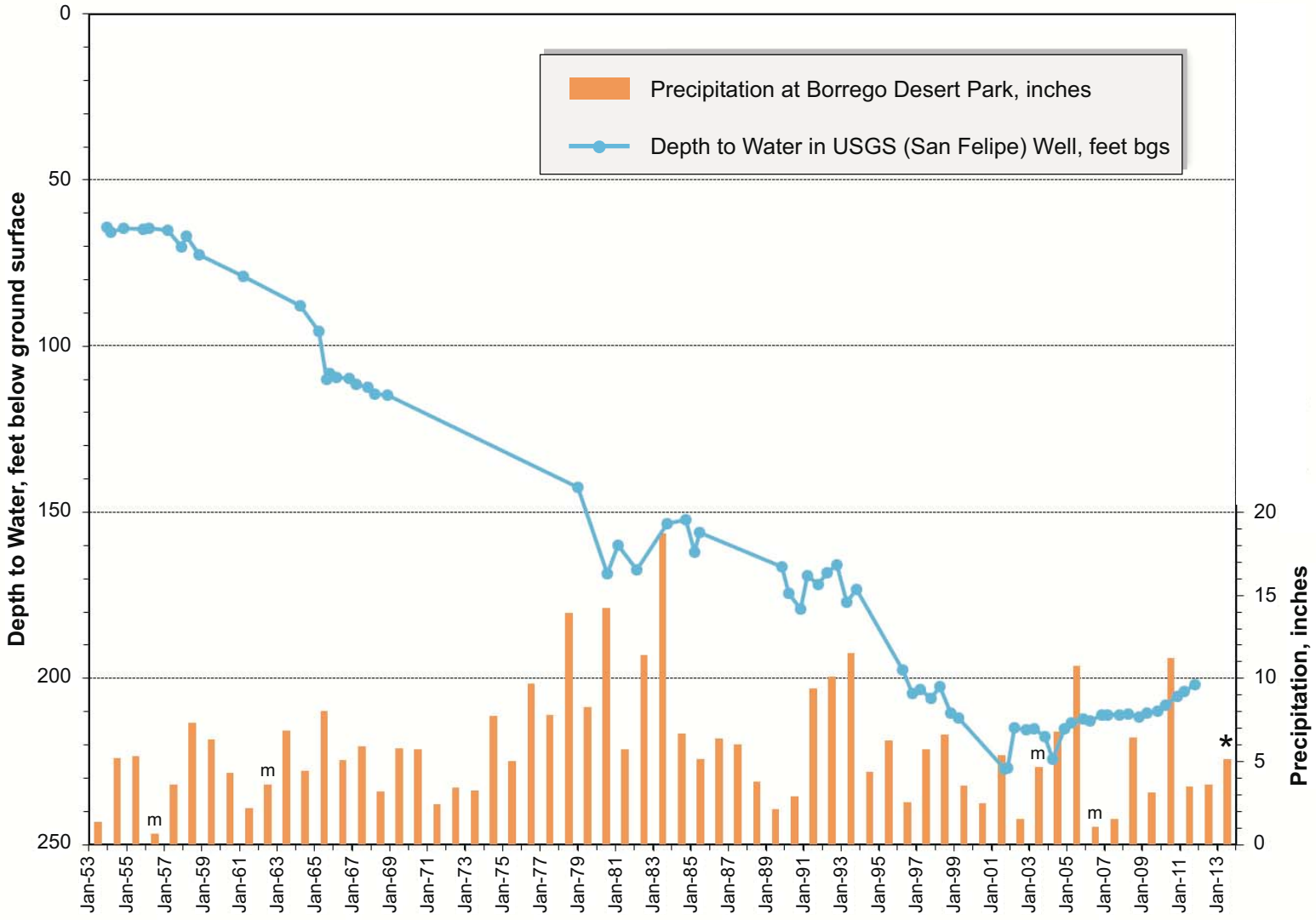
Figure 2
Property Lots and Well Locations



