THIRTY-NINTH ANNUAL ENGINEERING AND SURVEY REPORT ON WATER SUPPLY CONDITIONS OF THE SANTA YNEZ RIVER WATER CONSERVATION DISTRICT 2016-2017

May 9, 2017

STETSON ENGINEERS INC.

THIRTY-NINTH ANNUAL
ENGINEERING AND SURVEY REPORT ON
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SANTA YNEZ RIVER WATER CONSERVATION DISTRICT
2016-2017

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1126-13 May 9, 2017 San Rafael

Board of Directors
Santa Ynez River Water
Conservation District
P.O. Box 719
Santa Ynez, California 93460

Re: Thirty-Ninth Annual Engineering Survey and Report on Water Supply Conditions of the Santa Ynez River Water Conservation District, 2016-2017

Dear Board Members:

Transmitted herewith is our Engineering Survey and Report on Water Supply Conditions of the Santa Ynez River Water Conservation District for 2016-2017. This, the Thirty-Ninth Annual Report, presents the required and pertinent information for the Board of Directors to make necessary determinations for levying ground-water charges upon the production of ground water from water-producing facilities (water wells) within the District. As such, it provides information on the status of the ground water and surface water supplies, as well as the annual production of ground water from within the District.

Sincerely,

Oliver S. Page

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Enclosures

TABLES OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

Cover Photograph: Santa Ynez River from the Highway 154 Bridge, looking east during the 2016 Water Rights Release.

1.0 INTRODUCTION

This, the Thirty-Ninth Annual Engineering Survey and Report on Water Supply Conditions of the Santa Ynez River Water Conservation District, 2016-2017 presents the required and pertinent information for the Board of Directors to make the necessary determinations with respect to levying ground-water charges upon the production of ground water from water-producing facilities within the District. As such, it provides information on the status of ground water and surface water supplies as well as the annual production of ground water from within the District.

This introduction provides: (1) historical background on the Santa Ynez River Water Conservation District (hereinafter called District), inclusive of its purpose and its use of pump charges to finance its activities in part; (2) an overview of the boundaries and water resources of the District; (3) a summary of this report; and (4) findings and determinations required by the Water Code to establish the amount and set the rates of ground-water charges necessary to generate sufficient revenue to supplement existing revenue sources of the District.

Subsequent chapters provide information on ground-water production and charges (Chapter 2.0), precipitation (Chapter 3.0), surface water conditions (Chapter 4.0) and ground-water conditions (Chapter 5.0). Additional information on provisions of the Water Code pertinent to ground-water charges, historical ground-water charge rates, streamflow records, water right releases, a general description of the hydrogeology of ground-water sources, water-level hydrographs of selected wells and well inventory data are found in the Appendices.

1.1. HISTORICAL BACKGROUND

The District was formed in 1939 for the primary purpose of protecting water rights on the lower Santa Ynez River. Reservoirs had been constructed in the upper reaches of the Santa Ynez River by the City of Santa Barbara (Gibraltar Reservoir) and the Montecito Water District (Jameson Lake), and litigation by downstream riparian landowners challenging those projects was not totally successful. Additional projects or exportation of

water were being studied and the Cachuma Project was administratively authorized under Section 9(a) of the Federal Reclamation Act of 1939. For these reasons, the people of the Santa Ynez and Lompoc Valleys joined together to form a water conservation district. The purpose of the District is to protect, and if necessary, augment the water supplies of the District, which are necessary for the public health, welfare and safety of all residents.

In recent years, the District has received only about half of its necessary operating funds from ad valorem property taxes. The Water Conservation District Law of 1931 includes a detailed procedure set forth in Part 9 of Division 21 of the Water Code (Water Code Section 75500 through 75642) providing for implementation of a pump charge. Initiated by the District in 1979, these charges are authorized to be levied on the production of ground water from water-producing facilities. They are levied as an additional source of revenue to the extent that such charges are deemed necessary by the District Directors to cover the remaining operating funds to accomplish District activities, all associated with managing, protecting, conserving and enhancing water resources within the District.

Ground-water charges are incurred by the owners of water production facilities and are charged at uniform rates (for each category of water) within the District or each Zone thereof, based on the amount of ground water produced. Production is measured by water meter or is estimated by a variety of methods acceptable to the District. Use of meters has never been required. However, all methods used to estimate production are based on criteria relating to water use. Various legal remedies exist for non-registration of wells, non-payment of ground-water charges, and submittal of fraudulent information. Should court action be necessary and a judgment obtained, a lien is placed against the water-producing facility owner's real or personal property.

1.2. DESCRIPTION OF THE DISTRICT

The District, comprised of two non-contiguous parcels, encompasses approximately 180,000 acres including most of the Santa Ynez River watershed from the mouth of the river at Surf to a point about three miles downstream of Bradbury Dam and smaller watershed areas northeast and south of Lake Cachuma. Ground surface elevations vary from sea level at Surf to more than 1,700 feet above sea level along portions of the southern District

boundary. The terrain south of the river rises relatively steeply to the crest of the Santa Ynez Mountains. North of the river the rise in elevation is generally gradual over upland terraces and hilly areas. The District boundary and various geographic features within or adjacent to the District are shown on Figure 1.

The Santa Ynez River flows westerly, generally parallel to the southern boundary of the District until entering the Lompoc Plain. Thence, it flows northwesterly and westerly across the Plain to the Pacific Ocean. The flow of the river is intermittent throughout the District, carrying mainly flood flows from tributary watershed land downstream of Bradbury Dam and occasional spills and releases of water from Lake Cachuma. During summer months, water is released from Lake Cachuma to meet downstream water rights.

Ground water occurs within the District primarily in younger unconsolidated alluvial deposits and in older unconsolidated deposits. In most cases, the older and often deeper deposits are not in hydrologic continuity with the shallower alluvial deposits. The major occurrences of ground water are in the alluvial deposits of the Santa Ynez River and Lompoc Plain, and in the older unconsolidated deposits of the Santa Ynez Upland, Lompoc Upland, Buellton Upland, Santa Rita Upland and the Lompoc Terrace basins.

Water production within the District is for domestic, municipal, industrial and agricultural purposes. With the exception of certain federal installations, the City of Lompoc and the smaller communities of Solvang, Buellton, Santa Ynez and Los Olivos, most of the District is a mixture of rural agriculture and suburban development.

1.3. REPORT SUMMARY

The following is a summary of the information contained in this report.

1. Revenues from ground-water charges collected by the District for production during fiscal year 2015-16 amounted to $268,572. Revenues collected through April 6, 2017 for production during the first half of 2016-17 amounted to $154,842. An additional $485 has been received as late payments and assessments in connection with production prior to 2015-16.

2. The Board, for 2016-17, established the following six ground-water charge zones for the District.

   Zone A - District portion of the Santa Ynez River alluvial channel from San Lucas Bridge downstream to Lompoc Narrows.

   Zone B - District portion of the Lompoc Plain, Lompoc Upland and Lompoc Terrace ground-water basins.

   Zone C - All other portions of the District not included in Zones A, B, D, E, and F.

   Zone D - District portion of the Buellton Upland basin.

   Zone E - District portion of the Santa Ynez Upland basin.

   Zone F - District portion of the Santa Rita Upland basin.

3. The ground-water charge rates per acre-foot of production for fiscal year 2016-17 were as follows:

	Agricultural Water	Other Water	Special Irrigation Water
Zone A	3.85	13.48	7.70
Zone B	3.85	13.48	7.70
Zone C	3.00	10.50	6.00
Zone D	3.00	10.50	6.00
Zone E	3.00	10.50	6.00
Zone F	3.00	10.50	6.00

4. As of April 6, 2017, reported ground-water production for fiscal year 2015-16 totaled 52,501 acre-feet. This is about 96 percent of the 54,668 acre-feet total water production reported for fiscal year 2014-15.

5. Ground-water production, reported as of April 6, 2017 for the first half of 2016-17 totaled 26,067 acre-feet or about 100 percent of the total water production reported for the first half of 2015-16 as of April 8, 2016.

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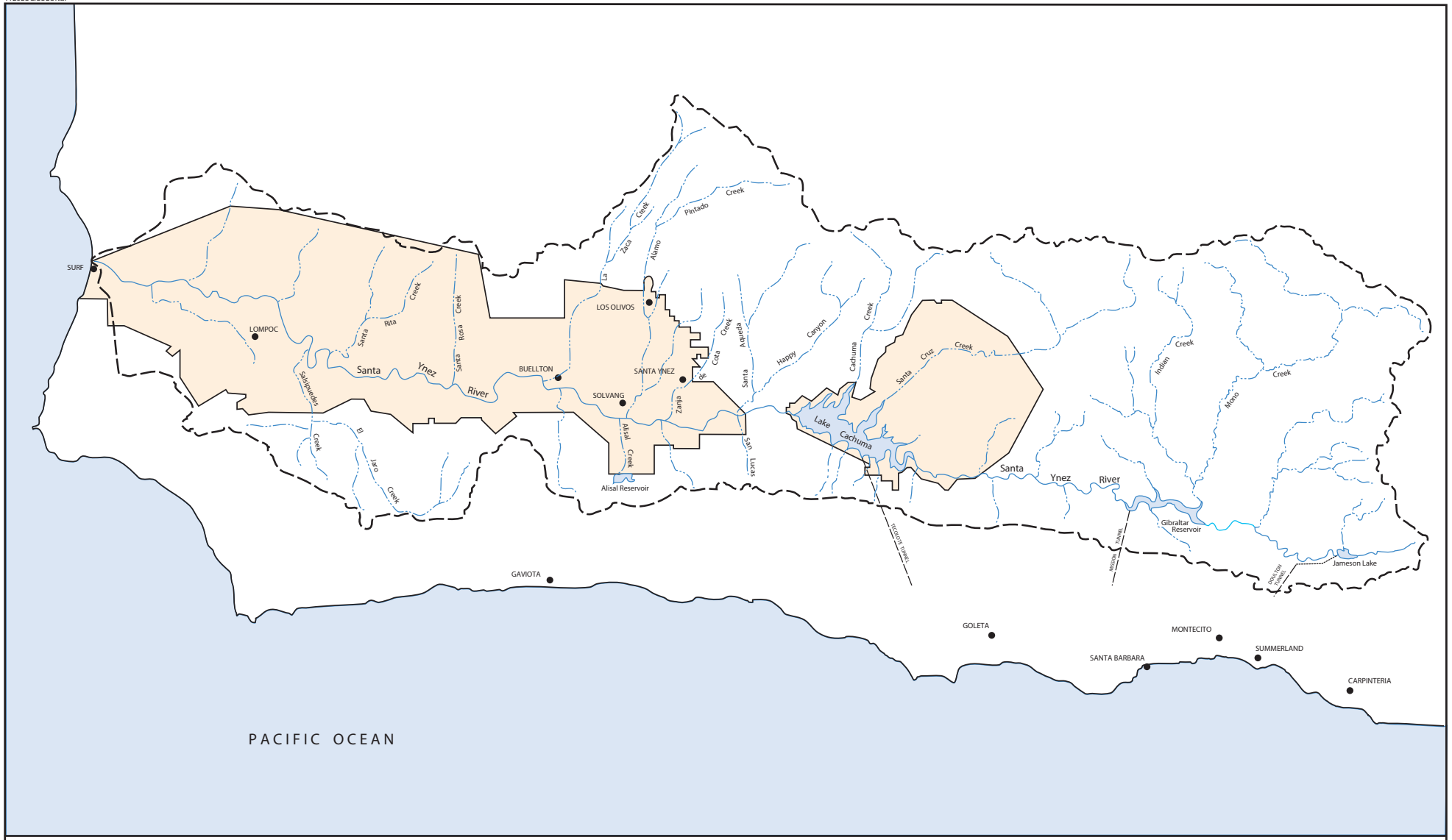

LEGEND

Drainage Basin Boundary

Santa Ynez River Water Conservation District

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SANTA YNEZ RIVER WATER CONSERVATION DISTRICT

FIGURE 1

6. Annual reported (as of April 6, 2017) ground-water production within the District for the past five years was as follows:

Fiscal Year	Total Production (Acre-Feet)
2011-12	49,747
2012-13	55,737
2013-14	55,794
2014-15	54,688
2015-16	52,501

7. The projected estimated total ground-water production for fiscal years 2016-17 and 2017-18 is 54,750 acre-feet.

8. As of April 6, 2017, 1,087 wells have been registered with the District. Of that number, approximately 878 are active and 209 are inactive.

9. Precipitation at Cachuma Lake and Lompoc during calendar year 2016 and hydrologic year 2016-17 through March was as follows:

	Cachuma Lake	Lompoc
2016 Calendar Year Precipitation (Inches)	13.69	14.38
Percent of Normal	62	90
2016-17 Hydrologic Year through March 2017 partial year (Inches)	24.68	21.35
Percent of Normal	124	147

10. During hydrologic year 2015-16, the flow of the Santa Ynez River at the Lompoc Narrows was 2,313 acre-feet. Through March 2017, the flow at the Narrows for hydrologic year 2016-17 was 27,416 acre-feet.

11. During the summer of 2016 water rights releases were made. The following amounts were released.

Month	Above Narrows Account (AF)	Below Narrows Account (AF)	Total (AF)
August	6,292	0	6,292
September	3,042	2,286	5,328
Total	9,334	2,286	11,620

12. State Water Project deliveries to District contractors for fiscal year 2015-16 and the first half of fiscal year 2016-17 were as follows:

Fiscal Year (July-June)	State Water Project Deliveries			
	Improvement District No. 1	City of Solvang	City of Buellton	Vandenberg AFB
2015-16	567	380	73	1,238
2016-17 (First Half)	62	256	9	1,064

13. The estimated change in the quantity of ground water in storage within the District and the estimated accumulated dewatered storage are summarized below.

Source of Ground Water	Change in Storage 2016 to 2017 (Acre-Feet)	Accumulated Dewatered Storage 2016-17 (Acre-Feet)
Santa Ynez River Alluvium	5,600	12,900
Lompoc Plain	1,100	20,700
Lompoc Upland	-1,800	35,300
Lompoc Terrace	200	500
Santa Rita Upland	100	13,700
Buellton Upland (Eastern)	100	2,800
Santa Ynez Upland (District)	-1,200	55,200
TOTAL	4,100	**141,100**

1.4. FINDINGS AND DETERMINATIONS

The findings of this investigation are summarized below so that the Board may make the determinations required by law (Water Code Section 75574). These findings are based upon either Spring 2017 water-level data or pumpage reported through April 6, 2017 and are applicable to the entire District.

(a) The average annual overdraft for the immediate past ten (10) water years: 5,130± acre-feet;

(b) The estimated annual overdraft for the current (2016-17) water year: 3,000± acre - feet;

(c) The estimated annual overdraft for the ensuing (2017-18) year: 3,000± acre-feet;

(d) The accumulated overdraft as of the last day of the preceding (2015-16) water year: 145,200± acre-feet in terms of accumulated dewatered storage. Accumulated overdraft as defined in Water Code Section 75505 is nominal, if any, at this time;

(e) The estimated accumulated overdraft as of the last day of the current (2016-17) water year: 141,100± acre-feet in terms of accumulated dewatered storage. Accumulated overdraft as defined in Water Code 75505 is nominal, if any, at this time;

(f) The estimated amount of agricultural water to be withdrawn from the ground-water supplies of the District for the ensuing water year (2017-18); 40,000 acre-feet of agricultural water and 1,965 acre-feet of special irrigation water;

(g) The estimated amount of water other than agricultural water or special irrigation water to be withdrawn from the ground-water supplies of the District for the ensuing (2017-18) water year: 12,785 acre-feet;

(h) The estimated amount of water necessary for surface distribution for the ensuing (2017-18) water year: approximately 5,000 acre-feet;

(i) The amount of water, which is necessary for the replenishment of the ground-water supplies of the District: 141,100± acre-feet to completely replenish accumulated dewatered storage;

(j) The amount of water the District is obligated by contract to purchase: The District is not obligated by contract to purchase water.

The amount of ground-water charge levied by the Board should be based upon the estimated amount of supplemental revenue required to continue essential District activities without increasing the cost of water to a producer to a point where it is not financially feasible for the producer to utilize the water. The State Water Code requires that non-

agricultural rates cannot be less than three times, nor more than five times the rate established for agricultural water and special irrigation water rates shall not be less than the rate for agricultural water and shall not be more than the rate for non-agricultural water.

The actual ground-water charge the Board will levy for 2017-18 will be based upon the District's anticipated expenses and revenue.

1.5. SOURCES OF INFORMATION

The information and data utilized to prepare this report were obtained from the following sources:

- Pumpage, revenue and well registration - District
- State Water Project use – Central Coast Water Authority
- Water-level measurements – U.S. Geological Survey (USGS), City of Buellton and U.S. Bureau of Reclamation (USBR)
- Precipitation measurements – Santa Barbara County Flood Control District
- Water quality analyses – USGS
- Lake Cachuma operations – USBR
- Surface water flow – USGS

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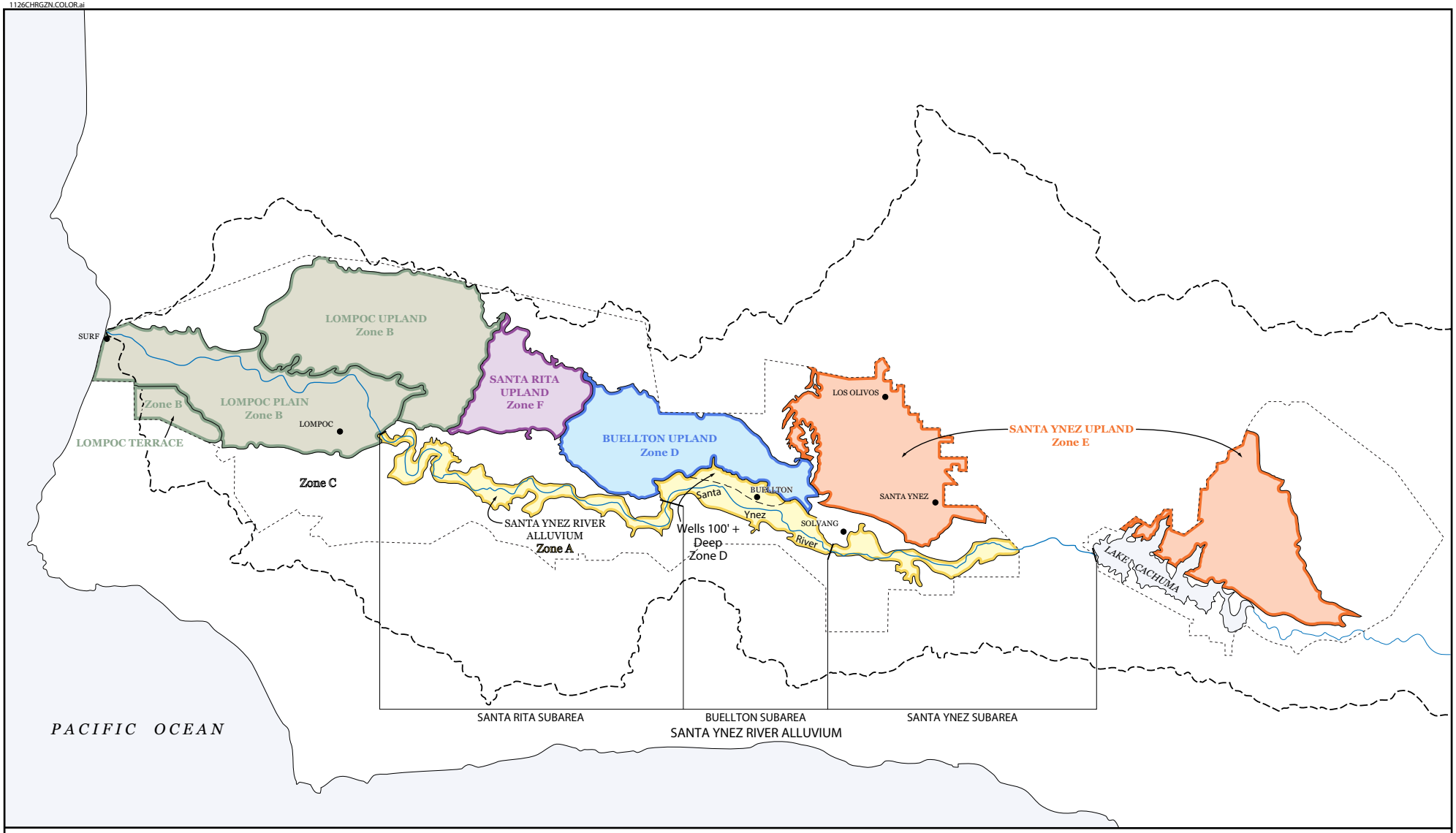

LEGEND

- Santa Ynez River Water Conservation District Boundary
- Santa Ynez River Basin Boundary
- Ground-Water Basin Boundary

GROUND-WATER CHARGE ZONES

- Zone A
- Zone B
- Zone C
- Zone D
- Zone E
- Zone F

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GROUND-WATER CHARGE ZONES
SANTA YNEZ RIVER WATER CONSERVATION DISTRICT

FIGURE 2

2.0 GROUND-WATER CHARGES

The Board has established six ground-water charge zones for the District which are described below.

Zone A – District portion of the Santa Ynez River alluvial channel from San Lucas Bridge downstream to Lompoc Narrows.

Zone B – District portion of the Lompoc Plain, Lompoc Upland and Lompoc Terrace ground-water basins.

Zone C – All other portions of the District not included in Zones A, B, D, E and F.

Zone D – District portion of the Buellton Upland basin.

Zone E – District portion of the Santa Ynez Upland basin.

Zone F – District portion of the Santa Rita Upland basin.

A map showing the location of these zones is included as Figure 2.

For fiscal year 2016-2017 the Board established the following ground-water charge rates, in dollars per acre-foot of production, for each zone.

	Agricultural Water	Other Water	Special Irrigation Water
Zone A	3.85	13.48	7.70
Zone B	3.85	13.48	7.70
Zone C	3.00	10.50	6.00
Zone D	3.00	10.50	6.00
Zone E	3.00	10.50	6.00
Zone F	3.00	10.50	6.00

The above rates are based on a ratio of 1:3.5 with other water rates three and one-half times the agricultural rates. Special irrigation water rates are at a ratio of 1:2 with agricultural rates. More information on ground-water charge rates, including a summary of historical rates, is presented in Appendices A and B.

2.1. REVENUES

Revenues collected by the District based on ground-water production through April 6, 2017 are presented below for specific time frames.

	2015/16	2014/15	2013/14
Fiscal Year (July through June)	$268,572	$255,308	$265,996
First-Half (July through December)	$154,842	$133,380	$131,757
Years Prior	$485	$2,656	$877

2.2. GROUND-WATER PRODUCTION

Summarized below is the reported (as of April 6, 2017) water production within the District, in acre-feet, for fiscal year 2015-16.

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	12,563.12	2,263.56	575.53	15,402.21
Zone B	18,548.08	5,980.52	741.93	25,270.53
Zone C	70.62	1,078.29	12.70	1,161.61
Zone D	2,679.52	907.66	38.00	3,625.18
Zone E	3,191.51	1,559.21	0.00	4,750.72
Zone F	2,192.39	98.24	0.00	2,290.63
TOTAL	**39,245.24**	**11,887.48**	**1,368.16**	**52,500.88**

The above total water production reported, as of April 6, 2017, for fiscal year 2015-16 is about 96 percent of the total water production reported for fiscal year 2014-15 as of April 8, 2016.

The reported (as of April 6, 2017) water production within the District, in acre-feet, for the first half of fiscal year 2016-17 is as follows:

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	5,784.55	1,318.81	400.51	7,503.87
Zone B	9,205.22	3,054.44	481.93	12,741.59
Zone C	33.84	546.79	6.30	586.93
Zone D	1,364.44	387.23	30.00	1,781.67
Zone E	1,618.01	931.19	0.00	2,549.20
Zone F	853.12	50.52	0.00	903.64
TOTAL	**18,859.18**	**6,288.98**	**918.74**	**26,066.90**

The above total water production reported, as of April 6, 2017, for the first half of fiscal year 2016-17 is about 100 percent of the total water production reported for the first half of fiscal year 2015-16 as of April 8, 2016.

Additional production that actually occurred prior to fiscal year 2015-16 was reported during the current fiscal year (2016-17). That late reported production, in acre-feet, is as follows:

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	42.86	16.58	0.00	59.44
Zone B	0.80	4.45	0.00	5.25
Zone C	0.00	0.00	0.00	0.00
Zone D	0.00	0.60	0.00	0.60
Zone E	34.38	8.80	0.00	43.18
Zone F	0.00	4.75	0.00	4.75
TOTAL	**78.04**	**35.18**	**0.00**	**113.22**

The above late reported production, as well as late reported production in previous years, has been posted to the appropriate years. Table 1 summarizes the total annual production for the period 1979-80 through 2015-16 reported to the District as of April 6, 2017. Figure 3 shows the 5-year average annual ground-water production by zone for the same period. The values of production shown on Table 1, Figure 3, and in this "Ground-Water Production" section are subject to future revision as additional late reported production is received by the District.

The estimated ground-water production, in acre-feet, within the District for the current fiscal year (2016-17) and ensuing fiscal year (2017-18) is tabulated below. The estimates are based on the reported ground-water production for fiscal year 2015-16.