m one or more months of data missing

* Data through August 2013

Pumping water levels not graphed

October 2013

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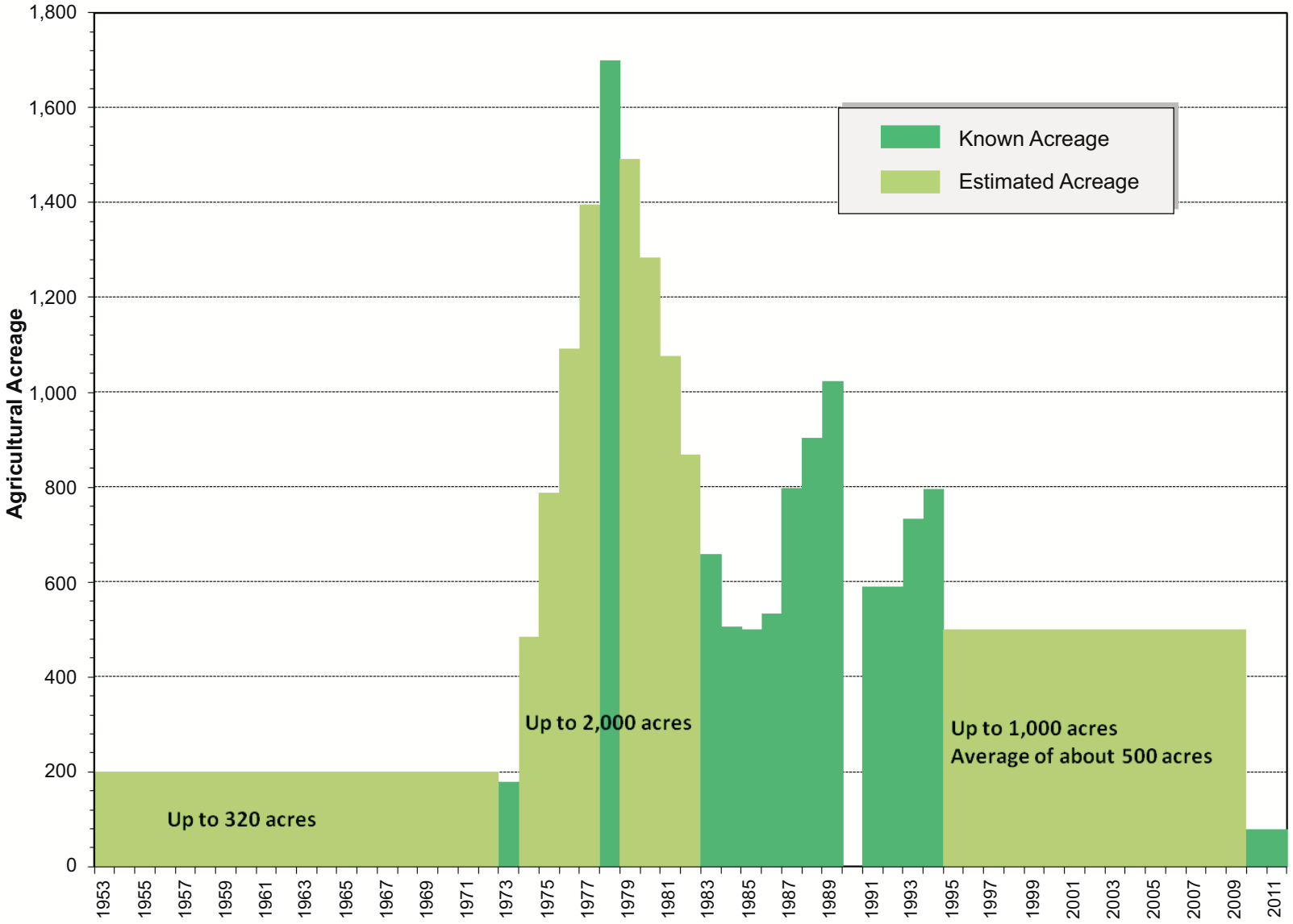
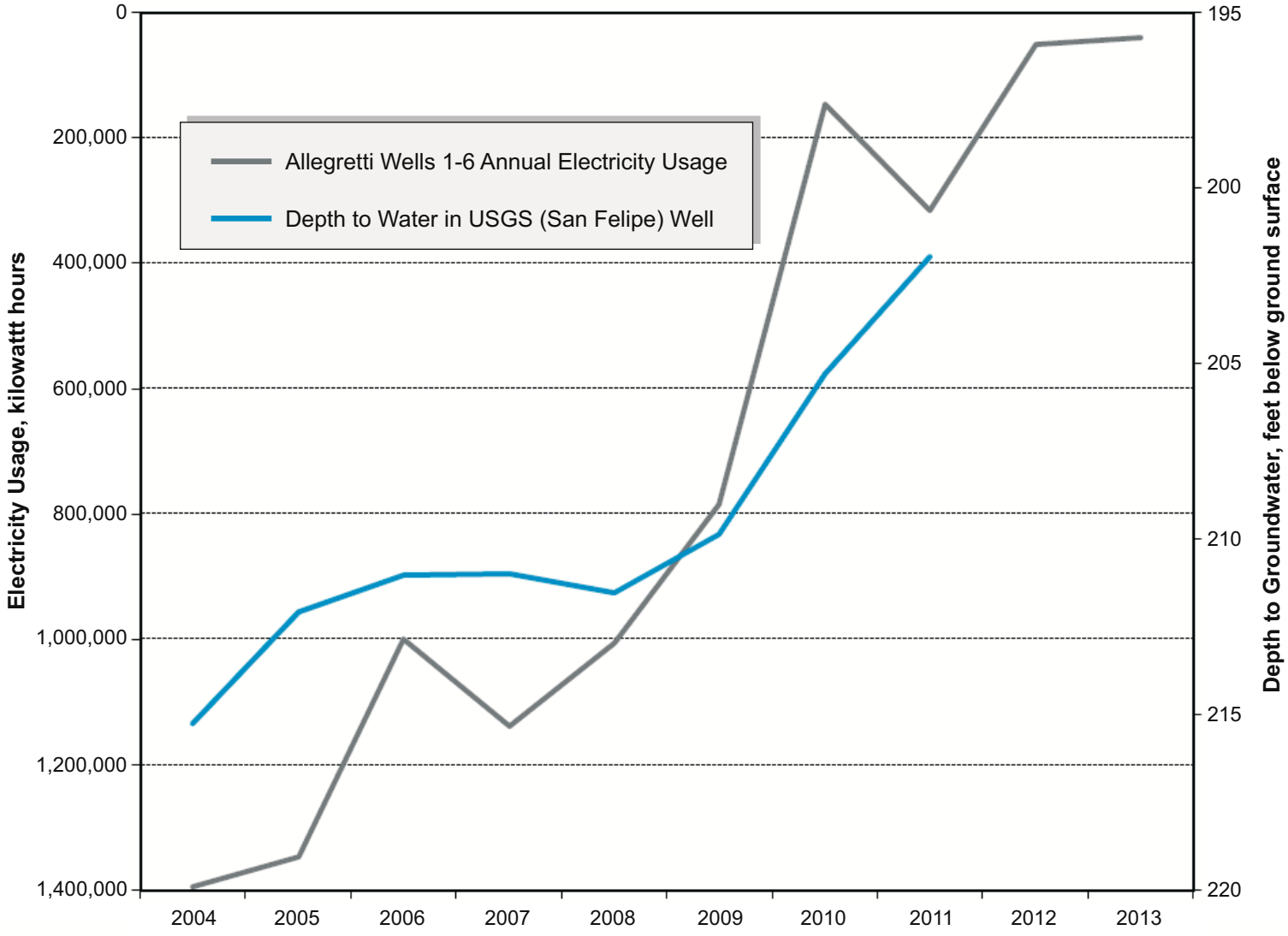
Figure 3
Groundwater Levels and Precipitation