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	12,300	2,600	800	15,700
Zone B	19,500	6,300	1,100	26,900
Zone C	100	1,085	15	1,200
Zone D	2,800	900	50	3,750
Zone E	3,300	1,800	0	5,100
Zone F	2,000	100	0	2,100
TOTAL	**40,000**	**12,785**	**1,965**	**54,750**

2.3. WELL REGISTRATION

As of April 6, 2017, 1,087 wells have been registered with the District. Of that number, approximately 878 are active and 209 are inactive.

2.4. MAJOR PRODUCERS

The major water producers, those reporting pumpage by ownership and/or lease during fiscal year 2015-16, as of April 6, 2017, were as follows:

TABLE 1
ANNUAL REPORTED GROUND-WATER PRODUCTION WITHIN THE DISTRICT [a, b]
(ACRE-FEET)

Fiscal Year [d]	Agricultural Water							Other Water							Special Irrigation Water [c]							
	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Total	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Total	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Total	Production
1979-80	6,363	7,233	7,322				20,918	1,815	6,399	2,362				10,576								31,494
1980-81	7,535	9,486	7,563				24,584	1,940	7,283	2,308				11,531								36,115
1981-82	7,780	18,037	7,889				33,706	2,471	7,506	4,147				14,124								47,830
1982-83	7,501	13,934	7,575				29,010	2,110	6,644	2,162				10,916								39,926
1983-84	9,427	14,865	6,581				30,873	2,380	6,714	2,382				11,476								42,349
1984-85	8,418	15,589	7,124				31,131	2,380	7,905	2,159				12,444								43,575
1985-86	8,621	15,240	7,269				31,130	2,119	9,407	2,147				13,673	554	303	15				872	45,675
1986-87	9,251	19,656	5,567				34,474	1,794	8,992	1,995				12,781	523	955	68				1,546	48,801
1987-88	6,652	19,839	6,162				32,653	2,358	8,546	2,425				13,329	594	805	34				1,433	47,415
1988-89	8,303	19,218	6,417				33,938	2,750	7,445	1,696				11,918	738	1,002	40				1,780	47,636
1989-90	8,265	17,358	8,801				34,424	2,516	8,495	2,162				13,173	658	1,028	26				1,712	49,309
1990-91	8,495	18,018	10,804				37,317	2,433	7,547	2,589				12,569	669	981	41				1,691	51,577
1991-92	8,982	18,960	7,078				35,020	2,761	6,698	1,968				11,427	753	1,163	20				1,936	48,383
1992-93	7,852	19,122	7,186				34,160	1,993	7,307	2,420				11,720	1,052	1,205	250				2,507	48,387
1993-94	8,076	16,748	713	1,108	3,505	644	30,794	1,662	7,681	1,224	430	1,930	78	13,005	1,059	1,005	0	57	0	0	2,121	45,920
1994-95	8,173	14,190	1,060	843	3,018	970	28,254	2,098	7,777	1,081	430	1,703	66	13,155	1,056	729	0	36	0	0	1,821	43,230
1995-96	8,993	16,327	743	1,158	4,672	899	32,792	2,144	8,585	1,079	469	2,993	50	15,320	941	839	10	52	0	0	1,842	49,954
1996-97	8,977	19,235	787	970	4,347	1,441	35,757	2,065	8,075	958	461	2,924	69	14,552	935	988	10	22	0	0	1,955	52,264
1997-98	9,627	19,197	429	1,034	2,822	1,148	34,257	1,581	7,463	978	264	1,658	78	12,022	838	445	74	11	0	0	1,368	47,647
1998-99	9,702	18,724	115	1,693	3,074	1,283	34,591	1,997	7,432	995	236	1,637	87	12,384	862	836	17	13	8	0	1,736	48,711
1999-00	10,319	19,832	113	1,739	3,452	1,556	37,011	2,262	7,906	1,208	340	2,084	83	13,883	976	1,152	17	19	0	0	2,164	53,058
2000-01	11,169	20,261	121	2,247	3,278	1,210	38,286	2,524	7,395	1,241	458	1,526	103	13,247	906	1,054	12	32	0	0	2,004	53,537
2001-02	11,170	21,174	148	2,311	2,869	1,446	39,118	2,806	7,509	1,476	537	1,284	122	13,734	899	1,132	17	23	0	0	2,071	54,922
2002-03	10,515	17,559	153	1,549	2,716	1,374	33,866	2,048	7,684	1,084	584	845	109	12,354	1,012	1,058	10	27	0	0	2,107	48,327
2003-04	11,193	15,602	189	1,972	2,990	1,267	33,213	2,260	8,027	1,067	508	1,455	105	13,422	965	1,161	20	14	0	0	2,160	48,795
2004-05	10,622	15,768	141	1,856	2,411	1,056	31,855	2,489	7,285	1,129	348	1,067	106	12,424	876	861	19	8	0	0	1,764	46,042
2005-06	10,044	16,854	158	1,965	2,127	1,354	32,502	1,991	7,624	880	265	1,194	103	12,057	726	883	20	3	0	0	1,632	46,191
2006-07	10,756	15,834	172	1,719	2,651	1,426	32,558	1,945	8,134	896	587	1,645	138	13,345	796	1,039	23	35	0	0	1,893	47,796
2007-08	11,709	15,892	186	2,461	3,272	1,791	35,311	2,215	8,173	886	813	1,843	143	14,073	870	1,171	30	46	0	0	2,117	51,501
2008-09	11,182	16,004	174	2,823	3,109	1,632	34,923	2,261	7,493	848	984	2,166	148	13,900	858	1,126	22	69	0	0	2,075	50,898
2009-10	11,072	16,381	152	2,711	2,505	1,695	34,516	2,610	7,006	830	1,026	1,316	148	12,936	795	1,053	20	46	0	0	1,914	49,366
2010-11	9,635	17,493	161	2,227	2,607	1,680	33,803	1,355	6,869	1,470	955	1,204	134	11,987	568	939	17	33	0	0	1,557	47,347
2011-12	10,445	18,276	169	2,631	2,696	2,064	36,281	1,510	6,858	982	711	1,695	140	11,896	620	900	21	29	0	0	1,570	49,747
2012-13	11,498	21,257	145	2,357	3,311	1,752	40,319	2,309	7,083	1,022	708	2,268	128	13,518	762	1,088	18	32	0	0	1,900	55,737
2013-14	11,750	19,336	119	3,043	3,558	1,963	39,769	2,442	7,199	1,121	750	2,316	134	13,962	804	1,203	18	38	0	0	2,063	55,794
2014-15	12,285	19,508	103	3,436	2,995	2,005	40,332	2,607	6,367	771	1,011	1,860	125	12,741	619	939	11	46	0	0	1,615	54,688
2015-16	12,563	18,548	71	2,680	3,192	2,192	39,245	2,264	5,981	1,078	908	1,559	98	11,888	576	742	13	38	0	0	1,368	52,501

[a] *Revised April 6, 2017.*

[b] *Ground-water charge zones for the period 1979-80 through 1992-93 included the District portion of:*

Zone A Santa Ynez River alluvial channel from San Lucas Bridge downstream to Lompoc Narrows.
Zone B Lompoc Plain, Lompoc Upland basin (including Santa Rita Upland basin) and Lompoc Terrace.
Zone C All portions of the District not included in Zones A and B. Includes, among other areas, the Santa Ynez Upland and Buellton Upland basins.

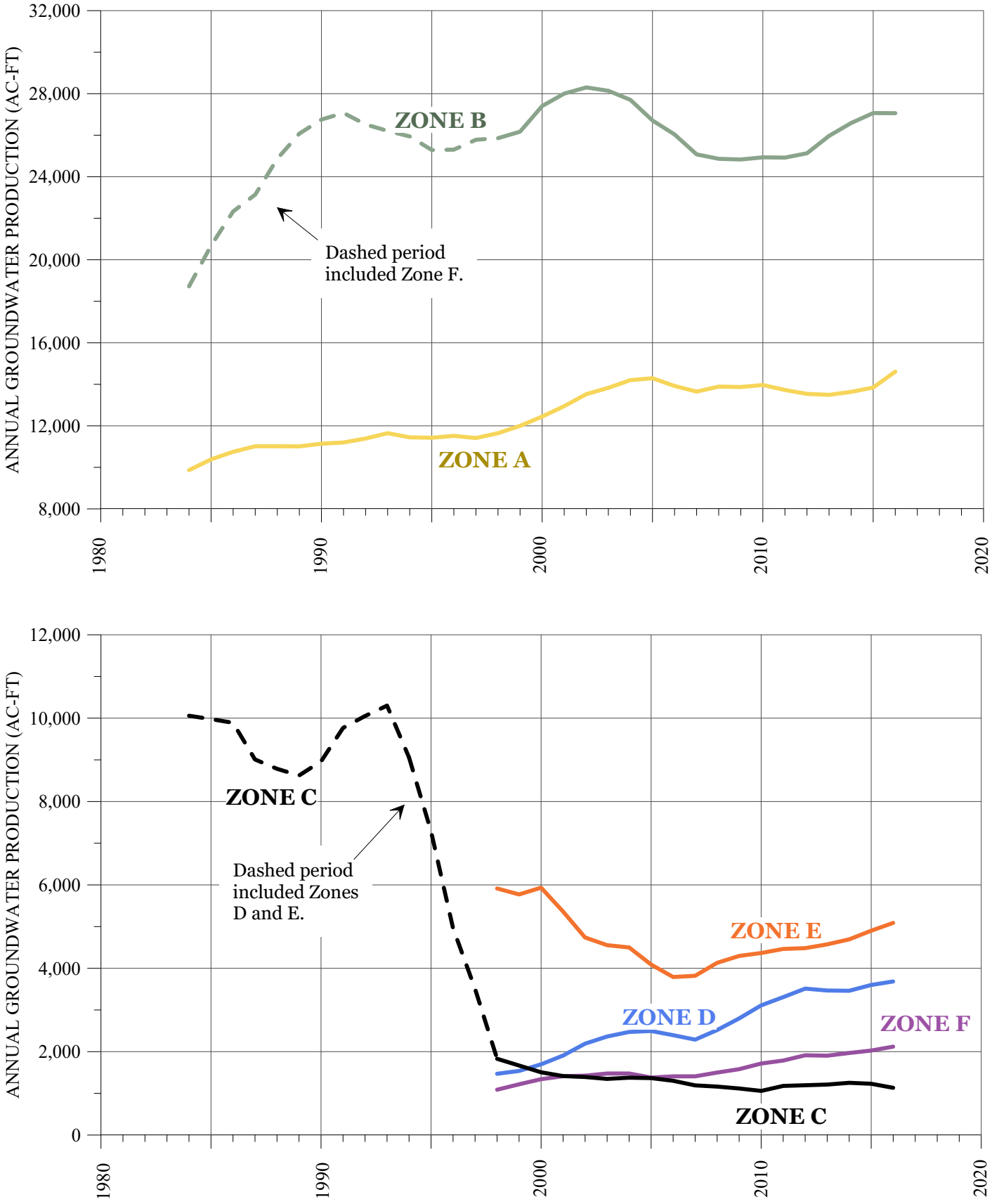
Ground-water charge zones since 1993-94 include the District portion of:

Zone A Santa Ynez River alluvial channel from San Lucas Bridge downstream to Lompoc Narrows.
Zone B Lompoc Plain, Lompoc Upland basin and Lompoc Terrace.
Zone C All other portions of the District not included in Zones A, B, D, E, and F.
Zone D Buellton Upland basin.
Zone E Santa Ynez Upland basin.
Zone F Santa Rita Upland basin.

[c] *Based upon a 1984 amendment to the California Water Code. First year for reporting special irrigation water production was 1985-86.*

[d] *July 1 through June 30.*

	Producer	2015-16 Production (Acre-Feet)
Zone A	SYRWCD, ID #1 (also in Zone E)	**2,028**
	Acin Farms	**1,692**
	Espinoza / Big E Produce (also in Zone B)	**1,134**
	Gainey Ranch (also in Zone E)	**655**
	Wygod, Martin (River Edge & Anvil Farms)	**527**
	Jackson, Palmer (The Alisal)	**498**
	Campbell Ranches (also in Zones B, D and F)	**447**
	City of Solvang (also in Zones C and E)	**400**
	Rancho LaVina	**373**
	Bodger & Sons Company (also in Zone B)	**325**
	City of Buellton (also in Zone D)	**260**
	Williams, Norman (also in Zone D)	**139**
Zone B	Santa Barbara Farms (Witt/Guerra)	**4,835**
	City of Lompoc (Parks Dept. & Water Div.)	**4,508**
	Lompoc Farming	**3,935**
	Espinoza / Big E Produce (also in Zone A)	**3,280**
	Campbell Ranches (also in Zones A, D and F)	**1,769**
	Vandenberg Village CSD	**1,141**
	U.S. Penitentiary Farm	**1,025**
	Hibbits (Ranch and Family Trust)	**694**
	Mission Hills CSD	**557**
	Wineman, Edward	**483**
	Bodger & Sons Company (also in Zone A)	**223**
Zone C	Imerys (was Celite Corporation)	**652**
	City of Solvang (also in Zone A and E)	**280**
Zone D	Buell, James (incl. Marcelino, LLC)	**843**
	City of Buellton (also in Zone A)	**691**
	Williams, Norman (also in Zone A)	**510**
	Foley Estates Vineyards (also in Zone F)	**371**
	Campbell Ranches (also in Zones A, B and F)	**43**
Zone E	SYRWCD, ID #1 (also in Zone A)	**1,595**
	Gainey Ranch (Also in Zone A)	**19**
	City of Solvang (also in Zones A and C)	**10**
Zone F	Campbell Ranches (also in Zones A, B and D)	**561**
	A & M Farms (now Oak Hills Ranch)	**433**
	Foley Estates Vineyards (also in Zone D)	**415**



ANNUAL GROUND-WATER PRODUCTION WITHIN THE DISTRICT
5-YEAR MOVING AVERAGE

3.0 PRECIPITATION

Water supply and water use within the District as well as ground-water conditions are dependent upon precipitation. Precipitation, either directly or as streamflow infiltration, recharges the ground-water supplies. The quantity and timing of precipitation can provide an indication of future water-level conditions. Table 2 presents the monthly precipitation and departure from normal for two stations, Cachuma Lake and Lompoc, for the period January 2016 through March 2017. Precipitation during the current hydrologic water year to date (October 2016 through March 2017) is 124 and 147 percent of normal at Cachuma Lake and Lompoc, respectively.

The long-term annual variation in precipitation at Santa Barbara, Gibraltar Dam, Cachuma Lake, and Lompoc is shown graphically on Figure 4. Also shown on Figure 4 is a graph of the accumulated departure from the mean annual precipitation. The analysis represented by these graphs indicates the historical wet and dry periods. A wet period is indicated by an upward trend of the graph over a period of years. Conversely, where the graph trends downward over a period of years a dry period is indicated.

TABLE 2
MONTHLY PRECIPITATION AND DEPARTURE FROM NORMAL AT CACHUMA LAKE AND LOMPOC JANUARY 2016 THROUGH MARCH 2017 [a]
(INCHES)

Month	Cachuma Lake		Lompoc	
	Precipitation	Departure [b]	Precipitation	Departure [b]
January 2016	3.90	-1.04	3.57	0.24
February	1.70	-3.48	1.27	-2.32
March	3.13	-0.80	2.91	0.03
April	0.26	-1.17	1.04	0.03
May	0.37	-0.09	0.00	-0.29
June	0.00	-0.05	0.00	-0.04
July	0.00	-0.01	0.01	0.00
August	0.00	-0.03	0.00	-0.03
September	0.00	-0.13	0.00	-0.10
October	1.15	0.16	1.18	0.44
November	1.21	-0.37	2.23	0.82
December	1.97	-1.39	2.17	-0.39
2016 Total	**13.69**	**-8.40**	**14.38**	**-1.61**
Percent of Normal	**62**		**90**	
January 2017	8.81	3.87	6.83	3.50
February	10.70	5.52	8.02	4.43
March	0.84	-3.09	0.92	-1.96
2016-17 Hydrologic Water Year Total Through March	**24.68**		**21.35**	
Percent of Normal	**124**		**147**	

[a] Data from Santa Barbara County Flood Control District

[b] Departure from normal is based on an averaging period of 1981 to 2010 as established by NOAA.

ANNUAL PRECIPITATION AND CUMULATIVE DEPARTURE FROM MEAN FOR LOMPOC, SANTA BARBARA, CACHUMA LAKE, AND GIBRALTAR DAM

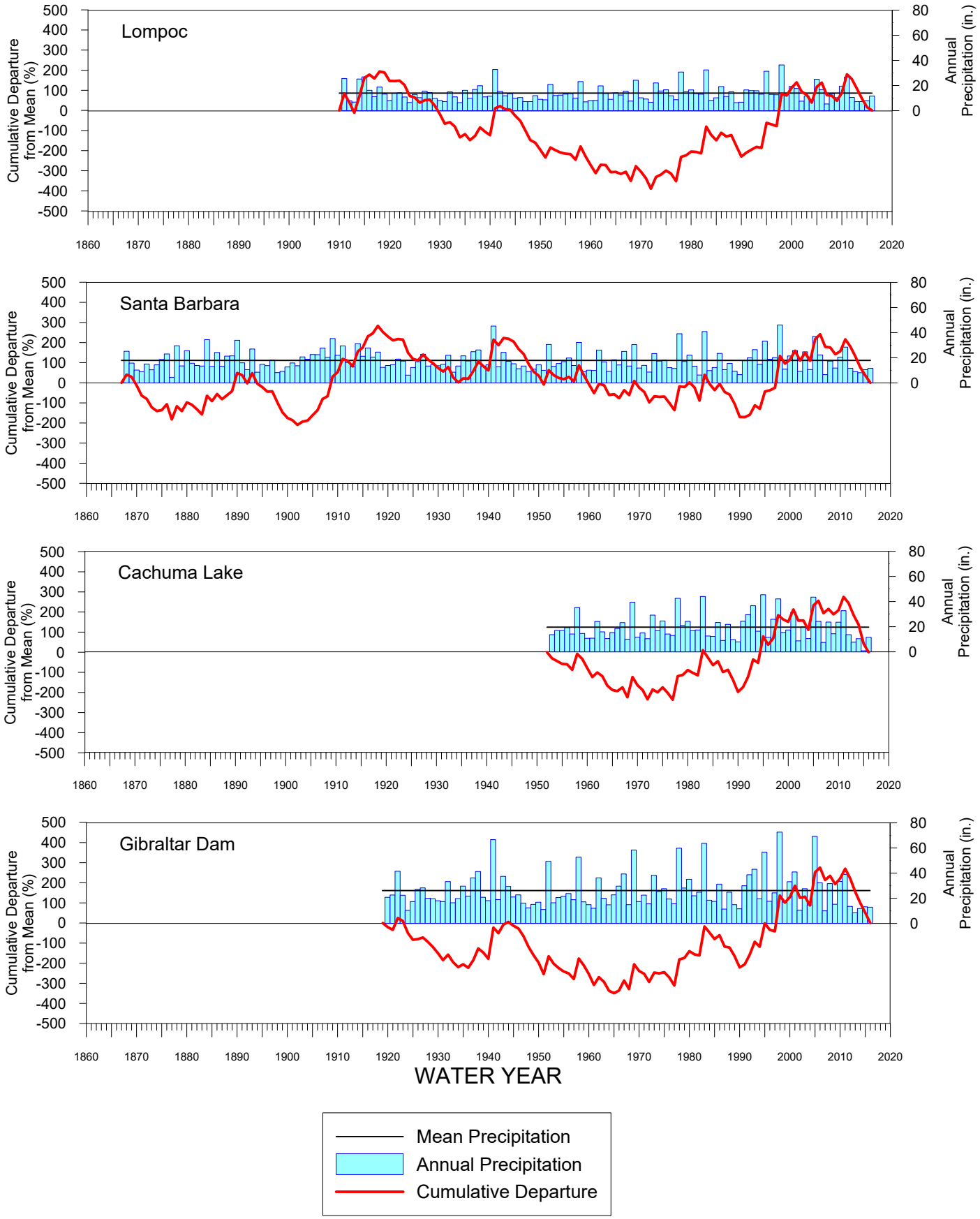


FIGURE 4.GRF

4.0 SURFACE WATER CONDITIONS

Surface water supplies potentially available in the watershed include the main stem and tributaries of the Santa Ynez River and imported water from northern California through the State Water Project (SWP). As mentioned in Chapter 1, upstream diversion works constructed on the river system by South County interests and the Federal Government were designed to export all or most of the diverted water out of the watershed. These diversion facilities include Juncal Dam (Jameson Reservoir), Doulton Tunnel, and Fox and Alder Creeks by the Montecito Water District, Gibraltar Dam (Gibraltar Reservoir), Mission Tunnel, and Devil's Canyon by the City of Santa Barbara, and Bradbury Dam (Cachuma Reservoir), and Tecolote Tunnel by the U.S. Bureau of Reclamation (USBR). Drainage areas upstream of these diversion dams are approximately 14 (Juncal), 216 (Gibraltar), and 417 (Bradbury) square miles with the latter representing about 47 percent of the total watershed. These diversions significantly affect recharge to the ground water in the River alluvial aquifer and the Lompoc Plain ground-water basin.

The Cachuma Project is by far the largest of the upstream diversion facilities with a reservoir capacity of 184,121 acre-feet at water surface elevation of 750 feet (December 2013 survey) and annual operational yield of 25,714 acre-feet. The annual operations of this Project, from its start in 1952 through water year 2015-16, are summarized in Table 3.

4.1. BASIN SURFACE WATER USE

This District contracted with the USBR through the Santa Barbara County Water Agency for 10.3 percent of the annual Cachuma Project yield and established the Improvement District No. 1 (ID No. 1) to distribute and serve municipal and irrigation water in the Santa Ynez Valley. The service area of ID No. 1 is roughly bordered by the towns of Santa Ynez, Los Olivos and Solvang. ID No. 1 became essentially a separate entity and later this District assigned its Cachuma entitlement to ID No.1. ID No. 1 later exchanged this water (approximately 2,600 acre-feet) for treated SWP water with the other (South Coast) Cachuma Member Units. ID No. 1 continues to use a small portion of its Cachuma entitlement water to serve the County Park at Lake Cachuma. Table 3 shows annual

TABLE 3
SUMMARY OF CACHUMA PROJECT OPERATIONS
1952-53 THROUGH 2015-2016 [a]
(ACRE-FEET)

Water Year [b]	[1] Lake Cachuma End-of-Year Storage	[2] Computed Inflow	[3] CCWA	[4] Precipitation on Reservoir	[5] Reservoir Evaporation	[6] Estimated Spill	[7] Diversion to Tunnel	[8] Park Diversions	[9] SYRWCD ID No.1 Deliveries	[10] Downstream Release [c]	[11] Fish Water Release
1952-53	9,188	17,942		106	1,319	0				7,541	
1953-54	21,779	18,955		598	2,327	0				4,635	
1954-55	19,584	4,941		936	2,540	0				3,922	
1955-56	36,629	24,330		1,482	4,200	0	2,118			2,449	
1956-57	30,154	6,150		1,162	4,642	0	5,470			3,674	
1957-58	196,889	219,129		4,459	11,210	35,738	4,850			5,050	
1958-59	187,178	15,068		3,629	14,624	3,056	8,432			2,296	
1959-60	163,149	2,643		2,669	13,613	0	11,410	169	300	3,849	
1960-61	134,493	795		2,382	12,015	0	17,309	662	239	1,608	
1961-62	190,475	100,134		4,963	12,446	21,822	11,921	402	890	1,633	
1962-63	171,736	4,270		3,788	12,157	0	10,595	510	694	2,843	
1963-64	141,506	2,439		2,378	11,786	0	17,352	447	1,504	3,958	
1964-65	122,308	12,314		3,043	10,204	0	14,909	182	1,837	7,423	
1965-66	168,926	79,292		3,707	12,524	0	17,522	345	2,129	3,862	
1966-67	191,622	208,961		5,774	12,683	153,823	14,155	246	2,575	8,557	
1967-68	160,871	10,404		2,414	13,524	0	18,199	357	3,669	7,820	
1968-69	190,181	525,370		9,727	12,305	472,411	15,031	240	2,597	3,199	
1969-70	176,407	28,740		1,793	13,525	0	21,448	335	4,115	4,888	
1970-71	161,345	31,045		3,497	12,308	0	22,800	357	3,115	11,028	
1971-72	121,314	8,754		2,231	11,452	0	28,158	167	4,469	6,769	
1972-73	185,591	125,804		5,948	12,056	29,300	18,456	129	3,552	3,982	
1973-74	182,039	33,670		4,112	12,677	5,655	17,805	138	3,469	1,590	
1974-75	184,467	50,544		5,867	11,866	16,804	20,854	128	3,057	1,275	
1975-76	145,187	5,310		3,189	11,804	0	26,020	148	4,655	5,152	
1976-77	112,077	1,520		2,601	10,775	0	18,740	98	4,583	3,035	
1977-78	193,424	329,219		9,573	13,535	219,295	20,701	114	3,011	790	
1978-79	183,949	61,692		5,250	13,917	36,385	20,102	147	4,029	1,837	
1979-80	187,382	153,543		6,003	13,353	116,915	22,057	139	2,483	1,166	
1980-81	168,871	22,066		4,019	13,811	0	20,856	178	5,007	4,743	
1981-82	159,528	26,848		3,868	11,479	0	20,956	187	2,963	4,474	
1982-83	196,347	428,601		10,995	12,630	361,675	22,616	183	1,532	4,142	
1983-84	171,599	39,074		3,354	14,534	17,217	25,601	193	5,054	4,577	
1984-85	135,748	5,057		2,816	12,275	0	22,781	142	2,664	5,862	

TABLE 3 – CONTINUED
SUMMARY OF CACHUMA PROJECT OPERATIONS
1952-53 THROUGH 2015-2016 [a]
(ACRE-FEET)

Water Year [b]	[1] Lake Cachuma End-of-Year Storage	[2] Computed Inflow	[3] CCWA	[4] Precipitation on Reservoir	[5] Reservoir Evaporation	[6] Estimated Spill	[7] Diversion to Tunnel	[8] Park Diversions	[9] ID No.1 Deliveries	[10] Downstream Release [c]	[11] Fish Water Release
1985-86	171,873	76,571		4,831	12,782	0	21,690	108	2,686	8,010	
1986-87	128,352	2,374		1,996	12,147	0	27,209	150	3,812	4,573	
1987-88	99,150	8,732		4,092	10,293	0	23,917	102	2,803	4,911	
1988-89	66,098	4,044		1,459	8,366	0	20,632	86	2,802	6,670	
1989-90	34,188	2,627		909	6,019	0	16,384	66	863	4,792	
1990-91	60,995	53,566		2,057	6,373	0	15,762	43	1,656	4,983	
1991-92	157,066	135,828		4,022	11,239	0	18,170	52	891	13,427	
1992-93	177,479	333,387		8,875	13,428	280,698	22,582	79	2,042	1,591	1,429
1993-94	151,046	16,729		4,144	12,561	0	22,821	73	1,819	9,537	494
1994-95	134,855	365,092		10,063	10,321	354,402	23,887	64	109	1,823	740
1995-96	120,503	33,243		2,653	11,627	0	24,721	76	2,109	9,703	2,012
1996-97	124,771	56,552	148	2,911	11,861	0	26,785	83	1,785	13,205	1,623
1997-98	185,500	475,175	1354	12,071	11,350	386,055	24,473	60	0	3,956	1,976
1998-99	168,772	21,562	323	4,077	12,341	0	26,397	70	0	883	2,999
1999-00	170,840	51,895	2156	4,972	12,435	6,067	30,365	79	0	5,972	2,037
2000-01	173,479	152,773	818	7,712	11,995	112,313	26,089	78	0	3,502	2,157
2001-02	129,370	5,508	4,627	2,040	11,004	0	30,976	90	0	11,961	2,253
2002-03	115,449	18,822	6,816	3,707	9,402	0	28,781	99	0	2,292	2,691
2003-04	71,378	5,750	5,924	1,782	8,829	0	32,269	83	0	14,217	2,131
2004-05	179,997	401,755	3,137	8,365	11,763	260,078	26,796	62	0	2,894	3,045
2005-06	180,203	100,562	1,014	6,075	12,354	62,869	24,119	66	0	0	8,037
2006-07	132,392	4,348	5,204	1,716	11,940	0	32,797	83	0	9,327	4,932
2007-08	173,280	109,536	4,701	4,712	13,449	22,994	32,591	63	0	2,274	6,689
2008-09	142,479	13,218	2,602	3,112	12,220	0	27,634	82	0	0	8,688
2009-10	152,855	56,628	1,736	5,057	11,374	0	27,259	73	0	7,165	7,175
2010-11	180,986	151,343	1,258	7,226	11,871	85,755	26,866	79	0	1,481	5,642
2011-12	142,970	6,005	408	2,959	11,724	0	28,682	79	0	0	6,904
2012-13	91,922	2,982	2,101	1,497	9,943	0	31,039	76	0	12,613	3,956
2013-14	61,107	3,947	11,522	1,367	8,441	0	29,023	34	0	7,561	2,591
2014-15	32,989	4,006	8,316	1,074	7,443	0	17,137	25	0	12,600	2,156
2015-16	14,222	4,697	10,220	860	5,444	0	15,604	24	0	11,620	1,853
Average [d]	136,383	82,561	3,719	4,011	10,913	47,833	21,355	151	1,712	5,206	3,509

[a] Source of Information: U.S. Bureau of Reclamation.

[b] October 1 through September 30.

[c] Includes leakage and water rights releases

[d] For period of record

Water Balance Equation: [1] End of WY Storage = [1] Start of WY Storage + [2] + [3] + [4] - [5] - [6] - [7] - [8] - [9] - [10] - [11]

Water Balance Equation does not balance at the end of Water Year 1955, 1990, 2001, 2009, and 2015. New reservoir capacity tables were developed during these years and as a result, the storage capacity was reduced. The amount of unaccounted water equals the reduction in storage volume.

deliveries of Cachuma Project water to ID No. 1 prior to the exchange and direct diversions from the reservoir for the County Park.

Alisal Reservoir was constructed by the Petan Company on Alisal Creek about three miles south of Solvang at the southern boundary of the District. The Permit issued by the State Water Resources Control Board (SWRCB) in 1969 allows for the diversion and storage of 2,342 acre-feet per year for irrigation, stock watering, domestic and recreational uses. Actual water use for this reservoir has not been quantified.

The District acquired Permit No. 17447 in 1978, which allowed for the diversion of up to 40 thousand acre-feet per year of winter flow from the Santa Ynez River near Lompoc. Earthen dams were constructed and maintained in the River for several years. When the District petitioned the SWRCB for an Extension of Time to further develop its rights under the Permit, the SWRCB placed the Permit in abeyance for many years, only to request a revised Petition for Extension of Time in 2001. The District filed the Time Extension Petition, as well as a Petition for Change at that time. There followed a decade of studies of various alternative designs and locations for an off-channel spreading facility, which was environmentally superior to the earlier project design. In 2014, when it became clear that the project was not feasible or cost-effective, the District, with concurrence by the City of Lompoc, requested the SWRCB to revoke the Permit.

4.2. STATE WATER PROJECT WATER USE

Three water purveyors within the Santa Ynez Valley and one located partially in the Lompoc Valley have contracted for SWP water. Excluding drought buffers, the entities and their annual entitlements (in acre-feet) include: ID No. 1 (500); Solvang (1,500, contracted through ID No. 1); Buellton (578); and, Vandenberg AFB (5,500, located partly in the Lompoc Valley). SWP deliveries to these entities, as reported by the Central Coast Water Authority (CCWA), for the preceding fiscal year (2015-16) and the first half of the current fiscal year (2016-17) in acre-feet are as follows:

Fiscal Year (July-June)	ID No. 1	City of Solvang	City of Buellton	Vandenberg AFB
2015-16	567	380	73	1,238
2016-17 (First Half)	62	256	9	1,064

Deliveries to ID No. 1 include entitlement, drought buffer entitlement, exchange, and (turnback pool) purchased water.

4.3. RIVER SYSTEM FLOW CONDITIONS

Annual and monthly flows of the Santa Ynez River near Lompoc are summarized in Table 4 and shown as bar graphs in Figure 5. Annual flows of Salsipuedes Creek near Lompoc, a major tributary of the Santa Ynez River upstream of the Lompoc Narrows, are shown on Table 5. Flow records for additional streams in the Basin are included in Appendix C.

4.4. WATER RIGHTS RELEASES

Water rights releases for users downstream of Cachuma Reservoir are set forth in the SWRCB Order of 1973 (WR 73-37), as amended in 1989 (WR 89-18). These releases are based on the establishment of two accounts, and accrual of credits (storing water) in Cachuma Reservoir for the above and below Narrows areas. Releases from the Above Narrows Account (ANA) are made at Bradbury Dam for the benefit of downstream water users between the dam and the Lompoc Narrows. Releases from the Below Narrows Account (BNA) are conveyed to the Narrows for the benefit of water users in the Lompoc Plain basin. ANA releases are made to replenish the ground-water basin in the above Narrows area and combined releases of ANA and BNA are made to replenish the ground-water basins in the above and below Narrows areas.

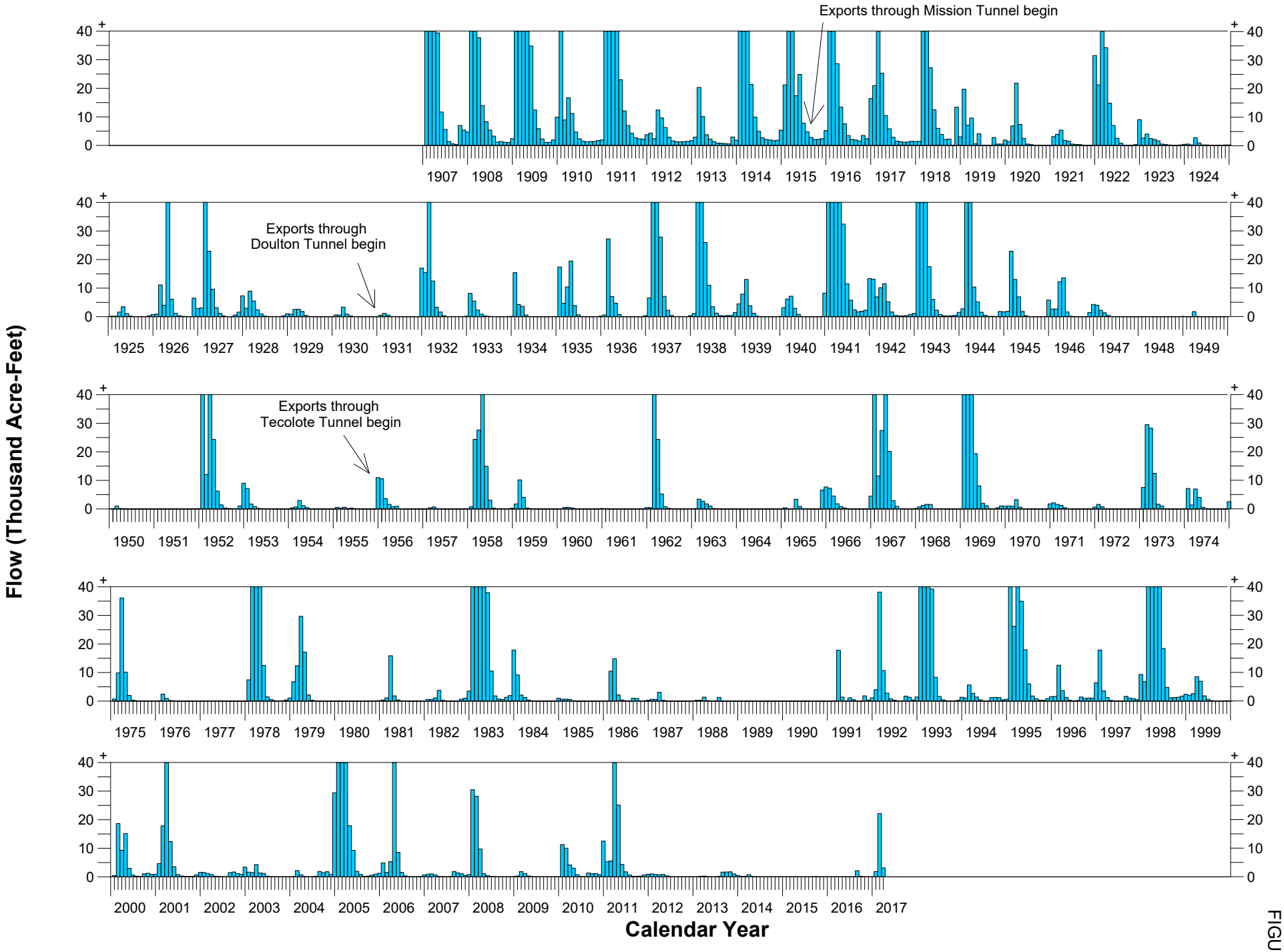
TABLE 4
FLOW OF THE SANTA YNEZ RIVER AT THE LOMPOC NARROWS
(ACRE-FEET)

Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow
		1925	7,300	1945	50,700	1965	4,980	1985	3,100	2005	431,420
		1926	90,100	1946	38,970	1966	29,240	1986	30,110	2006	87,730
		1927	152,000	1947	13,940	1967	161,700	1987	5,210	2007	6,864
1908	222,000	1928	30,800	1948	50	1968	5,700	1988	3,590	2008	72,553
1909	681,000	1929	9,770	1949	2,040	1969	617,700	1989	30	2009	3,743
1910	115,000	1930	5,780	1950	1,460	1970	8,500	1990	0	2010	31,900
1911	533,000	1931	2,390	1951	0	1971	7,420	1991	20,900	2011	135,294
1912	50,400	1932	142,000	1952	261,900	1972	3,180	1992	62,090	2012	5,635
1913	47,400	1933	17,700	1953	19,910	1973	80,770	1993	391,530	2013	4,032
1914	546,000	1934	24,170	1954	5,830	1974	20,400	1994	15,600	2014	4,484
1915	395,000	1935	56,830	1955	2,060	1975	61,860	1995	485,520	2015	46
1916	258,000	1936	40,830	1956	28,860	1976	3,980	1996	24,820	2016	2,313
1917	137,000	1937	209,000	1957	1,460	1977	270	1997	39,130	2017	27,416
1918	320,000	1938	352,400	1958	140,000	1978	391,600	1998	681,520	(through Mar)	
1919	60,300	1939	32,960	1959	16,940	1979	70,200	1999	28,460		
1920	43,500	1940	20,610	1960	1,570	1980	189,100	2000	51,850		
1921	16,800	1941	652,300	1961	330	1981	20,240	2001	250,425		
1922	190,500	1942	67,310	1962	87,890	1982	6,450	2002	9,530		
1923	23,000	1943	231,900	1963	9,520	1983	503,600	2003	15,730		
1924	5,300	1944	119,400	1964	0	1984	34,110	2004	6,710		

Average (1908-2016)	107,580
Average (1953-2016)	83,800

Data from U.S. Geological Survey include periods of 1908 through 1918, 1926 though 1950, 1952 through 1963, and 1965 through March 2015.

Data from U.S. Bureau of Reclamation include periods of 1919 through 1925, 1951, and 1964.



MONTHLY SURFACE FLOW, SANTA YNEZ RIVER NEAR LOMPOC

FIGURE 5

Figure 5.grf

TABLE 5
FLOW OF SALSIPUEDES CREEK NEAR LOMPOC
(ACRE-FEET)

Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow	Water Year (Oct.-Sept.)	Flow
		1960	1,420	1980	14,980	2000	10,850
		1961	690	1981	5,060	2001	19,986
1942	10,650	1962	22,200	1982	1,610	2002	1,653
1943	10,710	1963	5,330	1983	36,850	2003	3,630
1944	8,870	1964	930	1984	3,360	2004	1,662
1945	2,270	1965	2,720	1985	1,170	2005	33,230
1946	1,790	1966	9,480	1986	10,290	2006	5,620
1947	870	1967	6,710	1987	1,610	2007	695
1948	400	1968	780	1988	890	2008	8,736
1949	1,710	1969	20,520	1989	210	2009	645
1950	1,280	1970	1,810	1990	130	2010	4,841
1951	320	1971	1,180	1991	4,420	2011	15,023
1952	16,870	1972	520	1992	6,690	2012	1,108
1953	4,630	1973	15,660	1993	17,030	2013	370
1954	2,410	1974	5,320	1994	2,750	2014	243
1955	1,320	1975	13,780	1995	58,360	2015	108
1956	15,610	1976	1,520	1996	3,610	2016	172
1957	1,250	1977	600	1997	5,480	2017	10,551
1958	23,570	1978	36,290	1998	41,180	(through Mar)	
1959	2,620	1979	8,410	1999	6,160		
						Average (1942-2016)	7,910
						Average (1953-2016)	8,400

Data from U.S. Geological Survey.

In calendar year 2016, water rights releases were made starting on July 11 to replenish the above and below Narrows. These releases extended through August 30 for a period of 50 days. The amounts of water released for ground-water replenishment, in acre-feet, are summarized below. The BNA delivered water for August 2016 (2,286 af) includes the BNA releases in transit. Because Lompoc is located about 33 miles downstream of the dam, a portion of BNA water released at the dam (169 af) did not reach the Lompoc Narrows until September.

2016 Releases	Above Narrows Account (AF)	Below Narrows Account (AF)	Total (AF)
July	6,292	0	6,292
August	3,042	2,286	5,328
Total	9,334	2,286	11,620

The rate, duration, and geographical extent of the above releases is shown in Appendix D. The 2016 water rights releases included commingling of SWP water with releases from Cachuma Reservoir for only one day. SWP releases were constrained due to temperature (maximum 18° C release into stilling basin). Historical water rights releases are summarized in Table 6.

TABLE 6
HISTORICAL WATER RIGHTS RELEASES

Calendar Year	Releases (Acre-Feet) Above Narrows Account (ANA)	Below Narrows Account (BNA)	Total
Releases under Live Stream			
1953	-	-	7,540
1954	-	-	4,632
1955	-	-	3,921
1956	-	-	2,449
1957	-	-	3,674
1958	-	-	4,142
1959	-	-	1,294
1960	-	-	3,411
1961	-	-	1,365
1962	-	-	380
1963	-	-	2,239
1964	-	-	3,665
1965	-	-	7,251
1966	-	-	6,860
1967	-	-	3,274
1968	-	-	6,705
1969	-	-	1,499
1970	-	-	6,100
1971	-	-	8,095
1972	-	-	6,320
1973	-	-	1,245
Releases under WR 73-37			
1974	1,353	0	1,353
1975	1,134	0	1,134
1976	4,237	0	4,237
1977	2,299	0	2,299
1978	62	0	62
1979	1,200	0	1,200
1980	0	0	0
1981	4,175	0	4,175
1982	6,655	755	7,410
1983	0	0	0
1984	3,162	0	3,162
1985	5,686	0	5,686
1986	5,317	1,780	7,097
1987	3,887	0	3,887
1988	5,050	1,283	6,333
1989	5,192	0	5,192
Releases under WR 89-18			
1990	4,792	0	4,792
1991	7,745	3,638	11,383
1992	4,930	3,287	8,217
1993	0	0	0
1994	6,727	4,012	10,739
1995	0	0	0
1996	7,319	3,459	10,778
1997	9,572	3,438	13,010
1998	0	0	0
1999	0	0	0
2000	4,360	1,858	6,218
2001	0	0	0
2002	9,054	4,412	13,466
2003	0	0	0
2004	11,494	4,512	16,006
2005	0	0	0
2006	0	0	0
2007	6,703	4,897	11,600
2008	0	0	0
2009	0	0	0
2010	5,122	3,524	8,646
2011	0	0	0
2012	0	0	0
2013	10,694	6,779	17,473
2014	4,698	0	4,698
2015	10,603	0	10,603
2016	9,334	2,286	11,620

4.5. STATE WATER CODE REQUIREMENTS

The Water Code requires the Board to estimate for the ensuing water year the amount of water necessary for surface distribution, the amount of water necessary for replenishment of ground-water supplies, and the amount of water the District is obligated by contract to purchase (Water Code Sections 75574 (h), (i) and (j)). The amount of water necessary for surface distribution would be that scheduled for delivery by ID No. 1, Solvang, Buellton, and Vandenberg AFB. As a part of State Water delivery schedules submitted by ID No. 1, Solvang, Buellton, and Vandenberg AFB, the following delivery requests are indicated for fiscal year 2016-17. However, the actual delivery amounts would vary depending on changes in the delivery schedule and availability of SWP water.

	Acre-Feet [a]
ID No. 1	753
City of Solvang	1,231
City of Buellton	592
Vandenberg AFB	2,412

[a] *Includes buffer.*

In addition, ID No. 1 is scheduled to receive its Cachuma entitlement (approximately 2,600 acre-feet) subject to shortage reductions for surface distribution in fiscal year 2016-17. The District does not have any contracts to purchase surface water nor the facilities to divert Santa Ynez River and/or tributary flow.

5.0 GROUND-WATER CONDITIONS

There are two general types of water-bearing deposits within the District. They are: (1) river channel deposits and younger alluvium present along the Santa Ynez River and beneath the Lompoc Plain; and (2) older unconsolidated deposits either underlying the younger alluvial deposits or filling basins generally not in hydrologic continuity with the Santa Ynez River and its associated alluvial deposits.

5.1. SOURCES OF GROUND WATER

The sources of ground water comprising each of the District's zones are as follows:

Zone A - Santa Ynez River alluvial deposits
- Santa Ynez sub-basin
- Buellton sub-basin
- Santa Rita sub-basin

Zone B - Lompoc Area
- Lompoc Plain basin
- Lompoc Upland basin
- Lompoc Terrace basin

Zone C - Miscellaneous unconsolidated deposits and consolidated rocks

Zone D - Buellton Upland basin

Zone E - Santa Ynez Upland basin

Zone F - Santa Rita Upland basin

The locations of the major ground-water sources are shown on Figure 6. A general description of the hydrogeology of the various sources of ground water within the District is included as Appendix E.

5.2. GROUND-WATER LEVEL CHANGES

Water-level changes from Spring 2016 to Spring 2017 provide the best direct indication of ground-water conditions during the past year. The water-level changes in wells monitored by the USGS and USBR are summarized for the Lompoc Plain,

Lompoc Upland, Lompoc Terrace, Santa Rita Upland, Buellton Upland and Santa Ynez Upland basins.

Table 7 presents the water-level changes for eight wells measured by the USBR and USGS in the forebay of the Lompoc Plain basin and 28 additional wells measured by the USGS in the central and western portions of the Plain. The water levels declined from Spring 2016 to Spring 2017 in five of the wells measured in the forebay. The water levels declined over the past year in five of the 28 wells located in the central and western portion of the Lompoc Plain that could be measured while rising in 23 wells. The hydrographs of three wells located in the Lompoc Plain basin are shown on Figure F-1 (Appendix F).

Water-level changes over the past year are shown on Table 8 for nine wells measured by the USGS in the Lompoc Upland basin. The water levels declined from Spring 2016 to Spring 2017 in all of the wells measured. Hydrographs for five wells located in the Lompoc Upland basin are shown in Figure F-2 (Appendix F). The water level in the only well measured in the Lompoc Terrace basin increased 1.1 feet over the past year (Table 8 and Figure F-3, Appendix F).

Water levels increased over the past year in two of the three wells with two years of valid measurements in the Santa Rita Upland basin (Table 9). A hydrograph of Well 7N/33W-27G1 is shown on Figure F-3 (Appendix F).

The change in water levels over the past year in five wells measured in the Buellton Upland basin are also presented in Table 9. Water levels increased in two of the wells and declined in three. The hydrograph of well 6N/31W-7F1 showing water-level elevations is included in Figure F-3 (Appendix F).

The change in water levels from Spring 2016 to Spring 2017 in 23 wells located in the Santa Ynez Upland basin are shown in Table 10. Eleven of these wells are located within the District portion of the basin. Within the District portion of the basin, the water level was observed to be higher in five of the eleven wells. Hydrographs of two wells located in the Santa Ynez Upland basin are included as Figure F-4 (Appendix F).

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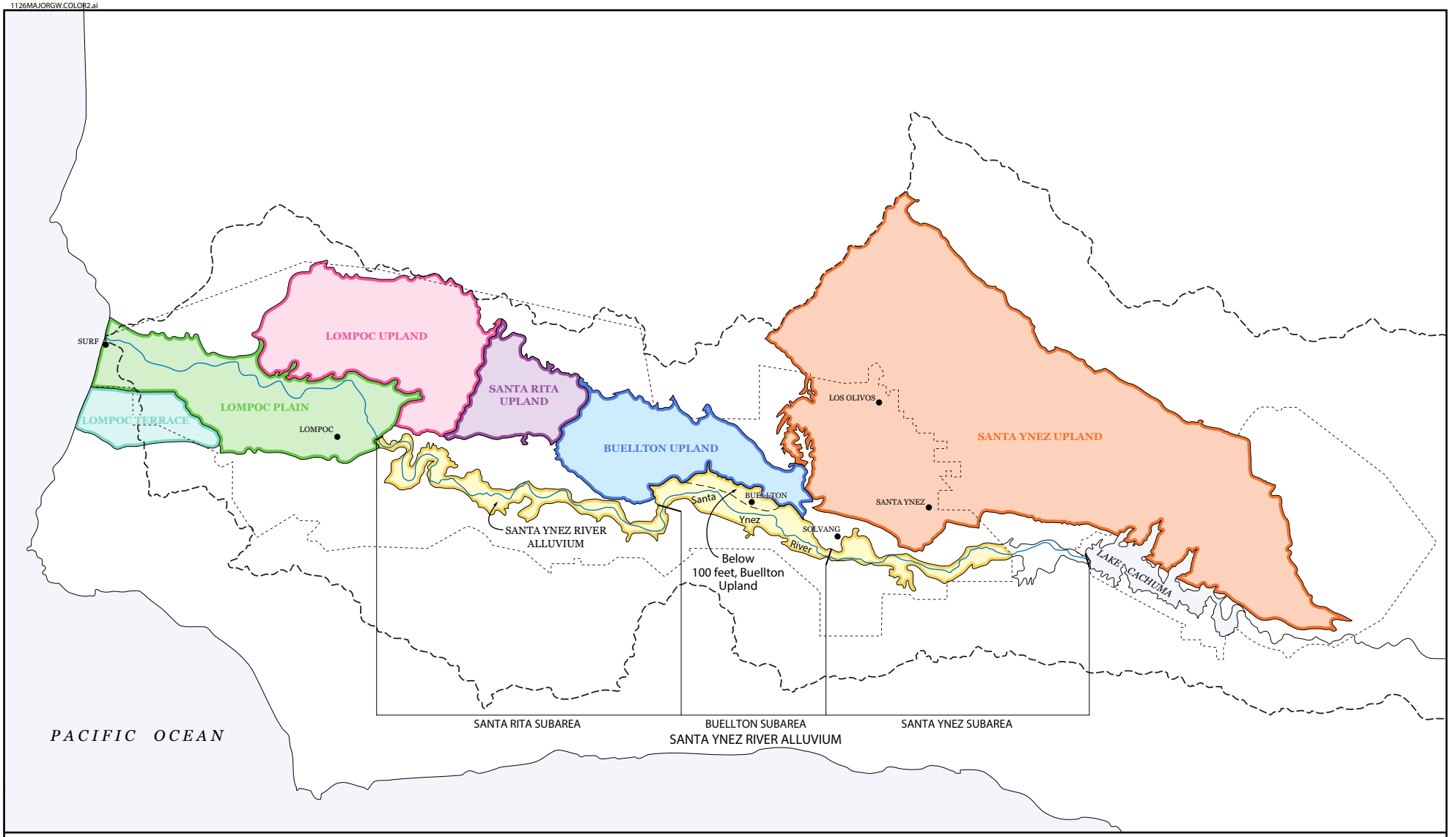


STETSON ENGINEERS INC.