October 2013	**Figure 4** **Estimated Agricultural Acreage**
TODD ENGINEERS Alameda, California	



December 2013	**Figure 5**
TODD ENGINEERS Alameda, California	**Annual Electricity Use and Groundwater Levels**

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Tables

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Table 1
Climate Data

	Average Rainfall (inches)	Average Max Temperature (°F)	Average Min Temperature (°F)
January	0.39	70.9	49.2
February	1.00	70.7	50.3
March	0.11	81.1	57.2
April	0.02	85.0	60.0
May	0.00	94.3	68.4
June	0.00	101.9	75.2
July	0.51	109.0	84.3
August	0.48	107.5	83.3
September	0.09	103.7	79.0
October	0.18	89.9	67.3
November	0.25	75.9	55.2
December	0.66	67.0	46.2
Average Calendar Year Total	**3.69**	**-**	**-**
Monthly Average	**0.31**	**88.1**	**64.6**

Ocotillo Wells 2W, California (046386) Period of Record: 7/1/2003 to 9/30/2012
http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6386

Table 2
Agricultural History

Time Period	Estimated Farmed Acreage	Crops	History
1954-1973	Up to 320 (180 acres in 1973)	alfalfa, sudan grass, barley, oats, citrus, date palms, grapes, tomatoes ***Estimated water usage 3,250 to 6,050 AFY for 1983-1996 [average of 4,400 AFY for 1993-1996]***	Ranch Oasis/Jacobs Ranch start in early 1950s
mid to late 1970s	Up to 2,000 (1,700 acres in 1978)		
1983	660		Allegretti & Company owners in 1981
1984	507		
1985	500		
1986	534		
1987	799		
1988	904		
1989	1,024		
1990	0		
1991	590		
1992	590		
1993	733	melons, onions, alfalfa, wheat, safflower, arugula, asparagus, milo, carrots	Leased to Morgan Ranches/Kelomar from 1993-2009
1994	796		
1993-2009	Up to 1,000 (avg ~500 acres)		
2010	80	onions	Leased to Oasis Organics in 2010
2011	80	wheat, safflower, milo	

EMA, April 2013
Regenerate, June 6, 2013
Estimated water usage from Borrego Water District, 2012

Table 3
Seville Solar Farm Complex Wells

Well	Jacobs Domestic Well	San Felipe/ USGS	1	2	3	4	5	6	7	8 (Proposed)	9 (Proposed)
Proposed Lot	Lot 7	Lot 5	Lot 5	Lot 7	Lot 6	Lot 1	Lot 4	Lot 3	Lot 5	Lot 2	Lot 8
Status	Abandoned	USGS Monitoring well since 1960s	Inactive	Inactive	Out of service since 1983	Active, Commercial	Inactive	Inactive	Active, Domestic	Proposed	Proposed
Constructed	1953	1953	1965	1961	1967	1976	1976	1976	1982	TBD	TBD
Boring Depth (ft)	>1,200	580	675	729	1,250	970	1,100	950	400	600 to 950	400 to 500
Casing Diameter (depth)	NA	14" (0-580)	14" (0-260') 12.75"(260-674')	14" (0-287') 12" (287-380')	16" (0-190) 14"(190-1,200')	16"	16"	NA	NA	TBD	TBD
Perforated Intervals	900-1,200	250-565	260-674	287-667	270-680, 900-1,200	382-400, 405-955	345-390, 401-765, 917-1,050	380-1,000	340-400	TBD	TBD
Pump Discharge (gpm)	NA	NA	1,500	1,800	3,000	2,800	1,800	3,100	NA	TBD	TBD
Specific Capacity (gpm/ft drawdown)	NA	NA	63	134	177	90	40	50	NA	TBD	TBD

Data in this table are compiled from several sources: Regenerate (2013), Koebig & Koebig (1970), EMA (2013), Borrego Water District (2012), Krieger & Stewart (1995) and the Conditional Use Permits for Water Wells #1- #9 (Regenerate). Note that not all the data match between the sources. Given inconsistent data, values were selected that seemed most representative.