LEGEND

Santa Ynez River Water Conservation District Boundary

Santa Ynez River Basin Boundary

N W E S

0 5 10
MILES

MAJOR GROUND-WATER SOURCES, SANTA YNEZ RIVER BASIN

FIGURE 6

TABLE 7
WATER-LEVEL CHANGES
LOMPOC PLAIN BASIN
2016 TO 2017

Forebay [a]		Central and Western Plain [b]	
Well No.	Water-Level Change (Feet)	Well No.	Water-Level Change (Feet)
6N/34W-4G4	-1.9	6N/34W-6C4	5.5
7N/34W-22M6	4.1	7N/34W-20K4	3.8
7N/34W-25F3	-0.1	7N/34W-27G6	5.1
7N/34W-26B4	-3.8	7N/34W-29E4	0.7
7N/34W-26H3	-- [b]	7N/34W-29N6	0.0
7N/34W-26Q5	-1.2	7N/34W-29N7	1.9
7N/34W-27F9	7.5	7N/34W-30L10	0.2
7N/34W-34R1	-5.5	7N/34W-31R2	1.2
7N/34W-35K9	39.7	7N/34W-32H2	0.6
		7N/35W-15M1	-0.1
		7N/35W-17M1	-3.7
		7N/35W-17K20	--
		7N/35W-18J2	4.3
		7N/35W-21G2	-1.7
		7N/35W-22J1	0.0
		7N/35W-22M1	1.2
		7N/35W-23B2	-0.6
		7N/35W-23Q2	-1.2
		7N/35W-23Q3	1.6
		7N/35W-23Q4	1.7
		7N/35W-24J4	1.1
		7N/35W-24K5	1.6
		7N/35W-24N3	0.5
		7N/35W-25F6	1.4
		7N/35W-25F7	0.7
		7N/35W-26F4	--
		7N/35W-26L1	0.7
		7N/35W-26L2	2.4
		7N/35W-26L4	2.3
		7N/35W-27C1	3.7
		7N/35W-35A3	--

[a] Based upon measurements made during March by the U.S. Bureau of Reclamation.

[b] Based upon measurements made during March by the U.S. Geological Survey for Santa Barbara County.

TABLE 8
WATER-LEVEL CHANGES
LOMPOC UPLAND AND LOMPOC TERRACE BASINS
2016 TO 2017

Lompoc Upland Basin		Lompoc Terrace Basin	
Well No.	Water-Level Change (Feet)	Well No.	Water-Level Change (Feet)
7N/33W-17M1	-8.8	7N/35W-27P1	1.1
7N/33W-17N2	-2.0		
7N/33W-19D1	-1.3		
7N/33W-20G1	-0.5		
7N/34W-12E1	-1.7		
7N/34W-14F4	-0.4		
7N/34W-14L1	-2.4		
7N/34W-15D3	--		
7N/34W-15E1	-0.3		
7N/34W-15P2	-7.2		

Based upon measurements made during March by the U.S. Geological Survey for Santa Barbara County.

TABLE 9
WATER-LEVEL CHANGES
SANTA RITA AND BUELLTON UPLAND BASINS
2016 TO 2017

Santa Rita Upland Basin		Buellton Upland Basin	
Well No.	Water-Level Change (Feet)	Well No.	Water-Level Change (Feet)
7N/33W-16G5	--	6N/31W-7F1	3.2
7N/33W-21G2	-1.1	6N/32W-2Q1	1.9
7N/33W-21N1	0.4	6N/32W-12K2	-2.0
7N/33W-27G1	--	7N/32W-31M1	-1.1
7N/33W-28D3	0.8	7N/33W-36J1	-1.4

Based upon measurements made during March by the U.S. Geological Survey for Santa Barbara County.

TABLE 10
WATER-LEVEL CHANGES
SANTA YNEZ UPLAND BASIN
2016 TO 2017

District Portion of Basin		Non-District Portion of Basin	
Well No.	Water-Level Change (Feet)	Well No.	Water-Level Change (Feet)
6N/30W-7G5	0.0	6N/29W-5A1	3.1
6N/30W-7G6	0.0	6N/29W-6F1	--
6N/31W-1P2	-0.4	6N/29W-6G1	--
6N/31W-1P3	-0.5	6N/29W-7L1	-4.0
6N/31W-2K1	4.1	6N/29W-8P1	-4.3
6N/31W-3A1	0.2	6N/29W-8P2	-1.1
6N/31W-4A1	-0.3	6N/30W-1R3	4.1
6N/31W-10F1	8.7	6N/30W-11G1	--
6N/31W-11D4	2.2	7N/30W-16B1	-2.4
6N/31W-13D1	0.5	7N/30W-19H1	-0.7
7N/31W-23P1	--	7N/30W-22E1	0.3
7N/31W-35K4	--	7N/30W-24Q1	--
7N/31W-36L2	-6.6	7N/30W-27H1	--
		7N/30W-29D1	23.6
		7N/30W-30M1	--
		7N/30W-32R1	--
		7N/30W-33M1	-1.4
		7N/30W-35R1	--
		7N/31W-22A3	-4.8
		8N/30W-30R1	--
		8N/31W-36H1	49.0

Based upon measurements made during March by the U.S. Geological Survey for Santa Barbara County.

5.3. STORAGE CHANGES

The general status of ground-water conditions of the District can be shown by estimates of change in ground-water storage of the major sources of ground water within the District. The USBR, in connection with SWRCB Order No. 89-18, determines on a monthly basis the quantity of dewatered storage beneath the forebay on the Lompoc Plain and in the Santa Ynez River alluvial deposits. Under normal water supply conditions the Santa Ynez River alluvial deposits are replenished yearly. During extended drought periods, some shortages in supply may occur in these deposits.

In order to monitor the ground-water conditions of the District portion of the Lompoc Upland, Santa Ynez Upland, Lompoc Terrace, Santa Rita Upland and the eastern portion of the Buellton Upland, nodal systems for each source were established. The nodal systems are used to estimate the annual change in the quantity of ground water in storage and overdraft.

Table 11 summarizes the estimated annual (Spring to Spring) change in ground-water storage in the alluvium of the Santa Ynez River for the past ten years, 2006-2007 through 2015-16 and the current year, 2016-17. The change in ground-water storage is based upon the USBR's 25 node nodal system, which extends from Robinson Bridge near Lompoc to Bradbury Dam at Lake Cachuma. One node and a portion of another node lie outside the District, upstream of San Lucas Bridge. Changes in the ground-water storage in these nodes are reflected in the totals shown on Table 11 for the Santa Ynez sub-basin. Table 11 indicates that the accumulated dewatered storage at the end of March 2017 was about 12,900 acre-feet. As of March 31, 2017, the District had 12,955 acre-feet in the Above Narrows Account in Lake Cachuma.

Table 12 summarizes the estimated annual (Spring to Spring) change in ground-water storage in the Lompoc Plain basin for the past ten years, 2006-07 through 2015-16 and the current year, 2016-17. Table 12 indicates that the accumulated dewatered storage at the end of March 2017 was 20,700 acre-feet. There was a gain in ground water in storage in the Lompoc Plain basin of 1,100 acre-feet during the past year. As of March 31, 2017, the District had 3,587 acre-feet of water in the Below Narrows Account in Lake Cachuma which could otherwise be considered ground water in storage in the alluvium of the Lompoc Plain.

TABLE 11
ESTIMATED ANNUAL CHANGE IN GROUND-WATER STORAGE IN THE SANTA YNEZ RIVER ALLUVIUM FOR THE PAST TEN YEARS AND CURRENT YEAR (2016-2017)

(Acre-Feet)

Year (Spring to Spring)	Santa Ynez Sub-Basin		Buellton Sub-Basin		Santa Rita Sub-Basin		Total Santa Ynez River Alluvium	
	Change in Storage	Accumulated Dewatered Storage	Change in Storage	Accumulated Dewatered Storage	Change in Storage	Accumulated Dewatered Storage	Change in Storage	Accumulated Dewatered Storage
2005-06		2,000		5,600		3,700		11,300
2006-07	-2,600	4,600	-500	6,100	-700	4,400	-3,800	15,100
2007-08	300	4,300	300	5,800	400	4,000	1,000	14,100
2008-09	100	4,200	-200	6,000	-700	4,700	-800	14,900
2009-10	300	3,900	100	5,900	700	4,000	1,100	13,800
2010-11	1,300	2,600	2,200	3,700	1,900	2,100	5,400	8,400
2011-12	-1,200	3,800	-2,100	5,800	-2,400	4,500	-5,700	14,100
2012-13	-300	4,100	-300	6,100	-1,900	6,400	-2,500	16,600
2013-14	-600	4,700	-300	6,400	1,300	5,100	400	16,200
2014-15	-800	5,500	-200	6,600	-3,500	8,600	-4,500	20,700
2015-16	500	5,000	-100	6,700	1,800	6,800	2,200	18,500
2016-17	1,400	3,600	600	6,100	3,600	3,200	5,600	12,900

Based upon dewatered storage estimated by the U.S. Bureau of Reclamation (USBR). Values are rounded.
2015-16 data revised.

TABLE 12
ESTIMATED ANNUAL CHANGE IN GROUND-WATER STORAGE IN THE LOMPOC PLAIN BASIN FOR THE PAST TEN YEARS AND CURRENT YEAR (2016-2017)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2005-06		10,200
2006-07	-1,100	11,300
2007-08	-200	11,500
2008-09	-2,100	13,600
2009-10	-300	13,900
2010-11	2,800	11,100
2011-12	200	10,900
2012-13	-4,200	15,100
2013-14	100	15,000
2014-15	-4,500	19,500
2015-16	-2,300	21,800
2016-17	1,100	20,700

Based upon dewatered storage estimated by the U.S. Bureau of Reclamation (USBR). Values are rounded.

The estimated annual change in ground-water storage beneath the Lompoc Upland and the Lompoc Terrace basins, is shown on Table 13 for the past ten years, 2006-2007 through 2015-16 and the current year, 2016-17. Table 13 indicates that during that 10-year period there has been a total decrease of 4,700 acre-feet in the quantity of ground water in storage in the Lompoc Upland. During the current year, 2016-17, there has been a decrease of 1,800 acre-feet in storage. The estimated total dewatered storage in the Lompoc Upland basin through Spring 2017 is 35,300 acre-feet. The estimated dewatered storage in the Lompoc Terrace basin through Spring 2017 is 500 acre-feet.

The estimated annual change in ground-water storage in the Santa Rita Upland basin is shown on Table 14 for the past ten years, 2006-07 through 2015-16 and the current year. Table 14 indicates that during that 10-year period, there has been a decrease of 2,000 acre-feet in the quantity of ground water in storage in the Santa Rita Upland basin. During the current year, 2016-17, there has been an increase of 100 acre-feet in storage.

The estimated annual change in ground-water storage in the eastern portion of the Buellton Upland basin (deeper aquifer in the Buellton area) is shown on Table 15 for the past ten years, 2006-07 through 2015-16 and the current year. Table 15 indicates that during that 10-year period, there has been a decrease of 2,900 acre-feet in the quantity of ground water in storage. During the current year, 2016-17, there has been an increase in storage of 100 acre-feet.

The estimated annual change in ground-water storage beneath the District portion of the Santa Ynez Upland basin is shown on Table 16 for the past ten years, 2006-07 through 2015-16 and for the current year. Table 16 indicates that during that 10-year period, there has been a decrease of about 22,300 acre-feet in the quantity of ground water in storage in the District portion of the basin. During the current year, 2016-17, there has been a decrease in storage of 1,200 acre-feet. The estimated total dewatered storage in the District portion of the basin through Spring 2017 is 55,200 acre-feet.

TABLE 13
ESTIMATED ANNUAL CHANGE IN GROUND-WATER STORAGE IN THE LOMPOC UPLAND AND LOMPOC TERRACE BASINS FOR THE PAST TEN YEARS AND CURRENT YEAR (2016-2017)

(Acre-Feet)

Year (Spring to Spring)	Lompoc Upland Basin		Lompoc Terrace Basin	
	Change in Storage	Accumulated Dewatered Storage	Change in Storage	Accumulated Dewatered Storage
2005-06		28,800		100
2006-07	-600	29,400	-100	200
2007-08	-300	29,700	100	100
2008-09	-500	30,200	0	100
2009-10	-700	30,900	0	100
2010-11	400	30,500	0	100
2011-12	-400	30,900	-100	200
2012-13	0	30,900	-100	300
2013-14	-1,400	32,300	-100	400
2014-15	-800	33,100	-200	600
2015-16	-400	33,500	-100	700
2016-17	-1,800	35,300	200	500

The accumulated dewatered storage is based upon an estimate of existing dewatered storage of 25,500 acre-feet through 1973 from the Lompoc Upland basin, and 800 acre-feet from the Lompoc Terrace basin. The 1973 estimates were based upon review of water-level data and trends, and published USGS investigations.

TABLE 14
ESTIMATED ANNUAL CHANGE IN GROUND-WATER STORAGE
IN THE SANTA RITA UPLAND BASIN
FOR THE PAST TEN YEARS AND CURRENT YEAR (2016-2017)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2005-06		11,800
2006-07	-4,400	16,200
2007-08	3,100	13,100
2008-09	1,200	11,900
2009-10	-1,000	12,900
2010-11	-1,700	14,600
2011-12	900	13,700
2012-13	100	13,600
2013-14	300	13,300
2014-15	-900	14,200
2015-16	400	13,800
2016-17	100	13,700

The accumulated dewatered storage is based upon an estimate of existing dewatered storage of 7,400 acre-feet through 1973. The 1973 estimate was based upon review of water-level data and trends, and published USGS investigations.

TABLE 15
ESTIMATED ANNUAL CHANGE IN GROUND-WATER STORAGE IN THE EASTERN PORTION OF THE BUELLTON UPLAND BASIN FOR THE PAST TEN YEARS AND CURRENT YEAR (2016-2017)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2005-06		0
2006-07	-300	300
2007-08	-700	1,000
2008-09	-1,300	2,300
2009-10	300	2,000
2010-11	-1,200	3,200
2011-12	-200	3,400
2012-13	600	2,800
2013-14	-1,700	4,500
2014-15	700	3,800
2015-16	900	2,900
2016-17	100	2,800

Accumulated dewatered storage was originally estimated as 2,000 acre-feet through 1973 based upon review of water-level data and trends and published USGS investigations. Recent (2006) water-level measurements indicated that the accumulated dewatered storage was more likely on the order of 2,400 acre-feet in 1973.

TABLE 16
ESTIMATED ANNUAL CHANGE IN GROUND-WATER STORAGE IN THE DISTRICT PORTION OF THE SANTA YNEZ UPLAND BASIN FOR THE PAST TEN YEARS AND CURRENT YEAR (2016-2017)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2005-06		31,700
2006-07	-1,100	32,800
2007-08	-1,400	34,200
2008-09	-2,800	37,000
2009-10	-1,100	38,100
2010-11	500	37,600
2011-12	-1,800	39,400
2012-13	-2,400	41,800
2013-14	-5,300	47,100
2014-15	-3,800	50,900
2015-16	-3,100	54,000
2016-17	-1,200	55,200

The accumulated dewatered storage is based upon an estimate of existing dewatered storage of 42,000 acre-feet through 1973. The 1973 estimate was based upon review of water-level data and trends, and published USGS investigations.

A summary of the annual change in storage for 2015 to 2016, 2016 to 2017, and the accumulated dewatered storage through 2015-16 and through 2016-17 are shown on Table 17 for the major sources of ground water in the District.

5.4. CHANGE IN STORAGE TRENDS

There has been a nearly continuous significant increase in dewatered storage since 2006 in the Santa Ynez Upland Basin. In the other ground-water basins, as shown in Figure 7, there appears to be a gradual to no increase in the quantity of accumulated dewatered storage.

5.5. SAFE YIELD

Table 18 shows estimates of average annual pumping safe yield of the principal sources of ground water within the District for the immediate past ten years and for the current year. It is assumed that the specified safe yield values are applicable to both the current year and the immediate past ten years.

5.6. HISTORICAL PUMPAGE

Table 19 shows estimated reported average historical ground-water pumpage from the principal sources for ground water within the District for the immediate past ten years (2006-07 through 2015-16).

5.7. OVERDRAFT

For the District portion of each basin, the average annual overdraft for the immediate past ten years and the estimated annual overdraft for the current (2016-17) and ensuing (2017-18) years is shown on Table 20. The information shown on Table 20 is based on estimates of change in the quantity of ground water in storage. The values of overdraft were determined solely for the purpose of meeting the provisions in the California

TABLE 17
SUMMARY OF CHANGE IN QUANTITY OF GROUND WATER IN STORAGE WITHIN THE DISTRICT
(Acre-Feet)

Source of Ground Water	Change in Storage [a]		Accumulated Dewatered Storage	
	2015-16	2016-17	2015-16	2016-17
Santa Ynez River Alluvium	2,200	5,600	18,500	12,900
Lompoc Plain	-2,300	1,100	21,800	20,700
Lompoc Upland	-400	-1,800	33,500	35,300
Lompoc Terrace	-100	200	700	500
Santa Rita Upland	400	100	13,800	13,700
Buellton Upland (Eastern Portion)	900	100	2,900	2,800
Santa Ynez Upland (District Portion)	-3,100	-1,200	54,000	55,200
TOTAL	**-2,400**	**4,100**	**145,200**	**141,100**

[a] Spring to Spring.

TABLE 18
ESTIMATED AVERAGE SAFE YIELD OF PRINCIPAL SOURCES OF GROUND WATER WITHIN THE DISTRICT

Source of Ground Water	Safe Yield (Acre-Feet per Year)
Santa Ynez River Alluvium	Subject to shortages during drought periods.
Lompoc Plain Basin	24,100
Lompoc Upland Basin	3,300
Lompoc Terrace Basin	300
Santa Rita Upland Basin	1,800
Buellton Upland Basin [a]	2,800
Santa Ynez Upland Basin [a]	9,800
Other Rocks and Deposits	Unknown

[a] Estimated safe yield of entire basin.
Does not include return flow from imported water.

Source:
Stetson Engineers, August 31, 1992, Santa Ynez River Water Conservation District, Water Resource Management Planning Process, Phase I: Baseline Data and Background Information

Accumulated Dewatered Storage
(2000 through 2017)

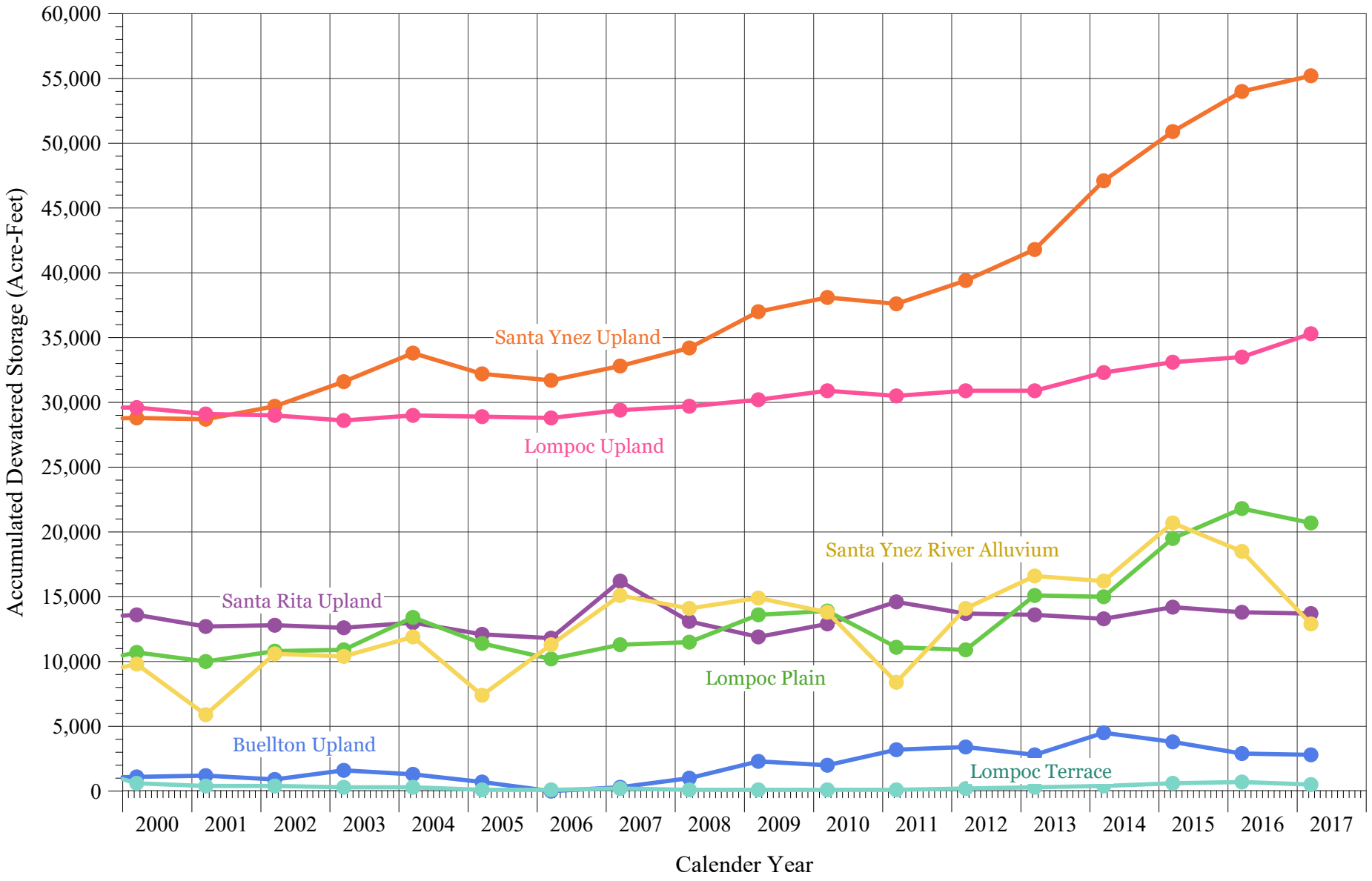


FIGURE 7

TABLE 19
ESTIMATED AVERAGE ANNUAL HISTORICAL REPORTED GROUND-WATER PUMPAGE FROM THE PRINCIPAL SOURCES OF GROUND WATER WITHIN THE DISTRICT
(Acre-Feet)

Source of Ground Water	Estimated Average Annual Pumpage for the Immediate Past Ten Years (2006-07 through 2015-16)
Zone A Santa Ynez River Alluvium	14,168
Zone B Lompoc Plain, Lompoc Upland, and Lompoc Terrace Basins	25,989
Zone C All portions of the District not included in other zones	1,155
Zone D Buellton Upland Basin	3,495
Zone E Santa Ynez Upland Basin (District Portion)	4,777
Zone F Santa Rita Upland Basin	1,953
DISTRICT TOTAL	**51,537**

TABLE 20
AVERAGE ANNUAL OVERDRAFT OF PRINCIPAL SOURCES OF GROUND WATER WITHIN THE DISTRICT
(Acre-Feet)

Source of Ground Water	Average Annual Overdraft for the Immediate Past Ten Years (2006-07 through 2015-16)	Estimated Annual Overdraft 2016-17	Estimated Annual Overdraft 2017-18
Zone A			
Santa Ynez River Alluvium	720	0	0
Zone B			
Lompoc Plain Basin	1,160	0	0
Lompoc Upland Basin	470	1,800	1,800
Lompoc Terrace Basin	60	0	0
Zone C			
Other rocks and deposits	Unknown	Unknown	Unknown
Zone D			
Buellton Upland Basin (Eastern Portion)	290	0	0
Zone E			
Santa Ynez Upland Basin (District Portion)	2,230	1,200	1,200
Zone F			
Santa Rita Upland Basin	200	0	0
DISTRICT TOTALS	**5,130 ±**	**3,000 ±**	**3,000 ±**

Overdraft is based upon annual estimates of change in ground-water storage.

Water Code pertaining to the implementation of a ground-water charge and do not necessarily represent the hydrologic status of the ground-water basins. The values of overdraft for the ensuing water year are assumed to be the same as for the current water year.

Estimates of accumulated overdraft based upon estimated ground-water storage depletions are shown on Table 21. As of March 31, 2017, there were 3,587 acre-feet of water in the Below Narrows Account in Lake Cachuma to off-set some of the accumulated overdraft in the alluvium of the Lompoc Plain and 12,955 acre-feet in the Above Narrows Account in Lake Cachuma to off-set the accumulated overdraft in the Santa Ynez River alluvium.

5.8. GROUND-WATER QUALITY

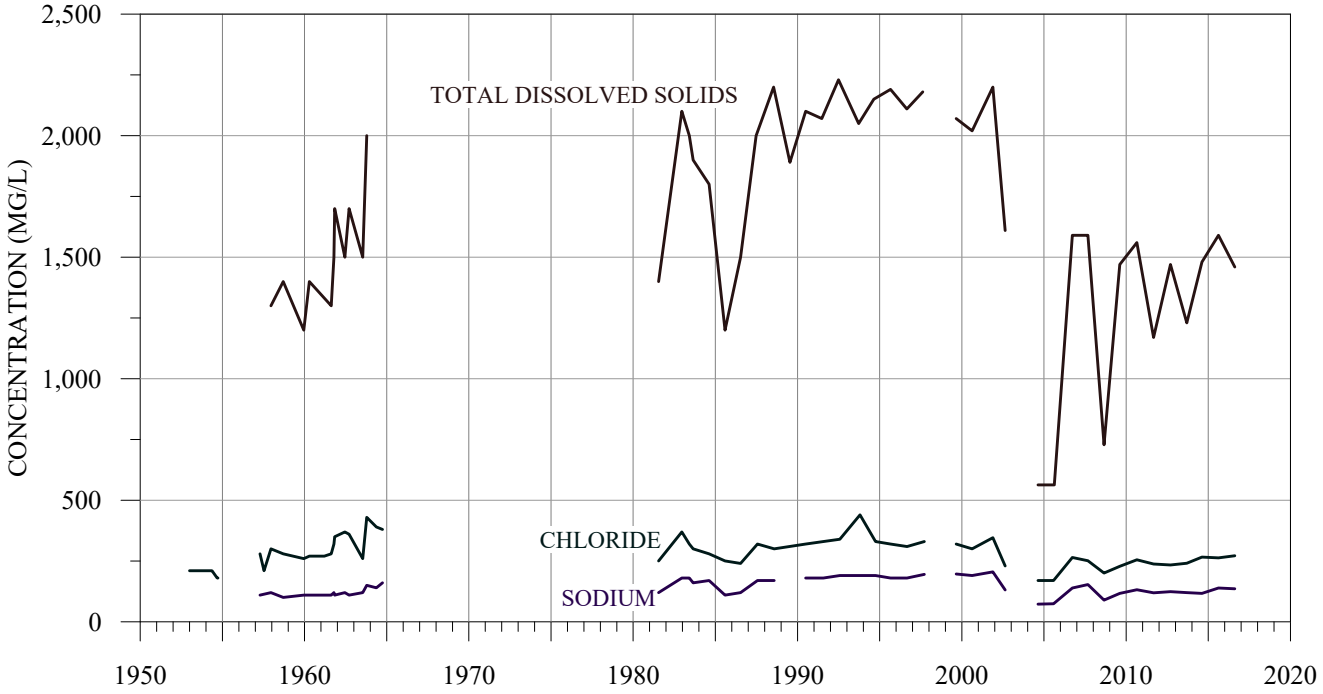
High concentrations of dissolved solids in the upper aquifer of the Lompoc Plain along the coast have been attributed by the USGS to downward leakage of seawater from the overlying estuary. Graphs showing total dissolved solids, chloride and sodium concentrations of water from two wells located in the Lompoc Plain are presented on Figure 8. One of the wells (7N/35W-17K20) is located about one mile inland from the ocean. This well is situated in such a manner that it can be used to monitor sea water intrusion.

TABLE 21
ESTIMATED ACCUMULATED OVERDRAFT OF PRINCIPAL SOURCES OF GROUND WATER WITHIN THE DISTRICT
(Acre-Feet)

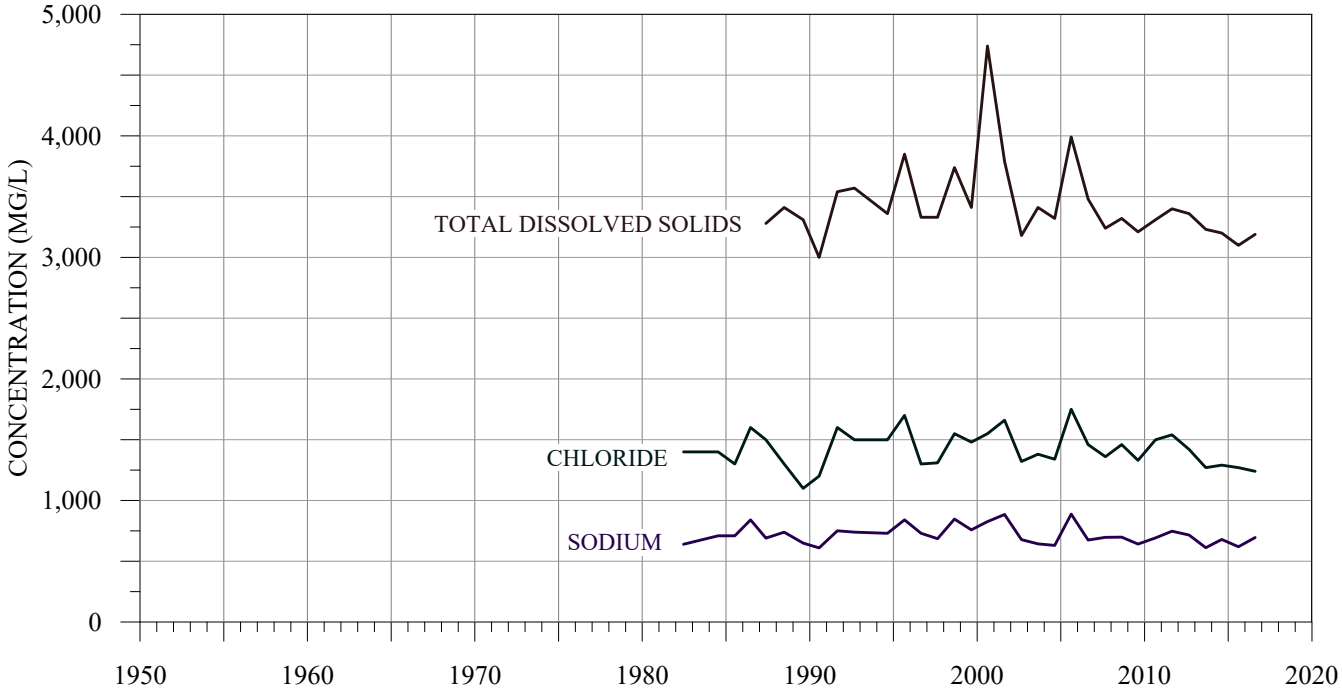
Principal Source of Ground Water	Accumulated Overdraft Through Preceding Year (2015-16)	Accumulated Overdraft Through Current Year (2016-17)
Zone A		
Santa Ynez River Alluvium (Basin is replenished annually. Some shortages in supply during drought periods)	18,500	12,900
Zone B		
Lompoc Plain Basin	21,800	20,700
Lompoc Upland Basin	33,500	35,300
Lompoc Terrace Basin	700	500
Zone C		
Other rocks and deposits	Unknown	Unknown
Zone D		
Buellton Upland Basin (Eastern Portion)	2,900	2,800
Zone E		
Santa Ynez Upland Basin (District Portion)	54,000	55,200
Zone F		
Santa Rita Upland Basin	13,800	13,700
DISTRICT TOTALS	**145,200 ±**	**141,100 ±**

Accumulated overdraft is based upon estimates of accumulated dewatered storage (Table 17).

WELL 7N/35W-26F4, 26F5
(CENTRAL LOMPOC PLAIN)



WELL 7N/35W-17K20
(WESTERN LOMPOC PLAIN)



GRAPHS SHOWING TOTAL DISSOLVED SOLIDS, CHLORIDE AND SODIUM CONCENTRATIONS IN GROUND WATER FROM SELECTED WELLS LOCATED IN THE LOMPOC PLAIN BASIN

Appendix A

SUMMARY OF PROVISIONS IN THE CALIFORNIA WATER CODE PERTAINING TO THE IMPLEMENTATION OF A GROUND-WATER CHARGE

Appendix A

SUMMARY OF PROVISIONS IN THE CALIFORNIA WATER CODE PERTAINING TO THE IMPLEMENTATION OF A GROUND-WATER CHARGE

Implementation of a ground-water charge within the District requires an engineering investigation report on the ground-water conditions of the District. The annual report requires that the following be included (Water Code Section 75560).

1. Information for the consideration of the Board in its determination of the annual overdraft;

2. Information for the consideration of the Board in its determination of the accumulated overdraft as of the last day of the preceding water year;

3. A report as to the total production of water from the ground-water supplies of the District for the preceding water year;

4. An estimate of the annual overdraft for the current water year and for the ensuing water year;

5. The amount of water the District is obligated to purchase during the ensuing water year, a recommendation as to the quantity of water needed for surface delivery and for replenishment of the ground-water supplies of the District for the ensuing year;

6. Such other information as the District desires.

The annual report should contain sufficient data from which the Board of Directors of the District can make the following determinations (Water Code Section 75574).

1. The average annual overdraft for the immediate past ten water years;

2. The estimated annual overdraft for the current water year;

3. The estimated annual overdraft for the ensuing water year;

4. The accumulated overdraft as of the last day of the preceding water year;

5. The estimated accumulated overdraft as of the last day of the current water year;

6. The estimated amount of agricultural water to be withdrawn from the ground-water supplies of the District for the ensuing water year;

7. The amount of water other than agricultural water to be withdrawn from the ground-water supplies of the District for the ensuing water year;

8. The estimated amount of water necessary for surface distribution for the ensuing water year;

9. The amount of water which is necessary for the replenishment of the ground-water supplies of the District;

10. The amount of water the District is obligated by contract to purchase.

Upon completion of the engineering report, the Board is required to call a noticed public hearing at which operators of water producing facilities within the District and any person interested in the condition of the ground-water or surface water supplies of the District are invited to submit evidence concerning the ground-water and surface water supplies of the District. The Board thereafter makes findings and determinations relating to the status of water supplies and ground-water conditions within the District. Prior to the beginning of the water year (July 1 to June 30), the Board determines whether or not it should modify the existing zone or zones in which a ground-water charge is levied.

The Board must then establish the ground-water charge to be levied in any zone or zones and proceed to assess such charge against all persons operating ground-water producing facilities within such zone or zones during the ensuing water year. The charge must be a fixed and uniform rate per acre-foot for agricultural water and for other water in each zone. Different rates may be established for different zones. Within any given zone, the fixed and uniform rate per acre-foot for other than agricultural water must be not less than three times nor more than five times the fixed and uniform rate established for agricultural water in that zone.

A 1984 amendment to the Water code established a rate for special irrigation water (irrigation water for parks, golf courses, cemeteries, schools and publicly owned historic sites). The rate shall not be less than the rate for agricultural water and shall not be more than the rate for non-agricultural water.

Within six months after establishing the existing zones within the District, all water-producing facilities located within the boundaries of the zones are required to be registered with the District. As new wells are drilled within the District, they must be registered. The District then annually gives notice to each operator of a water-producing facility of the ground-water charge for each acre-foot of water to be produced during the ensuing year.

Prior to January 31, and July 31, of each year, each water producer is required to file with the District a statement setting forth his total water production, in acre-feet, for the preceding six month period, excluding the month in which the statement is due, a general description or number locating each water-producing facility and the method or basis of the computation of such water production. This is to be a verified statement. The ground-water charge is payable to the District on or before the last date that the water production statement is due, January 31 and July 31.

Definitions

Water Code Sections 75501-75508, pertaining to the ground-water charge, define certain terms. The specified definitions are presented below and are applicable to this report unless otherwise noted.

"Person," "Operator" or "Owner" - public agencies, federal, state and local, private corporations, firms, partnerships, individuals, or groups or individuals, whether legally organized or not. "Owner" or "operator" also means the person to whom a water-producing facility is assessed by the county assessor of an affected county, or, if not separately assessed, the person who owns the land upon which a water-producing facility is located.

"Ground Water" - all water beneath the earth's surface, but does not include water which is produced with oil in the production of oil and gas or in a bona fide mining operation or during construction operations or from gravity or artesian springs.

"Production" or "Producing" - the act of extracting ground water by pumping or otherwise.

"Water-Producing Facility" - any device or method mechanical or otherwise for the production of water from the ground-water supplies within the District.

"Accumulated Overdraft" - the amount of water necessary to be replaced in the intake areas of the ground-water basins within the District or any zone or zones thereof to prevent the landward movement of salt water into the fresh ground-water body, or to prevent subsidence of the land within the District or any zone or zones thereof, as determined by the Board from time to time.

"Annual Overdraft" - the amount, determined by the Board, by which the production of water from ground-water supplies within the District or any zone or zones thereof during the water year exceeds the natural replenishment of such ground-water supplies in such water year.

"Water Year", "Current Water Year", "Preceding Water Year" and Ensuing Water Year" - July 1st of one calendar year to June 30th of the following calendar year. "Current Water Year" means the water year in which the investigation and report on the ground-water conditions of the District is made, the hearing thereon held and the determination is made by the Board as to whether a zone or zones should be established and ground-water charge levied therein. "Preceding Water Year" means the water year immediately preceding the current water year. "Ensuing Water Year" means the water year immediately following the current water year.

"Agricultural Water" - water first used on lands in the production of plant crops or livestock for market.

"Special Irrigation Water" - water used for irrigation purposes at parks, golf courses, schools, cemeteries and publicly owned historic sites.

The “water year” (July 1 through June 30) used in connection with ground-water charges differs significantly from the “hydrologic water year” (October 1 through September 30) and with various other “years” in which available water use and ground-water data are compiled and published. The “years” in which various data are readily available or published are used in the annual reports in connection with the presentation of historical data. Where possible, data are tabulated to conform with the ground-water charge “water year”. With few exceptions, water use and ground-water conditions within the District are estimates. Therefore, except for accounting purposes connected with future determinations of water production and implementation of ground-water charges, the starting date of a particular year is not of significance.

Appendix B

HISTORICAL GROUND-WATER CHARGE RATES

Appendix B

HISTORICAL GROUND-WATER CHARGES RATES

(Dollars per Acre-Foot)

Year	Zone	Agri-cultural Water	Other Water	Special Irrigation Water
1979-80	Zone A	0.60	2.40	
	Zone B	0.62	2.48	
	Zone C	0.50	2.00	
1980-81	Zone A	0.60	2.40	
	Zone B	0.62	2.48	
	Zone C	0.50	2.00	
1981-82	Zone A	0.45	1.80	
	Zone B	0.47	1.88	
	Zone C	0.35	1.40	
1982-83	Zone A	0.60	2.40	
	Zone B	0.42	1.68	
	Zone C	0.40	1.60	
1983-84	Zone A	0.40	1.60	
	Zone B	0.22	0.88	
	Zone C	0.20	0.80	
1984-85	Zone A	0.30	1.20	
	Zone B	0.12	0.48	
	Zone C	0.10	0.40	
1985-86	Zone A	0.25	1.00	0.50
	Zone B	0.10	0.40	0.20
	Zone C	0.08	0.32	0.16
1986-87	Zone A	0.50	2.00	1.00
	Zone B	0.35	1.40	0.70
	Zone C	0.33	1.32	0.66
1987-88	Zone A	0.50	2.00	1.00
	Zone B	0.35	1.40	0.70
	Zone C	0.33	1.32	0.66
1988-89	Zone A	0.60	2.40	1.20
	Zone B	0.50	2.00	1.00
	Zone C	0.40	1.60	0.80
1989-90	Zone A	0.80	3.20	1.60
	Zone B	0.70	2.80	1.40
	Zone C	0.60	2.40	1.20
1990-91	Zone A	1.00	4.00	2.00
	Zone B	1.00	4.00	2.00
	Zone C	0.80	3.20	1.60
1991-92	Zone A	1.00	4.00	2.00
	Zone B	1.00	4.00	2.00
	Zone C	0.80	3.20	1.60
1992-93	Zone A	2.20	8.80	4.40
	Zone B	2.20	8.80	4.40
	Zone C	2.00	8.00	4.00
1993-94	Zone A	3.80	15.20	7.60
	Zone B	2.70	10.80	5.40
	Zone C	2.30	9.20	4.60
	Zone D	2.90	11.60	5.80
	Zone E	2.60	10.40	5.20
	Zone F	2.50	10.00	5.00
1994-95	Zone A	4.89	17.10	9.77
	Zone B	2.74	9.58	5.47
	Zone C	1.77	6.19	3.54
	Zone D	3.32	11.62	6.64
	Zone E	2.40	8.41	4.80
	Zone F	3.31	11.59	6.62
1995-96	Zone A	3.08	10.78	6.16
	Zone B	2.73	9.56	5.46
	Zone C	1.06	3.71	2.12
	Zone D	3.77	13.20	7.54
	Zone E	3.68	12.88	7.36
	Zone F	1.06	3.71	2.12
1996-97	Zone A	3.85	13.48	7.70
	Zone B	3.26	11.41	6.52
	Zone C	1.56	5.46	3.12
	Zone D	3.70	12.95	7.40
	Zone E	3.46	12.11	6.92
	Zone F	1.56	5.46	3.12
1997-98	Zone A	3.85	13.48	7.70
	Zone B	3.26	11.41	6.52
	Zone C	1.56	5.46	3.12
	Zone D	3.70	12.95	7.40
	Zone E	2.27	7.95	4.54
	Zone F	1.56	5.46	3.12
1998-99	Zone A	3.85	13.48	7.70
	Zone B	3.26	11.41	6.52
	Zone C	1.56	5.46	3.12
	Zone D	2.36	8.26	4.72
	Zone E	1.56	5.46	3.12
	Zone F	1.56	5.46	3.12
1999-00	Zone A	3.80	13.30	7.60
	Zone B	3.26	11.41	6.52
	Zone C	1.56	5.46	3.12
	Zone D	1.56	5.46	3.12
	Zone E	1.56	5.46	3.12
	Zone F	1.56	5.46	3.12

Appendix B

HISTORICAL GROUND-WATER CHARGES RATES

(Dollars per Acre-Foot)

Year	Zone	Agri-cultural Water	Other Water	Special Irrigation Water
2000-01	Zone A	3.80	13.30	7.60
	Zone B	3.26	11.41	6.52
	Zone C	1.56	5.46	3.12
	Zone D	1.56	5.46	3.12
	Zone E	1.56	5.46	3.12
	Zone F	1.56	5.46	3.12
2001-02	Zone A	3.50	12.25	7.00
	Zone B	3.26	11.41	6.52
	Zone C	1.56	5.46	3.12
	Zone D	1.56	5.46	3.12
	Zone E	0.71	2.49	1.42
	Zone F	1.56	5.46	3.12
2002-03	Zone A	3.35	11.73	6.70
	Zone B	3.00	10.50	6.00
	Zone C	1.40	4.90	2.80
	Zone D	1.40	4.90	2.80
	Zone E	0.60	2.10	1.20
	Zone F	1.40	4.90	2.80
2003-04	Zone A	3.20	11.20	6.40
	Zone B	2.85	9.98	5.70
	Zone C	1.35	4.73	2.70
	Zone D	1.35	4.73	2.70
	Zone E	1.35	4.73	2.70
	Zone F	1.35	4.73	2.70
2004-05	Zone A	3.20	11.20	6.40
	Zone B	2.85	9.98	5.70
	Zone C	1.35	4.73	2.70
	Zone D	1.35	4.73	2.70
	Zone E	1.35	4.73	2.70
	Zone F	1.35	4.73	2.70
2005-06	Zone A	2.20	7.70	4.40
	Zone B	2.20	7.70	4.40
	Zone C	1.20	4.20	2.40
	Zone D	1.20	4.20	2.40
	Zone E	1.20	4.20	2.40
	Zone F	1.20	4.20	2.40
2006-07	Zone A	2.20	7.70	4.40
	Zone B	2.20	7.70	4.40
	Zone C	1.20	4.20	2.40
	Zone D	1.20	4.20	2.40
	Zone E	1.20	4.20	2.40
	Zone F	1.20	4.20	2.40
2007-08	Zone A	2.20	7.70	4.40
	Zone B	2.20	7.70	4.40
	Zone C	1.20	4.20	2.40
	Zone D	1.20	4.20	2.40
	Zone E	1.20	4.20	2.40
	Zone F	1.20	4.20	2.40
2008-09	Zone A	2.20	7.70	4.40
	Zone B	2.20	7.70	4.40
	Zone C	1.20	4.20	2.40
	Zone D	1.20	4.20	2.40
	Zone E	1.20	4.20	2.40
	Zone F	1.20	4.20	2.40
2009-10	Zone A	2.20	7.70	4.40
	Zone B	2.20	7.70	4.40
	Zone C	1.20	4.20	2.40
	Zone D	1.20	4.20	2.40
	Zone E	1.20	4.20	2.40
	Zone F	1.20	4.20	2.40
2010-11	Zone A	2.55	8.93	5.10
	Zone B	2.55	8.93	5.10
	Zone C	1.40	4.90	2.80
	Zone D	1.40	4.90	2.80
	Zone E	1.40	4.90	2.80
	Zone F	1.40	4.90	2.80
2011-12	Zone A	2.70	9.45	5.40
	Zone B	2.70	9.45	5.40
	Zone C	1.48	5.18	2.96
	Zone D	1.48	5.18	2.96
	Zone E	1.48	5.18	2.96
	Zone F	1.48	5.18	2.96
2012-13	Zone A	3.00	10.50	6.00
	Zone B	3.00	10.50	6.00
	Zone C	1.65	5.78	3.30
	Zone D	1.65	5.78	3.30
	Zone E	1.65	5.78	3.30
	Zone F	1.65	5.78	3.30
2013-14	Zone A	3.25	11.40	6.50
	Zone B	3.25	11.40	6.50
	Zone C	1.80	6.30	3.60
	Zone D	1.80	6.30	3.60
	Zone E	1.80	6.30	3.60
	Zone F	1.80	6.30	3.60

Appendix B

HISTORICAL GROUND-WATER CHARGES RATES

(Dollars per Acre-Foot)

Year	Zone	Agri-cultural Water	Other Water	Special Irrigation Water
2014-15	Zone A	3.25	11.40	6.50
	Zone B	3.25	11.40	6.50
	Zone C	1.80	6.30	3.60
	Zone D	1.80	6.30	3.60
	Zone E	1.80	6.30	3.60
	Zone F	1.80	6.30	3.60
2015-16	Zone A	3.50	12.25	7.00
	Zone B	3.50	12.25	7.00
	Zone C	2.15	7.53	4.30
	Zone D	2.15	7.53	4.30
	Zone E	2.15	7.53	4.30
	Zone F	2.15	7.53	4.30
2016-17	Zone A	3.85	13.48	7.70
	Zone B	3.85	13.48	7.70
	Zone C	3.00	10.50	6.00
	Zone D	3.00	10.50	6.00
	Zone E	3.00	10.50	6.00
	Zone F	3.00	10.50	6.00

Appendix C

ADDITIONAL STREAMFLOW RECORDS
SANTA YNEZ RIVER BASIN

Appendix C

ADDITIONAL STREAMFLOW RECORDS
SANTA YNEZ RIVER BASIN
(Acre-Feet)

Water Year	Alamo Pintado Creek near Solvang	Miguelito Creek at Lompoc	Santa Cruz Creek near Santa Ynez	Santa Ynez River at Jameson Lake near Montecito (Net Inflow)	Santa Ynez River at Solvang	Zaca Creek near Buellton	Santa Ynez River below Gibraltar Dam
1942			8,250	2,490			19,170
1943			28,990	11,320			86,330
1944			17,500	5,230			44,990
1945			11,910	2,570			16,580
1946			6,600	3,550			18,600
1947			3,580	1,360	14,920		6,260
1948			346	258	2,400		24
1949			1,630	310	2,900		23
1950			2,700	498	3,220		38
1951			340	100	1,490		41
1952			29,500	11,585	239,100		85,500
1953			4,250	614	13,430		7,990
1954			5,440	1,300	6,400		9,240
1955			1,890	312	4,200		84
1956			9,410	752	12,140		3,480
1957			2,100	533	3,350		71
1958			43,720	13,442	91,640		123,600
1959			3,880	1,201	10,350		4,500
1960			1,640	99	3,160		16
1961			167		625		
1962			20,520	6,425	49,080		46,260
1963			2,250	76	3,570		74
1964			663	377	1,060	1	53
1965			5,050	1,050	5,890	5	1,480
1966			11,730	8,091	16,930	11	65,320
1967			36,540	9,451	148,700	755	123,470
1968			3,580	1,005	5,190		1,400
1969			97,360	33,112	548,800	6,680	316,400
1970			6,250	1,903	4,410	19	13,610
1971	4	173	7,170	2,302	9,450	6	19,490
1972		108	2,280	915	4,380	2	687
1973	173	1,740	19,910	13,835	48,100	611	69,780
1974	60	833	7,220	3,086	10,700	56	18,330
1975	107	1,640	8,570	3,529	34,490	122	26,270
1976	4	361	992	1,526	2,310	23	481
1977	6	124	587	342	1,010	11	162
1978	2,220	3,670	44,380	24,318	327,500	3,690	195,100
1979	89	1,100	13,040	5,358	54,350	185	34,550
1980	998	1,940	23,750	11,321	196,300	886	86,840
1981	167	916	5,150	1,617	10,690	349	4,870
1982	22	544	7,680	1,559	3,920		11,910
1983	4,510	5,770	54,410	22,594	511,200		236,500
1984	556	974	8,590	3,064	24,860		23,530
1985	390	687	2,920	688	2,680		24

Appendix C

ADDITIONAL STREAMFLOW RECORDS
SANTA YNEZ RIVER BASIN
(Acre-Feet)

Water Year	Alamo Pintado Creek near Solvang	Miguelito Creek at Lompoc	Santa Cruz Creek near Santa Ynez	Santa Ynez River at Jameson Lake near Montecito (Net Inflow)	Santa Ynez River at Solvang	Zaca Creek near Buellton	Santa Ynez River below Gibraltar Dam
1986			14,180	9,090	12,300		56,160
1987			1,040	652	1,850		70
1988		511	3,430	2,335	4,120		96
1989		142	1,880	551	1,760		
1990		162	48	212	629		
1991	1,080	855	14,030	5,738	12,360	588	31,100
1992	1,690	685	20,780	12,223	40,130	1,760	90,978
1993		1,710	60,660	28,170	364,090		217,980
1994		705	4,261	1,542	9,390		6,588
1995	7,660	9,960	46,454	43,537	533,900	5,600	236,032
1996	2,260	2,140	10,041	2,541	15,890	574	11,463
1997	1,658	677	14,867	2,951	152,940	1,658	29,935
1998	18,300	6,820	89,240	115,212	655,470	8,360	299,400
1999	2,710	1,104	5,450	1,088	10,950	261	6,170
2000	1,978	1,961	8,499	3,426		504	25,269
2001	3,093	1,659	20,266	13,632		1,720	65,659
2002	886	476	1,256	369	6,200	36	595
2003	350	622	5,522	1,369	7,710	47	3,844
2004	112	224	1,216	816	10,150	8	320
2005	3,707	2,194	50,508	21,630	373,548	2,143	212,452
2006	716	745	16,207	7,752	96,498	321	57,011
2007	323	135	992	191	10,883	0	0
2008	987	371	24,813	4,686	49,594		68,518
2009	2	71	6,147	348	4,745	0	5,079
2010	159		14,411	2524	18,602	119	41,872
2011	733		27,316	5260	120,431	859	92,246
2012	0		3,061	191	4,860	0	18
2013	0		1,196		381	0	0
2014	0		1,112		0	0	0
2015	0		389		0	0	0
2016	0		377		8,002	0	0

Zeros represent annual gaged totals of zero acre-feet. Blanks represent incomplete gaged records.