TBD = to be determined

NA = not available

Table 4
Past and Current Water Demand

	Past			Current	
	1978	**1983-1996**	**1996-2009**	**2010**	**2011**
Estimated Irrigated Area[1] (acres)	1,700	3,250-6,050 AFY[3] (0 in 1990)	500	80	80
Application Rate[2] (acre-feet/acre per year)	6		5.6	2.4	2.6
Residential[4] (acre-feet/year)	1	1	1	1	1
Reservoir Filling for Water Fowl Hunting[5]	Unknown			Estimated to be at least 15 AF	
Total (Pumped)[6] (acre-feet)	**10,201**	**3,251-6,051**	**2,801**	**208**	**224**

1. From Table 2.

2. 6 AFY/acre crop demand from Koebig & Koebig (1970), 5.6 AFY per acre Imperial County average from Imperial County Farm Bureau (2013), 1.77 AFY/acre average historical onion use and 1.95 AF/acre average historic wheat use in Imperial Irrigation District (Dynamic, 2011). Assumed 75% irrigation efficiency for onions and wheat (2.4 and 2.6 AF/acre application rate). 1993-2009: first used flood irrigation but it used too much water at high electricity costs so switched to drip and sprinkler systems. Also constructed systems to reuse agricultural tail water.

3. From Borrego Water District, 2012.

4. Estimated usage of one existing home with lawn, fruit trees and swimming pool.

5. Assumes a 5 acre area with water 3 feet deep filled once per year.

6. Irrigation return flows were assumed to not return to the deep aquifer because of the presence of a perched shallow aquifer.

Table 5
Proposed Future Water Demand

	Future (AFY)				
	2015	**2020**	**2025**	**2030**	**2035**
General Operations[1]	30	110	190	190	190
Construction[2]	100	175	0	0	0
Residential[3]	10	15	20	25	25
Total	**140**	**300**	**210**	**215**	**215**

1. Assumes that construction will be staged with 1 project built by 2015, 3 projects built by 2020 and 5 projects built by 2025. Solar project water would be from Wells 1, 4, 5, 6, and proposed 8).

2. The amount of water needed during project construction is estimated at 650 AF for all five solar projects (100 to 175 AF per project). Table assumes that construction will occur in stages between 2015 and 2020.

3. Assumes that the existing residential well (Well 7) will produce no more than 10 AFY, and each of the three additional water wells (Wells 2, 3, and proposed 9) not associated with a solar project would each produce no more than 5 AFY (for residential water use).

Table 6
Future Dry Year Demands

	Single and Multiple Dry Year Demands				
	2015	**2020**	**2025**	**2030**	**2035**
General Operations[1]	30	110	190	190	190
Construction[2]	100	175	0	0	0
Residential[3]	10	15	20	25	25
Total	**140**	**300**	**210**	**215**	**215**

Dry year demands are anticipated to be the same as normal year demands (Table 5).

Table 7
Water Supplies Needed to Meet Demands

Pumping in AFY	**Past and Current**			**Future**				
	1996-2009	**2010**	**2011**	**2015**	**2020**	**2025**	**2030**	**2035**
Pumped Groundwater	2,801	208	224	140	300	210	215	215

Data from Tables 4 and 5.