Appendix D

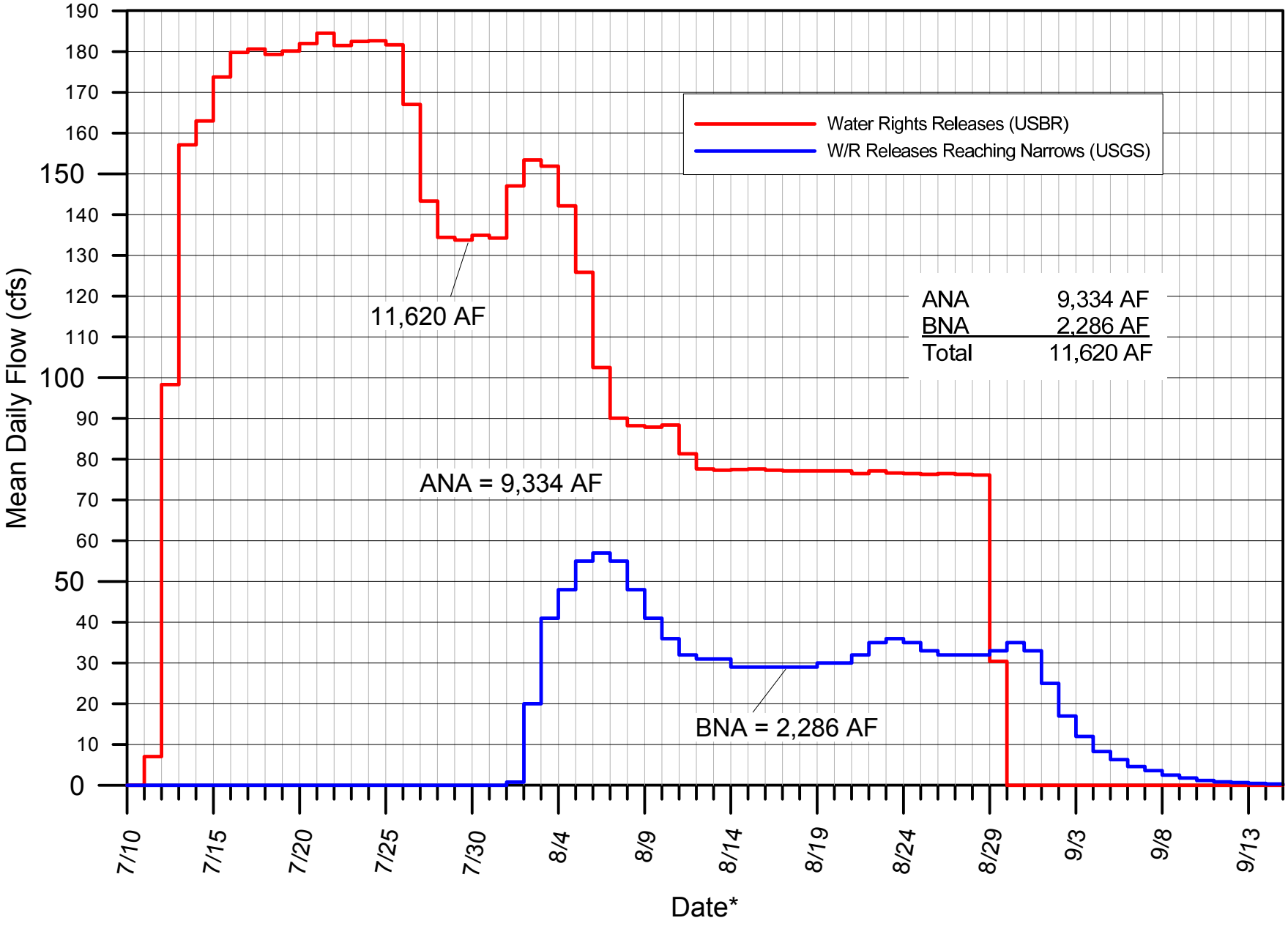
WATER RIGHTS RELEASES

Table D-1. 2016 Water Rights Releases
Releases through Bradbury Dam Outlet Works

(Start Time)	USBR Date of Record[a] (End Time)	USBR Release acre-feet	USBR Release cfs	Notes
7/11/2016 8:00	7/12/2016 8:00	19.0	9.6	first day filled stilling basin
7/12/2016 8:00	7/13/2016 8:00	283.0	142.7	
7/13/2016 8:00	7/14/2016 8:00	326.0	164.4	
7/14/2016 8:00	7/15/2016 8:00	322.0	162.3	
7/15/2016 8:00	7/16/2016 8:00	356.0	179.5	Requested 200 cfs; Received 180 cfs due to stuck valve
7/16/2016 8:00	7/17/2016 8:00	357.0	180.0	
7/17/2016 8:00	7/18/2016 8:00	359.0	181.0	
7/18/2016 8:00	7/19/2016 8:00	354.0	178.5	
7/19/2016 8:00	7/20/2016 8:00	359.0	181.0	
7/20/2016 8:00	7/21/2016 8:00	362.0	182.5	
7/21/2016 8:00	7/22/2016 8:00	368.0	185.5	
7/22/2016 8:00	7/23/2016 8:00	356.0	179.5	
7/23/2016 8:00	7/24/2016 8:00	365.0	184.0	
7/24/2016 8:00	7/25/2016 8:00	361.0	182.0	
7/25/2016 8:00	7/26/2016 8:00	360.0	181.5	
7/26/2016 8:00	7/27/2016 8:00	317.0	159.8	Changes in release: 180-160 cfs
7/27/2016 8:00	7/28/2016 8:00	268.0	135.1	Changes in release: 160-135 cfs
7/28/2016 8:00	7/29/2016 8:00	266.0	134.1	
7/29/2016 8:00	7/30/2016 8:00	265.0	133.6	
7/30/2016 8:00	7/31/2016 8:00	269.0	135.6	
7/31/2016 8:00	8/1/2016 8:00	265.0	133.6	
8/1/2016 8:00	8/2/2016 8:00	305.0	153.8	Changes in release: 135-155 cfs
8/2/2016 8:00	8/3/2016 8:00	304.0	153.3	
8/3/2016 8:00	8/4/2016 8:00	300.0	151.3	
8/4/2016 8:00	8/5/2016 8:00	273.0	137.6	Changes in release: 155-135 cfs
8/5/2016 8:00	8/6/2016 8:00	238.0	120.0	Changes in release: 135-120 cfs
8/6/2016 8:00	8/7/2016 8:00	186.0	93.8	Changes in release: 120-95 cfs
8/7/2016 8:00	8/8/2016 8:00	175.0	88.2	Changes in release: 95-88 cfs
8/8/2016 8:00	8/9/2016 8:00	175.0	88.2	
8/9/2016 8:00	8/10/2016 8:00	174.0	87.7	
8/10/2016 8:00	8/11/2016 8:00	176.0	88.7	
8/11/2016 8:00	8/12/2016 8:00	154.0	77.6	Changes in release: 88-78 cfs (valve stuck)
8/12/2016 8:00	8/13/2016 8:00	154.0	77.6	
8/13/2016 8:00	8/14/2016 8:00	153.0	77.1	
8/14/2016 8:00	8/15/2016 8:00	154.0	77.6	
8/15/2016 8:00	8/16/2016 8:00	154.0	77.6	
8/16/2016 8:00	8/17/2016 8:00	153.0	77.1	
8/17/2016 8:00	8/18/2016 8:00	153.0	77.1	
8/18/2016 8:00	8/19/2016 8:00	153.0	77.1	
8/19/2016 8:00	8/20/2016 8:00	153.0	77.1	
8/20/2016 8:00	8/21/2016 8:00	153.0	77.1	
8/21/2016 8:00	8/22/2016 8:00	151.0	76.1	
8/22/2016 8:00	8/23/2016 8:00	154.0	77.6	
8/23/2016 8:00	8/24/2016 8:00	151.0	76.1	
8/24/2016 8:00	8/25/2016 8:00	152.0	76.6	
8/25/2016 8:00	8/26/2016 8:00	151.0	76.1	
8/26/2016 8:00	8/27/2016 8:00	152.0	76.6	
8/27/2016 8:00	8/28/2016 8:00	151.0	76.1	
8/28/2016 8:00	8/29/2016 8:00	151.0	76.1	
8/29/2016 8:00	8/30/2016 8:00	10.0	5.0	Changes in release: 76-0 cfs
Total Water Rights Releases		**11,620 AF**		

(July 11 - August 30) a) USBR Date of Record is from 8:00AM of the previous day to 8:00AM of the current day.

Santa Ynez River
Downstream Water Rights Releases in 2016



* Based on the day starting at 12:00 am

FIGURE D-1

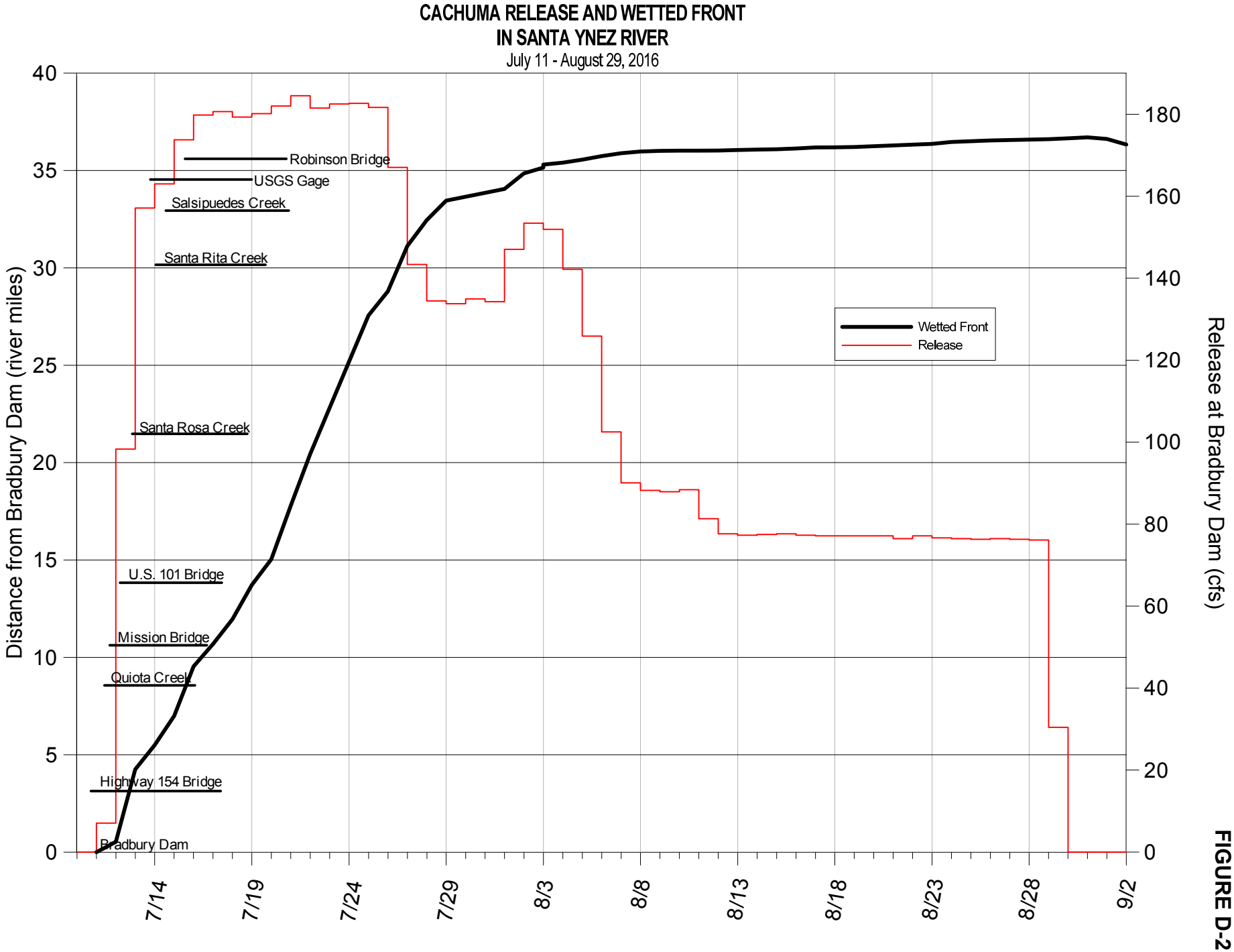

CACHUMA RELEASE AND WETTED FRONT
IN SANTA YNEZ RIVER
July 11 - August 29, 2016
Distance from Bradbury Dam (river miles)
Release at Bradbury Dam (cfs)
Robinson Bridge
USGS Gage
Salsipuedes Creek
Santa Rita Creek
Santa Rosa Creek
U.S. 101 Bridge
Mission Bridge
Quiota Creek
Highway 154 Bridge
Bradbury Dam
Wetted Front
Release
0
5
10
15
20
25
30
35
40
0
20
40
60
80
100
120
140
160
180
7/14
7/19
7/24
7/29
8/3
8/8
8/13
8/18
8/23
8/28
9/2

FIGURE D-2

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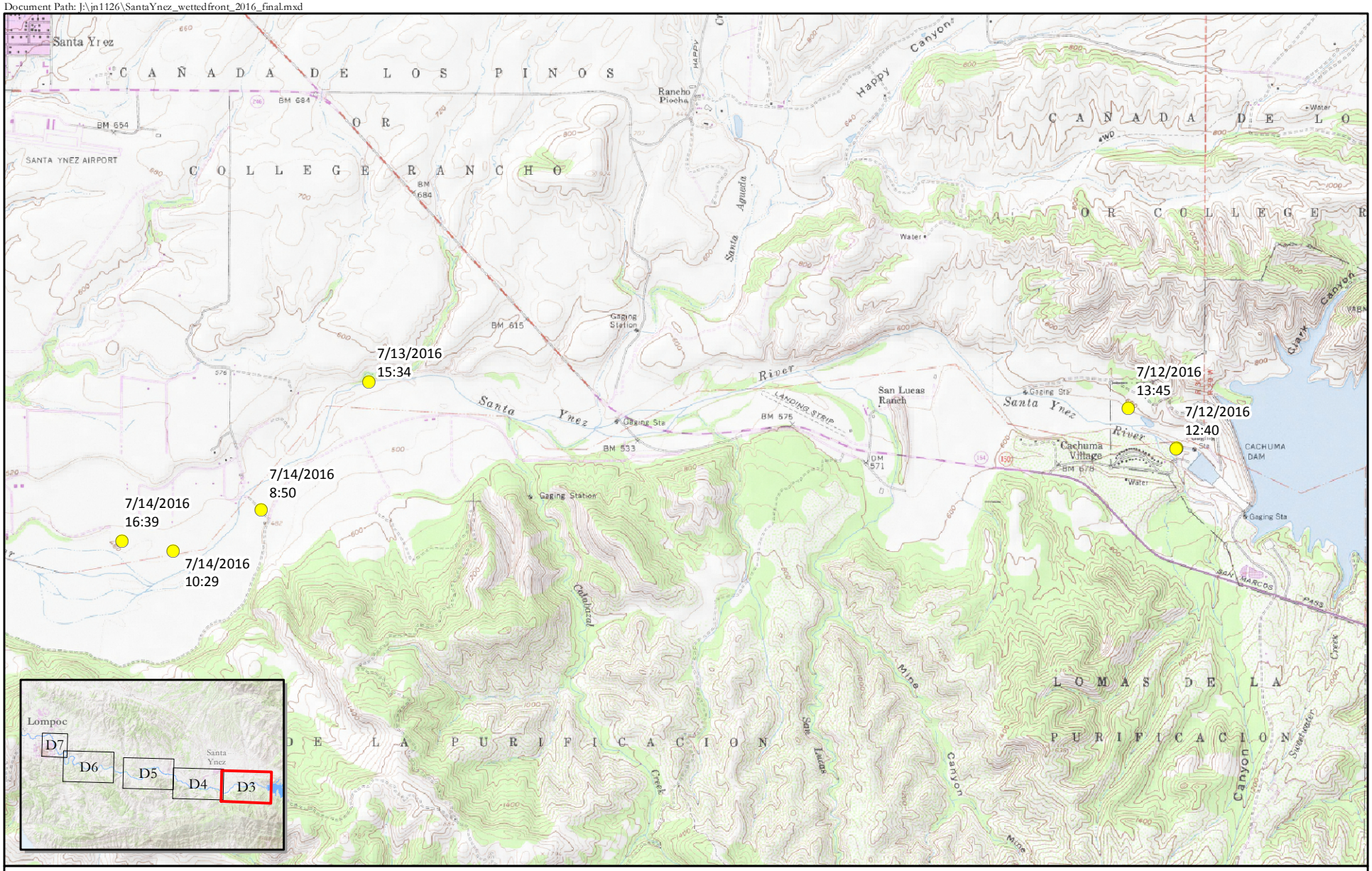


STETSON ENGINEERS INC.

2016 WETTED FRONT
SANTA YNEZ RIVER

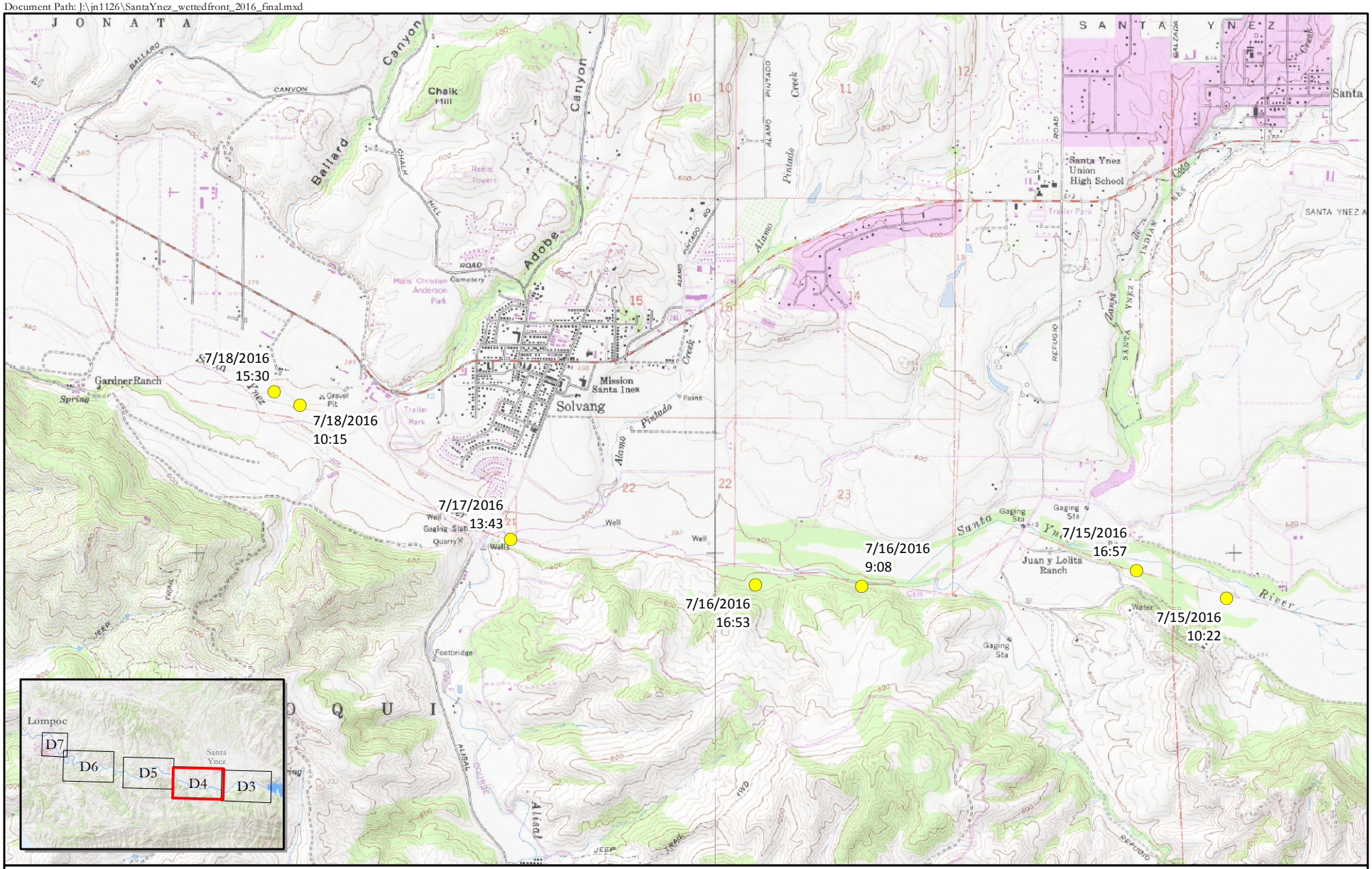
July 11, 2016 to September 2, 2016

0 2,000 4,000 Feet

N

FIGURE D3

Document Path: J:\jn1126\SantaYnez_wettedfront_2016_final.mxd



STETSON ENGINEERS INC.

2016 WETTED FRONT
SANTA YNEZ RIVER

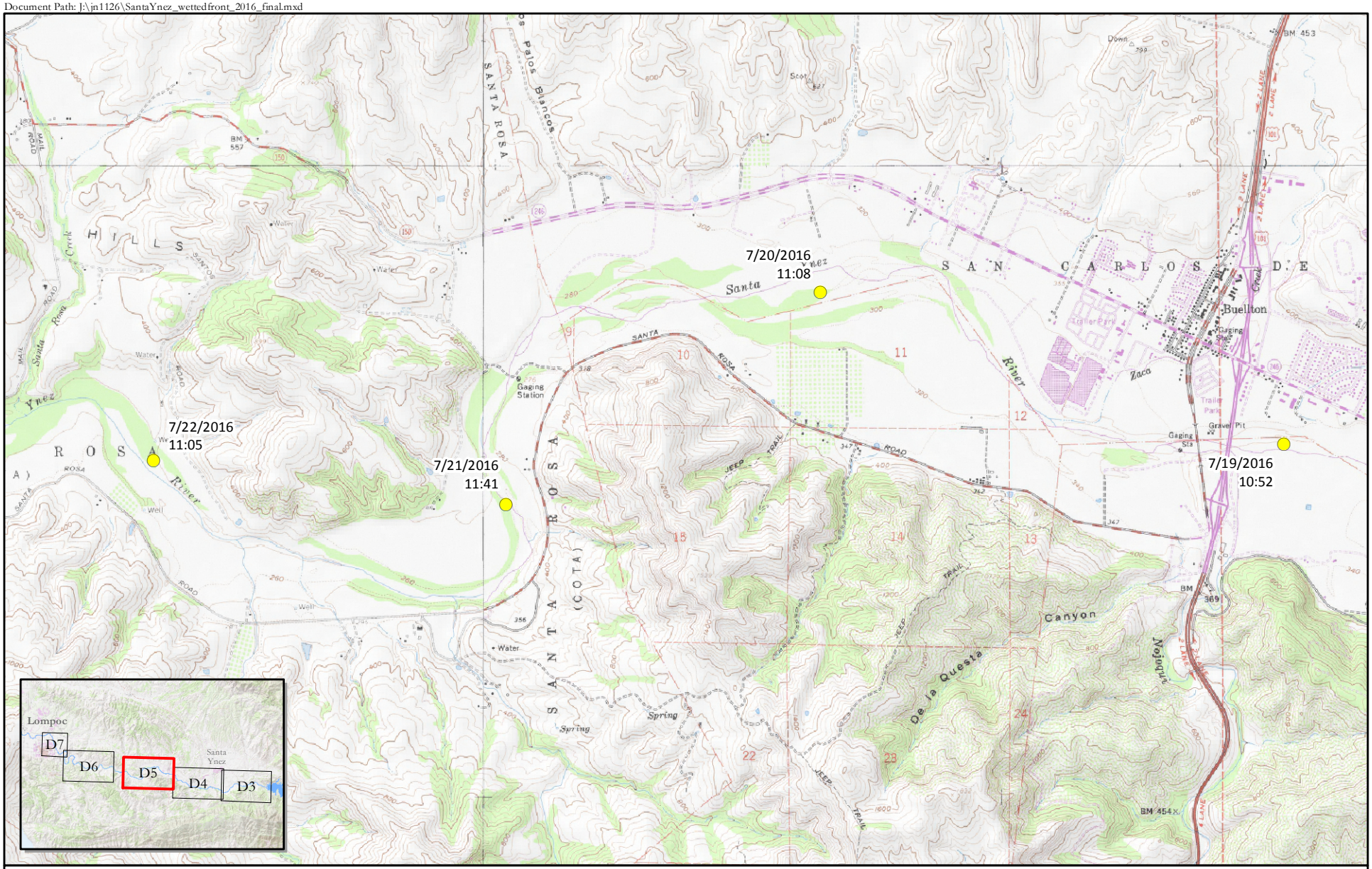
July 11, 2016 to September 2, 2016

0 2,000 4,000 Feet

N

FIGURE D4

Document Path: J:\jn1126\SantaYnez_wettedfront_2016_final.mxd



STETSON ENGINEERS INC.

2016 WETTED FRONT
SANTA YNEZ RIVER

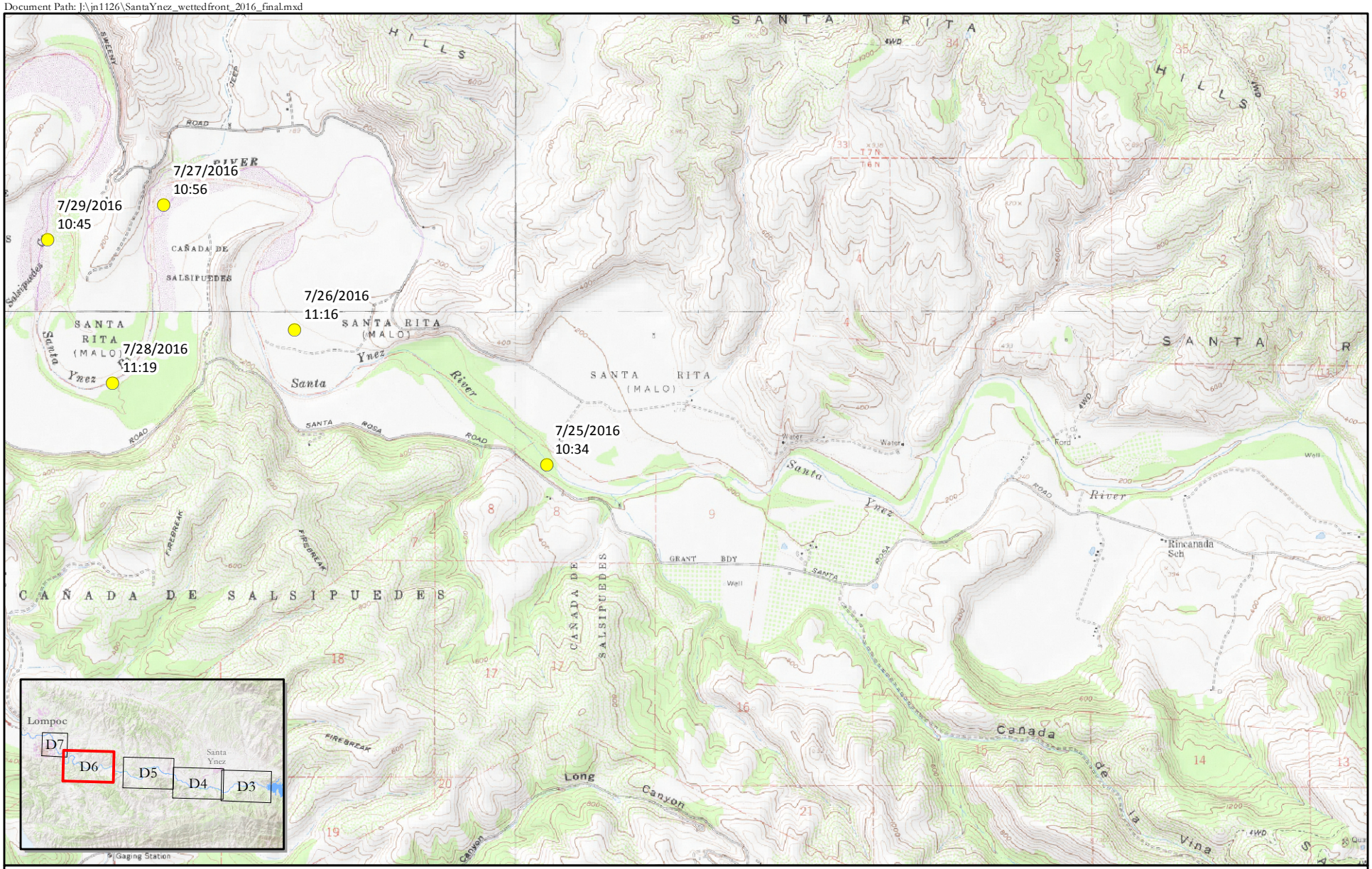
July 11, 2016 to September 2, 2016

0 2,000 4,000 Feet

N

FIGURE D5

Document Path: J:\jn1126\SantaYnez_wettedfront_2016_final.mxd



2016 WETTED FRONT
SANTA YNEZ RIVER

July 11, 2016 to September 2, 2016

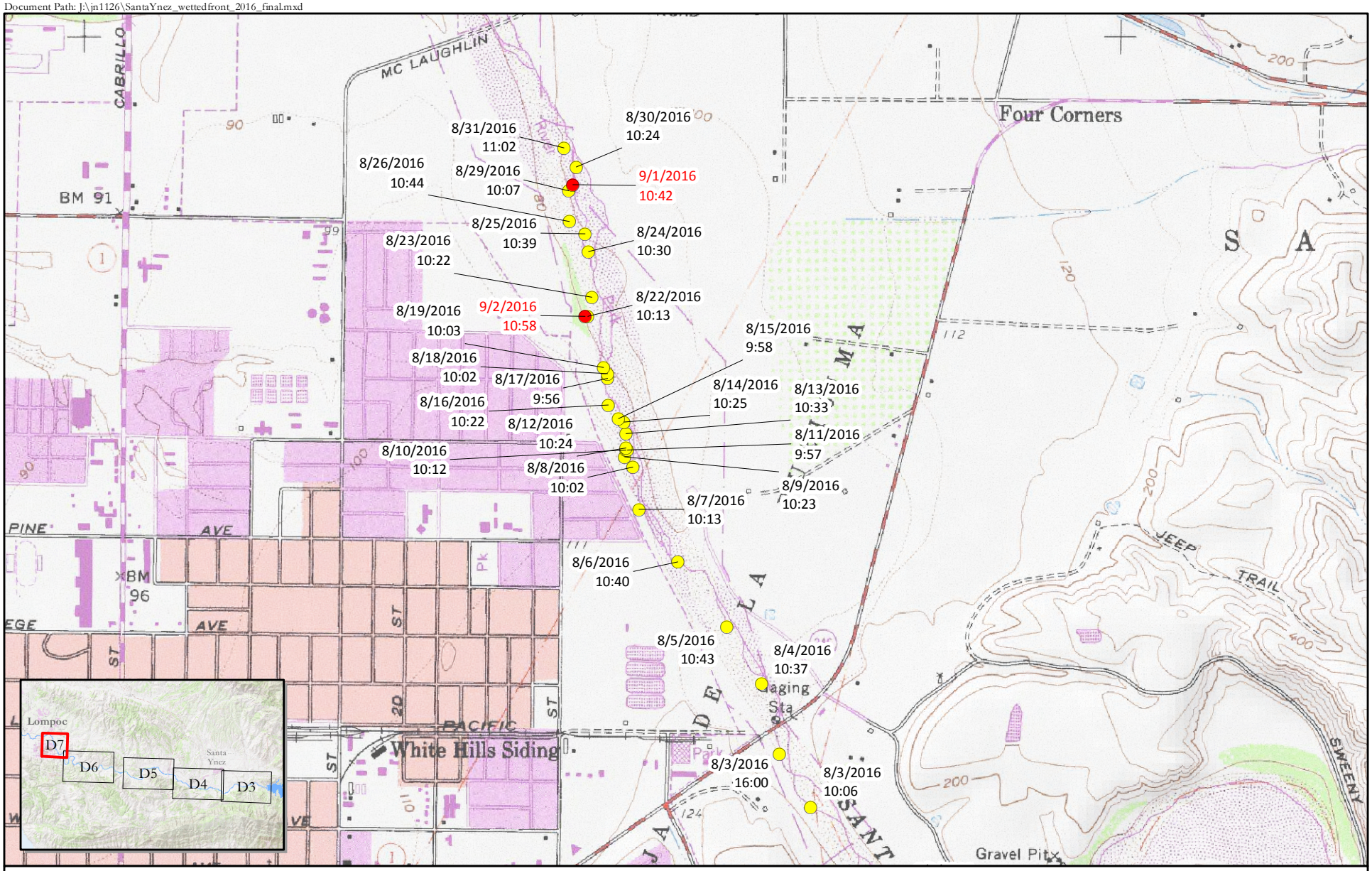
0 2,000 4,000 Feet

N

STETSON ENGINEERS INC.

FIGURE D6

Document Path: J:\jn1126\SantaYnez_wettedfront_2016_final.mxd



STETSON ENGINEERS INC.

2016 WETTED FRONT
SANTA YNEZ RIVER

July 11, 2016 to September 2, 2016

0 1,000 2,000 Feet

N

FIGURE D7

Appendix E

GENERAL DESCRIPTION OF THE HYDROGEOLOGY OF THE SOURCES OF GROUND WATER WITHIN THE DISTRICT

Appendix E

GENERAL DESCRIPTION OF THE HYDROGEOLOGY OF THE SOURCES OF GROUND WATER WITHIN THE DISTRICT

Santa Ynez River Alluvial Deposits

Along the Santa Ynez River channel ground water occurs in the river channel deposits and thin bodies of younger alluvium. The ground water is generally unconfined and in hydrologic continuity with surface water. In the Santa Ynez sub-basin, Bradbury Dam to Solvang, these deposits are almost completely bordered and underlain by non-water bearing consolidated rocks. Replenishment is by natural seepage from the river, seepage from tributaries, return flow from applied water, treated sewage effluent from the City of Solvang waste water treatment plant, and releases from Lake Cachuma to satisfy downstream water rights.

In the Buellton sub-basin, Solvang to a point about five miles downstream of Buellton, the river channel deposits and younger alluvium partially overlie and abut on the north side of the river channel, older unconsolidated deposits of the Paso Robles formation and Careaga Sand that fill a northwest-trending structural basin (Buellton Upland basin). The older deposits probably slowly discharge ground-water to the alluvial deposits. Additional recharge to the river alluvium in the Buellton sub-basin is primarily from seepage from the Santa Ynez River and tributary creeks. During the irrigation season, some return flow recharges these deposits. Treated sewage effluent from the City of Buellton waste water treatment plant also recharges the alluvial ground water.

The alluvial deposits along the Santa Ynez River in the Santa Rita sub-basin downstream of the Buellton sub-basin to the Lompoc Narrows, occur in a very similar condition to those in the Santa Ynez sub-basin to the extent that they are essentially separated from older unconsolidated deposits by generally non-water bearing consolidated rocks. The alluvial deposits in this sub-basin are generally unconfined with some local confinement. Recharge is also primarily from the Santa Ynez River, tributary creek seepage and irrigation return flow.

Santa Ynez River alluvial deposits are relatively thin with typical thicknesses of 60 to 80 feet with local thicknesses of more than 100 feet. Wells in these deposits typically yield a few hundred to as high as 1,500 or more gallons per minute (gpm).

The storage capacity of the alluvial deposits under full water conditions as determined in connection with State Water Resources Control Board Order 73-37 is as follows:

Sub-basin	Acre-Feet
Santa Ynez Sub-basin	21,000
Buellton Sub-basin	27,500
Santa Rita Sub-basin	56,500
TOTAL	**105,000**

Santa Ynez Upland Basin

The Santa Ynez Upland basin lies north of the Santa Ynez River and extends westward from about four miles east of Lake Cachuma (Red Rock Canyon) to include the Zaca Creek watershed where the creek crosses the basin. Relatively non-water bearing rocks separate this basin from Santa Ynez River alluvium to the south. The northern boundary of the basin is formed by faulting of consolidated non-water bearing rocks of the San Rafael Mountains against the unconsolidated basin deposits.

The Santa Ynez Upland basin is comprised of thick unconsolidated deposits primarily of the Paso Robles Formation and the Careaga Sand which are the primary sources of ground water. Terrace and alluvial deposits are also present in portions of the basin, but are generally not sources of major ground-water supplies. The thickness of the unconsolidated deposits is generally greater than 1,000 feet with maximum thicknesses of over 3,000 feet at places.

Recharge occurs from the deep percolation of precipitation, seepage from creeks, underflow from consolidated rocks surrounding the basin and irrigation return flow including return flow from imported Cachuma Project water and pumped underflow of the Santa Ynez River.

The USGS (La Freniere and French, 1968) estimated the ground-water in storage in the Santa Ynez Upland ground-water basin in 1964 to be ten million acre-feet with about one million acre-feet in the upper 200 saturated feet.

Buellton Upland Basin

The Buellton Upland basin generally includes the area north of the Santa Ynez River that extends eastward from the Santa Rita Upland basin to the east of the City of Buellton. For the most part, this basin is underlain by the older unconsolidated deposits of the Paso Robles Formation and the Careaga Sand. These deposits fill a synclinal basin which may be an extension of the Santa Rita syncline. If that is the case, this area may be in hydrologic continuity with similar deposits to the west. Recharge to these older deposits is from precipitation falling on the outcrop area and seepage from small creeks that cross the outcrop area.

Santa Rita Upland Basin

Ground-water supplies are present in the older unconsolidated Orcutt Sand, Paso Robles Formation and Careaga Sand which fill a structural basin formed by the eastern portion of the Santa Rita syncline. The Santa Rita Upland basin is in hydrologic continuity with the Buellton and Lompoc Upland basins, but is separated from the Santa Ynez River alluvium by non-water bearing rocks. Ground water is present in a "shallow" perched condition as well as a deep body. Both bodies appear to contain water under unconfined conditions.

Lompoc Area Basins

Three ground-water sources are present in the Lompoc area. They include the Lompoc Plain, Lompoc Upland and Lompoc Terrace basins. The Lompoc Plain basin is an alluvial filled trough cut into the south limb of the Santa Rita syncline. The principal water-bearing units beneath the Lompoc Plain are the river-channel deposits and younger alluvium that compose the upper aquifer and the Paso Robles Formation and Careaga Sand that comprise the lower aquifer.

The upper aquifer consists of three water-bearing zones: (1) the shallow zone; (2) the middle zone; and (3) the main zone. The main zone of the upper aquifer has been the primary source of water from the Lompoc Plain basin. The shallow zone includes river-channel deposits and predominately fine grained sand, silt and clay deposits of the upper member of the alluvium that confine or partly confine the underlying deposits in the western, central and northeastern portions of the basin. The base of the upper member of the alluvium includes interbedded lenses of permeable sand and gravel which the USGS (Bright et al., 1992) refer to as the middle zone. The main zone includes the lower member of the alluvium. Medium to coarse sand and gravel comprise this zone. The main zone throughout most of the Lompoc Plain basin is separated from the middle zone by lenses of silt and clay that result in confined or partially confined conditions in the main zone. However, in the eastern, southern and northern portions of the Lompoc Plain basin, the confining deposits are less continuous or absent, allowing movement of ground water between the shallow, middle and main zones.

The central and northern parts of the western end of the Santa Rita syncline comprise the Lompoc Upland basin which lies north of the Lompoc Plain. The main water bearing deposits in the basin are the Paso Robles Formation and Careaga Sand. These deposits extend under the Lompoc Plain to form the lower aquifer. Most of the ground water in storage occurs in these two formations. Perched ground water occurs locally in the Orcutt Sand.

The Lompoc Terrace basin, the hilly area adjacent to the southwest part of the Lompoc Plain basin, is a down-faulted wedge of Careaga Sand overlain by Orcutt Sand.

Recharge to the aquifers beneath the Lompoc Plain basin includes infiltration of precipitation, seepage from streams, ground-water underflow from tributary streams, underflow through aquifers underlying the Lompoc Upland and Lompoc Terrace basins which extend under the Plain (lower aquifer beneath the Lompoc Plain basin), irrigation return flow and sewage effluent. Recharge to the Lompoc Upland basin is primarily by infiltration of precipitation, some seepage from streams, and percolation of treated sewage effluent from the Mission Hills Community Services District waste water treatment plant. The Lompoc Upland basin may also receive underflow along the Santa Rita syncline from the Santa Rita Upland basin. Recharge to the Lompoc Terrace basin is mainly from infiltration of precipitation.

The USGS (Miller, 1976) estimated the total ground water in storage in the Lompoc area as follows:

Basin	**Ground-Water in Storage (Acre-Feet)**
Lompoc Plain	
Main Zone	80,000
Shallow Zone	135,000
Lompoc Upland	400,000
Lompoc Terrace	100,000
TOTAL	**715,000**

REFERENCES CITED

Bright, D.J. et al., 1992, Ground-Water Hydrology and Quality in the Lompoc Area, Santa Barbara County, California, 1987-88: U.S. Geological Survey Water Resources Investigations Report 91-4172.

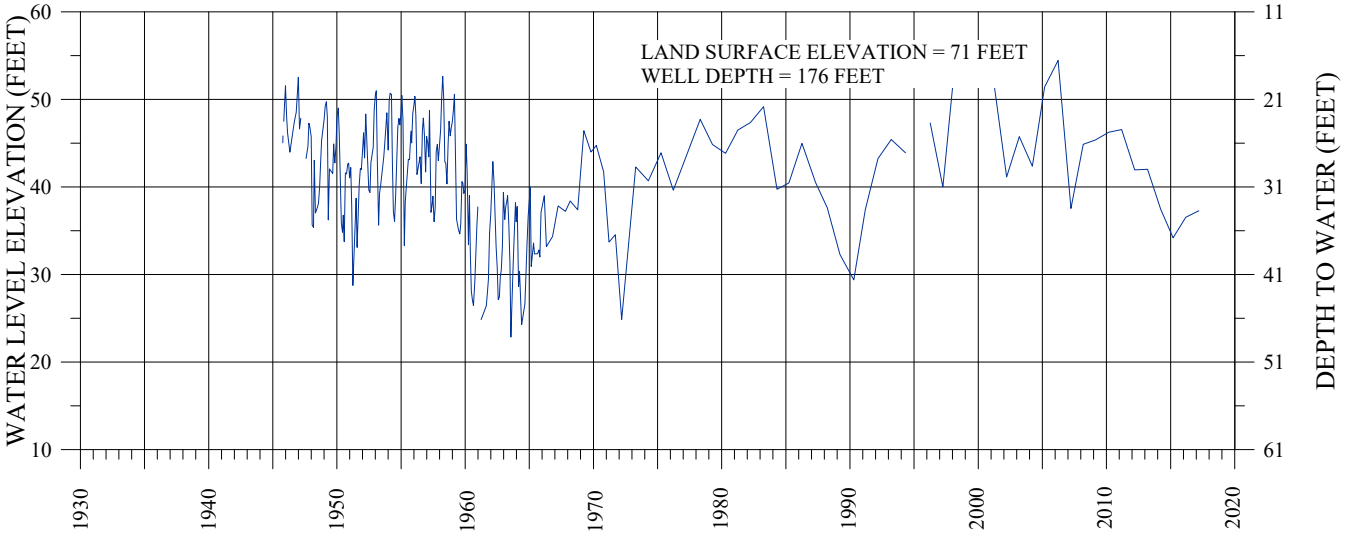
LaFreniere, G.F., and French, J.J. 1968, Ground-Water Resources of the Santa Ynez Upland Ground-Water Basin, Santa Barbara County, California: U.S. Geological Survey Open File Report.

Miller, G.A., 1976, Ground-Water Resources in the Lompoc Area, Santa Barbara County, California: U.S. Geological Survey Open-File Report 76-183.

Appendix F

WATER-LEVEL HYDROGRAPHS OF SELECTED WELLS

WELL 7N/34W-29E4



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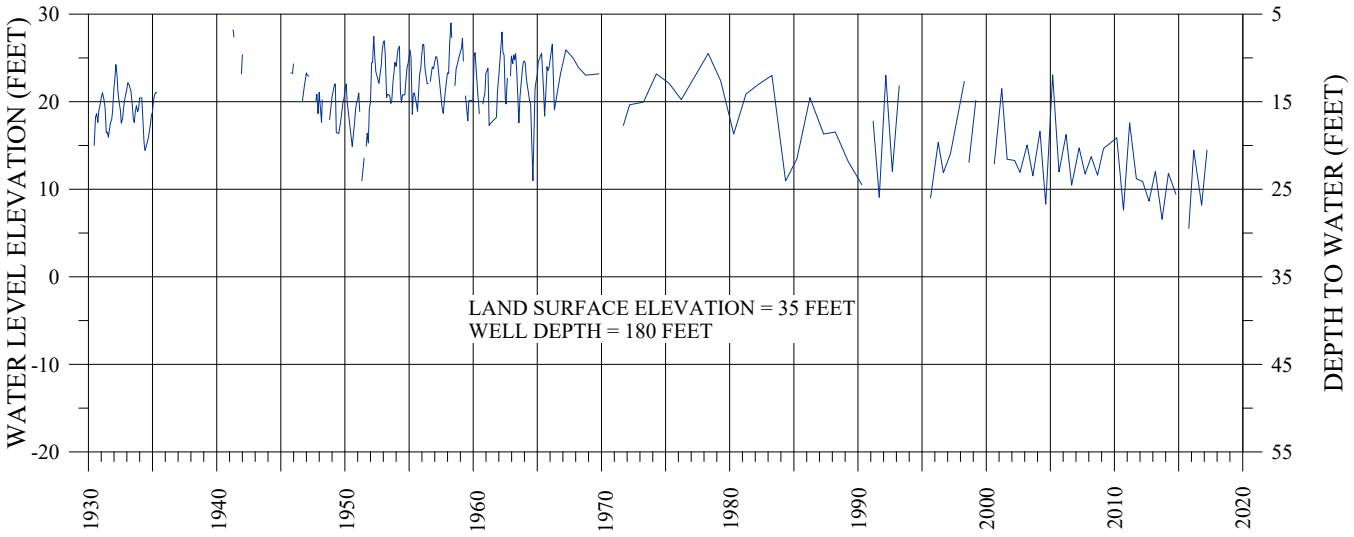