Table 8
Comparison of Supply and Demand

	Current (2011)			Future (2035) [build out occur by 2030]		
	Normal Year	Single Dry Year	Multiple Dry Years	Normal Year	Single Dry Year	Multiple Dry Years
Supply Needed[1]	224	224	224	215	215	215
Demand	224	224	224	215	215	215
Difference	0	0	0	0	0	0

1. Note that the "Supply Needed" represents the groundwater pumped to meet demands. Additional groundwater supply may be available.

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Appendix A

SB 610

Water Code Sections 10910-10915

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WATER CODE
SECTION 10910-10915

10910. (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total

projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

(d) (1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contractholders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the

order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

(g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

(2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.

(3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public water system to comply with the requirements of this part relating to the submission of the water supply assessment.

(h) Notwithstanding any other provision of this part, if a project has been the subject of a water supply assessment that complies with

the requirements of this part, no additional water supply assessment shall be required for subsequent projects that were part of a larger project for which a water supply assessment was completed and that has complied with the requirements of this part and for which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has concluded that its water supplies are sufficient to meet the projected water demand associated with the proposed project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses, unless one or more of the following changes occurs:

(1) Changes in the project that result in a substantial increase in water demand for the project.

(2) Changes in the circumstances or conditions substantially affecting the ability of the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), to provide a sufficient supply of water for the project.

(3) Significant new information becomes available which was not known and could not have been known at the time when the assessment was prepared.

10911. (a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) The city or county may include in any environmental document

an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

10912. For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) (A) Except as otherwise provided in subparagraph (B), a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(B) A proposed photovoltaic or wind energy generation facility approved on or after the effective date of the amendments made to this section at the 2011-12 Regular Session is not a project if the facility would demand no more than 75 acre-feet of water annually.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections. A public water system includes all of the following:

(1) Any collection, treatment, storage, and distribution facility under control of the operator of the system that is used primarily in connection with the system.

(2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the

system.

(3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

(d) This section shall remain in effect only until January 1, 2017, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2017, deletes or extends that date.

10912. For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections. A public water system includes all of the following:

(1) Any collection, treatment, storage, and distribution facility under control of the operator of the system that is used primarily in connection with the system.

(2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the system.

(3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

(d) This section shall become operative on January 1, 2017.

10914. (a) Nothing in this part is intended to create a right or entitlement to water service or any specific level of water service.

(b) Nothing in this part is intended to either impose, expand, or limit any duty concerning the obligation of a public water system to provide certain service to its existing customers or to any future potential customers.

(c) Nothing in this part is intended to modify or otherwise change existing law with respect to projects which are not subject to this part.

(d) This part applies only to a project for which a notice of preparation is submitted on or after January 1, 1996.

10915. The County of San Diego is deemed to comply with this part if the Office of Planning and Research determines that all of the following conditions have been met:

(a) Proposition C, as approved by the voters of the County of San Diego in November 1988, requires the development of a regional growth management plan and directs the establishment of a regional planning and growth management review board.

(b) The County of San Diego and the cities in the county, by agreement, designate the San Diego Association of Governments as that review board.

(c) A regional growth management strategy that provides for a comprehensive regional strategy and a coordinated economic development and growth management program has been developed pursuant to Proposition C.

(d) The regional growth management strategy includes a water element to coordinate planning for water that is consistent with the requirements of this part.

(e) The San Diego County Water Authority, by agreement with the San Diego Association of Governments in its capacity as the review board, uses the association's most recent regional growth forecasts for planning purposes and to implement the water element of the strategy.

(f) The procedures established by the review board for the development and approval of the regional growth management strategy, including the water element and any certification process established to ensure that a project is consistent with that element, comply with the requirements of this part.

(g) The environmental documents for a project located in the County of San Diego include information that accomplishes the same purposes as a water supply assessment that is prepared pursuant to Section 10910.

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Appendix B

Allegretti Subbasin

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Appendix B

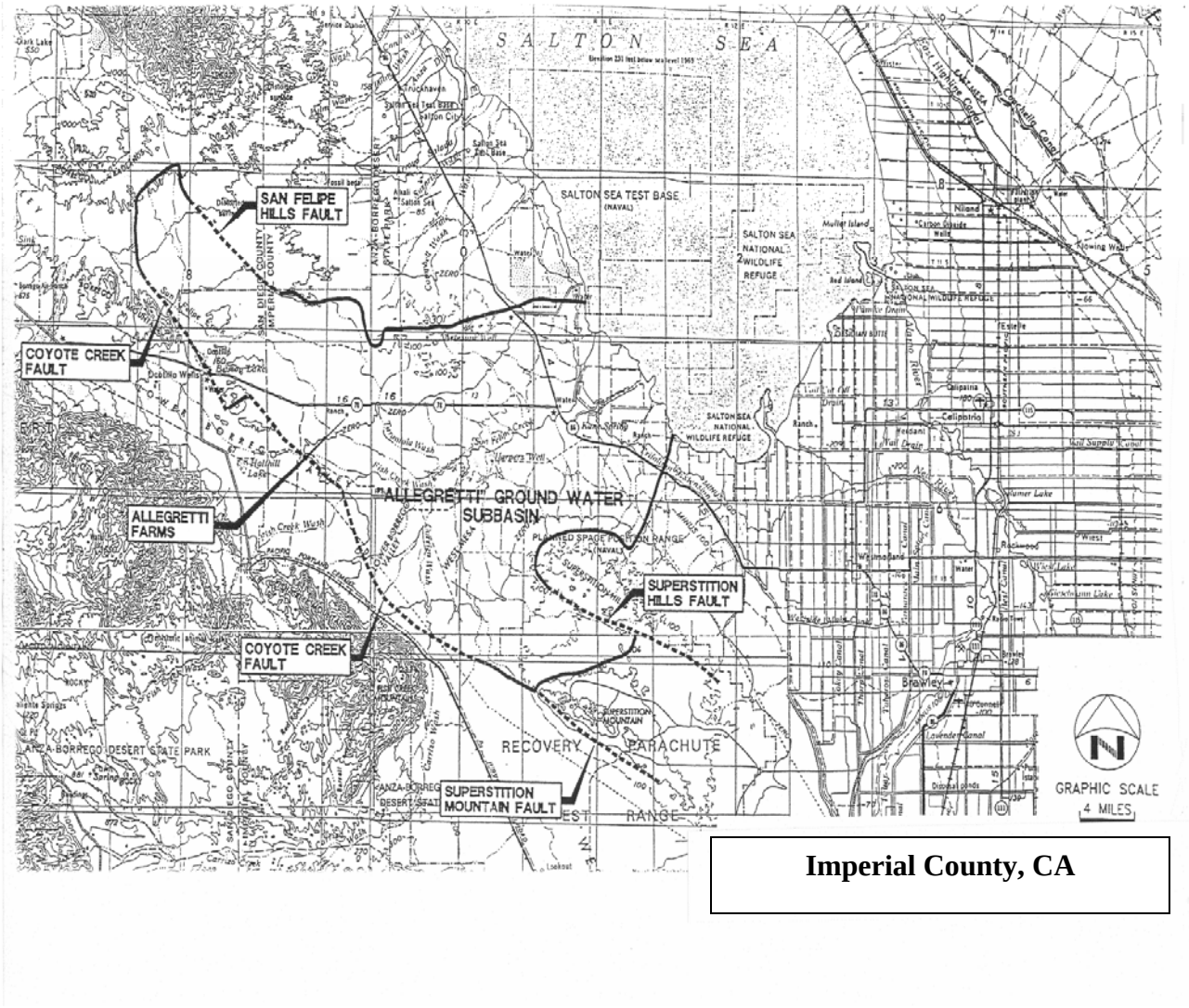

Figure 4 – Allegretti Sub-Basin

From Borrego Springs Pipeline Feasability Report (2012)

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