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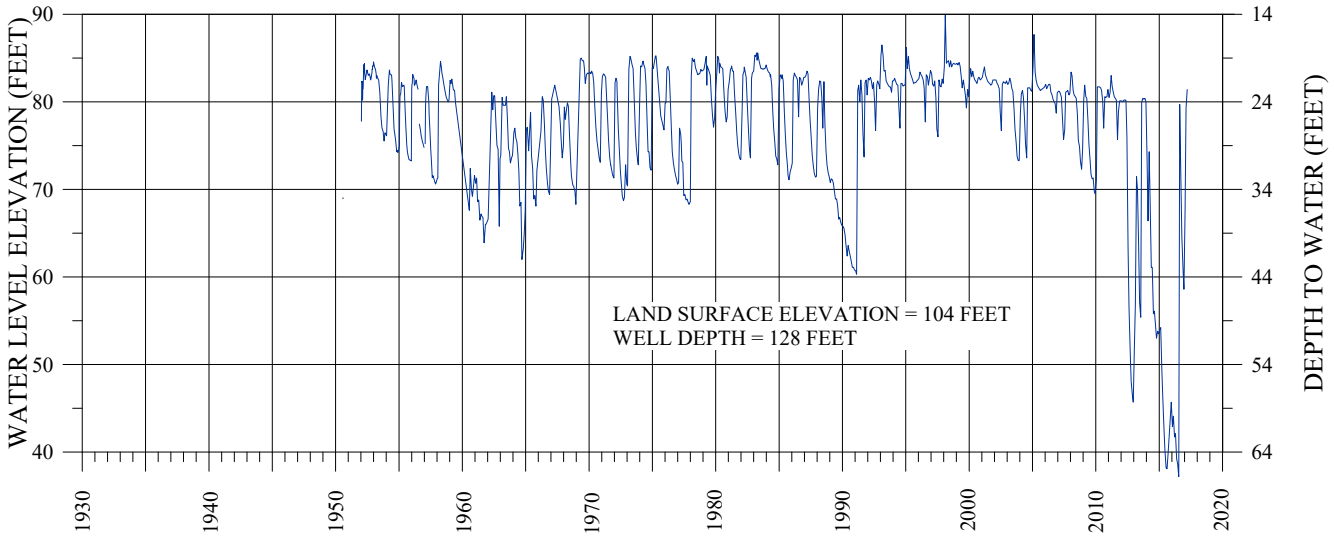
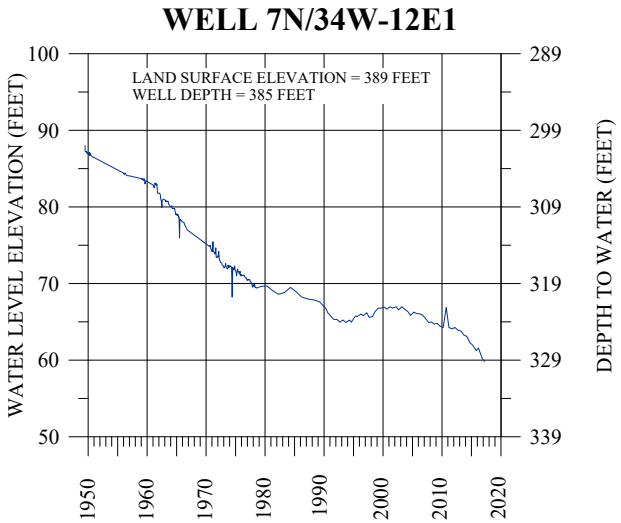
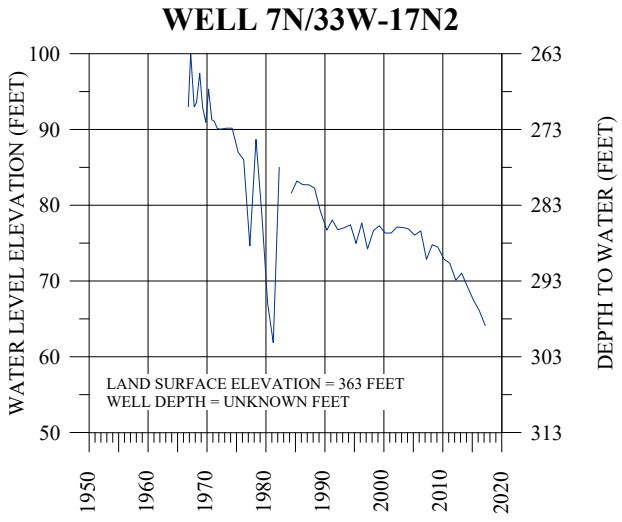
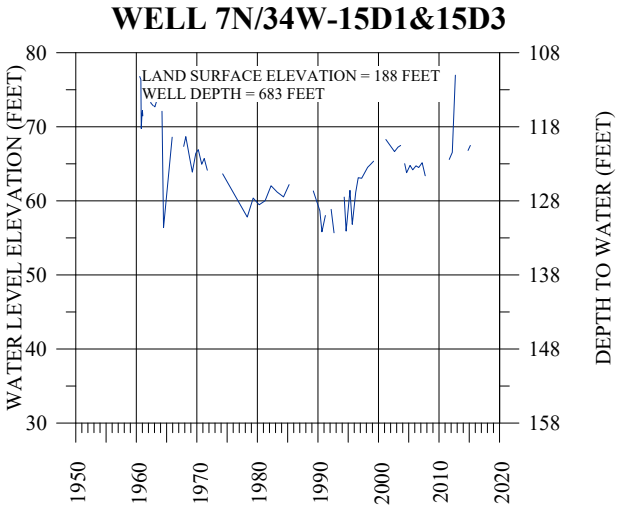
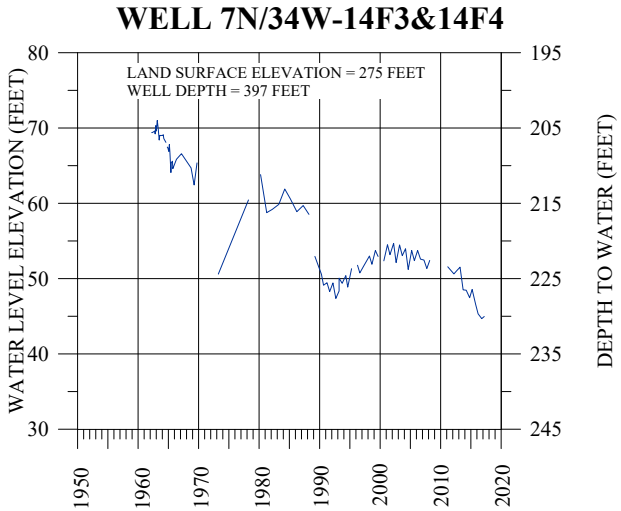


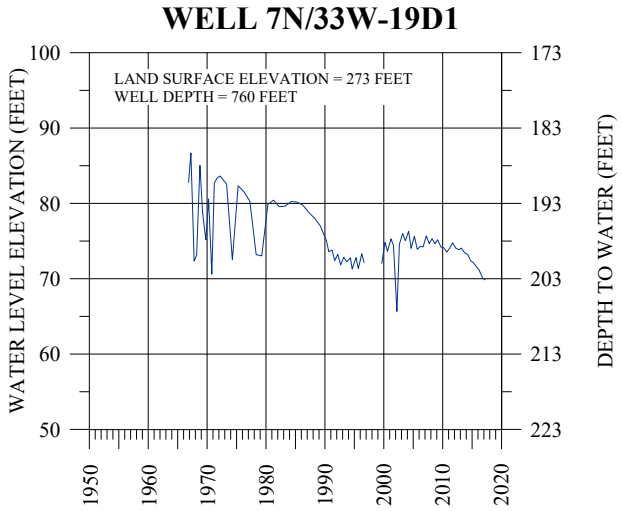
HYDROGRAPHS OF WELLS LOCATED IN THE LOMPOC PLAIN BASIN







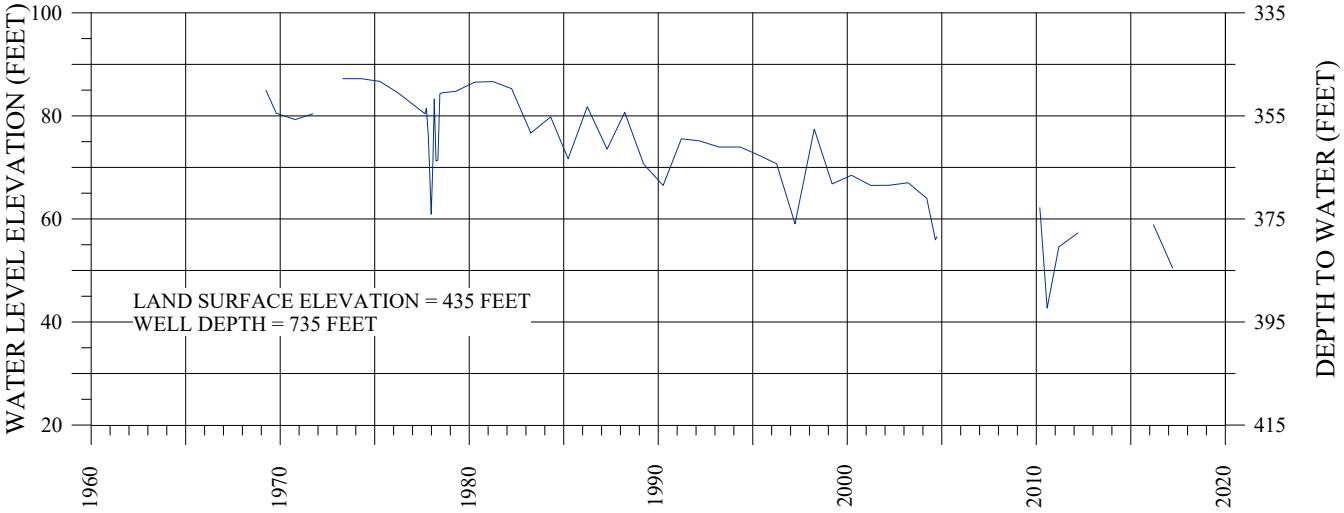




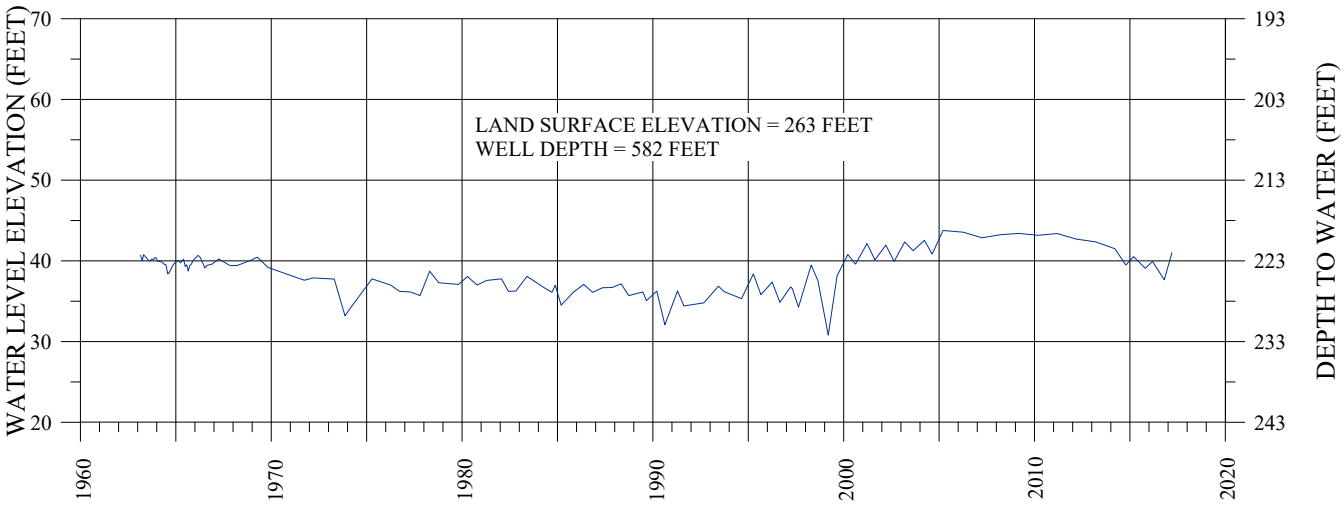
HYDROGRAPHS OF WELLS LOCATED IN THE LOMPOC UPLAND BASIN

FIGURE F-2

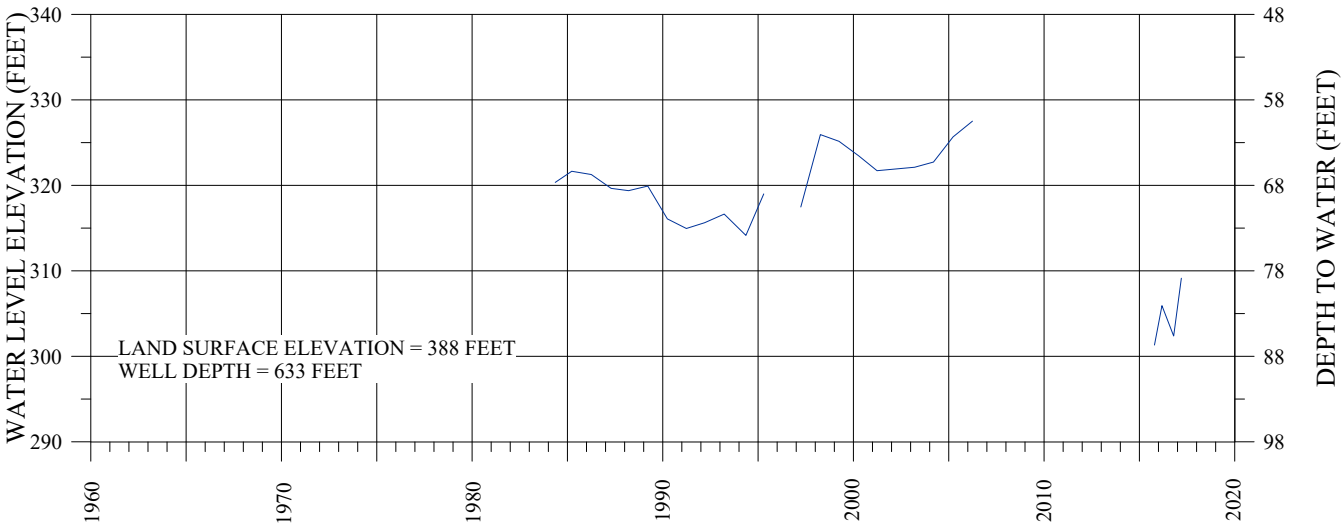
WELL 7N/33W-27G1
SANTA RITA UPLAND



WELL 7N/35W-27P1
LOMPOC TERRACE

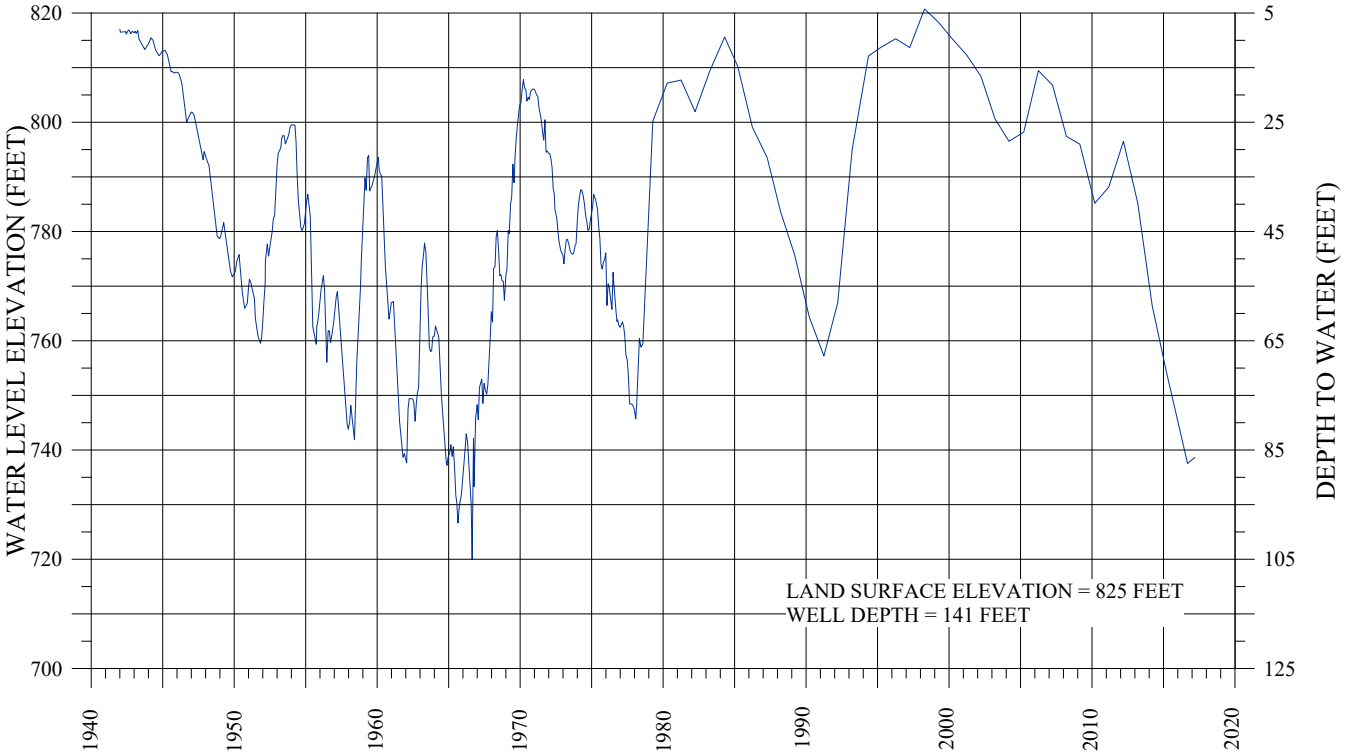


WELL 6N/31W-7F1
BUELLTON UPLAND

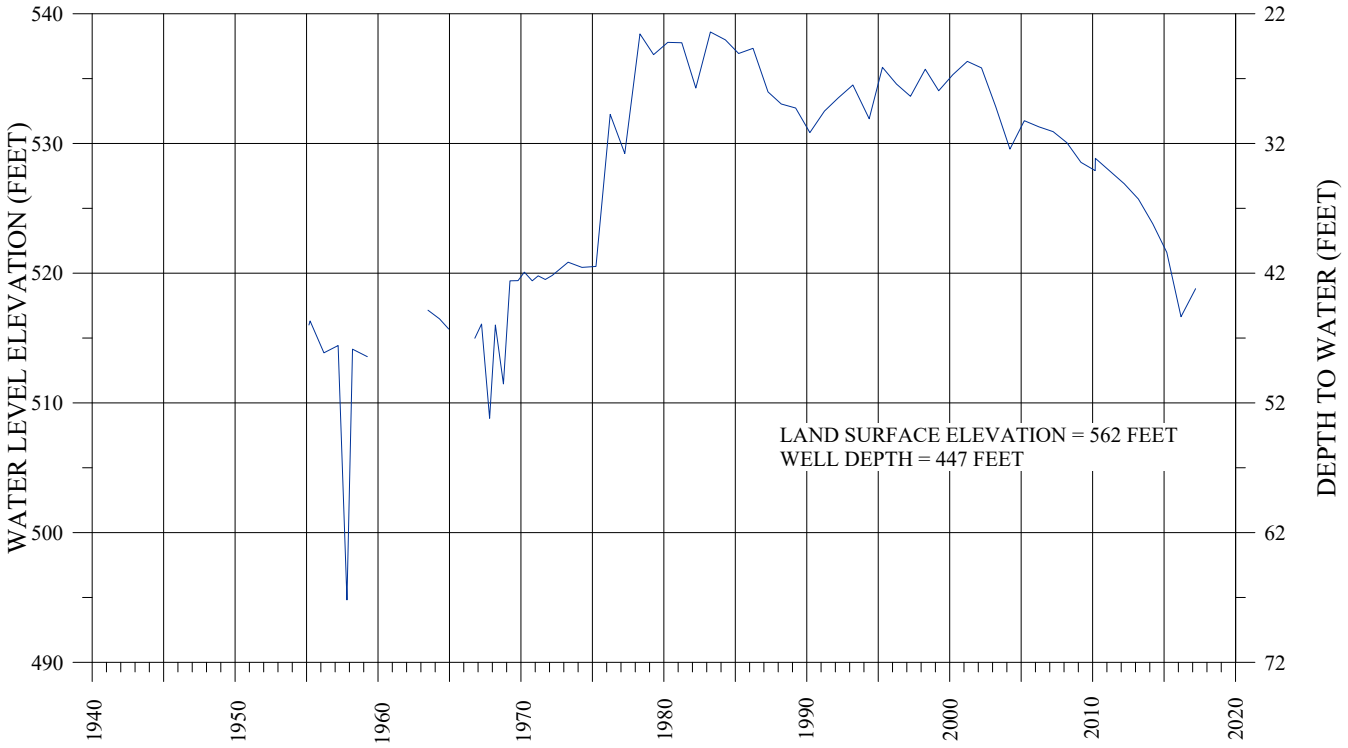


HYDROGRAPHS OF WELLS LOCATED IN THE SANTA RITA UPLAND, LOMPOC TERRACE, AND BUELLTON UPLAND BASINS

WELL 7N/31W-23P1



WELL 6N/31W-11D4



HYDROGRAPHS OF WELLS LOCATED IN THE SANTA YNEZ UPLAND BASIN

Appendix G

WELL INVENTORY

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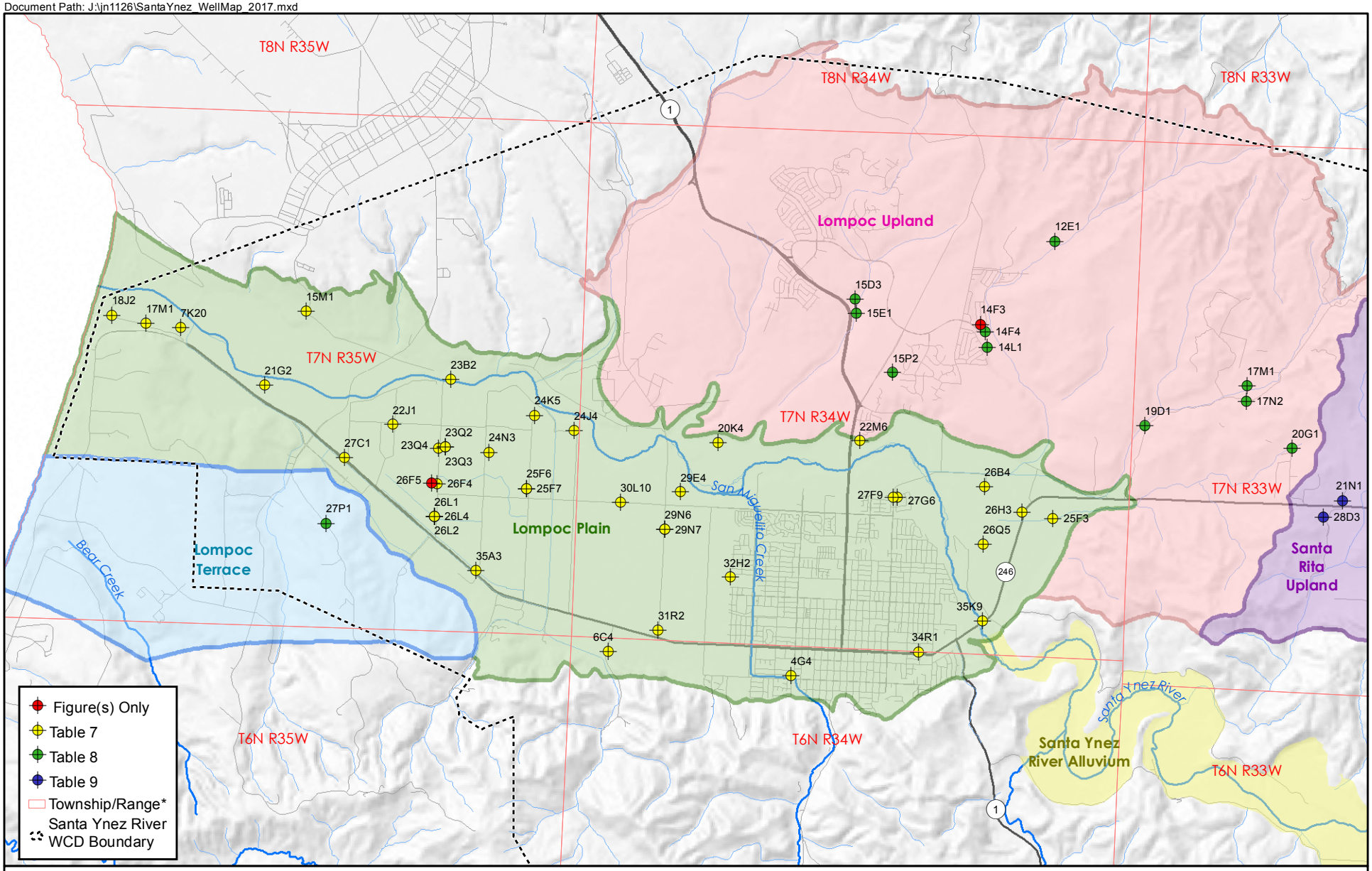

STETSON ENGINEERS INC.

LOCATION OF WELLS REFERENCED IN TABLE 7, TABLE 8 AND IN FIGURES, LOMPOC TERRACE, LOMPOC PLAIN AND LOMPOC UPLAND BASINS

N

0 0.75 1.5 Miles

* Note: Township/Range interpolated from USGS WSP-1107

FIGURE G-1

United States Geological Survey

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Spring 2017 Groundwater Measurements for the Western Lompoc Plain

Report Location	Well ID #	USGS #	Locality	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Sta-tus*	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 read	Status 2016*	change
Table 7	7N/35W-18J2	344118120355902	Surf (S. side of Lagoon)	13-Mar	34 41' 18"	120 35' 59"	**-2.14**		7.00	9.14	**2.12**		**4.3**
Table 7	7N/35W-17M1	344114120353501	Surf (near RR xing)	13-Mar	34 41' 14"	120 35' 35"	**5.14**		9.74	4.60	**1.47**		**-3.7**
Table 7	7N/35W-17K20	344112120351001	Surf (old Barrier Bridge)	--	34 41 12"	120 35' 11"	**--**		24.00	--	**14.90**		**--**
Table 7	7N/35W-27C1	344001120331401	Ocean Ave & Renwick	13-Mar	34 40' 01"	120 33' 14"	**14.46**		28.00	13.54	**18.17**		**3.7**
Table 7	7N/35W-22J1	344021120324101	W Valley: Jordan Farm	16-Mar	34 40' 21"	120 32' 41"	**20.53**		32.00	11.47	**20.53**		**0.0**
	7N/35W-23E6	344043120322406	W Valley: Jordan Farm	--	34 40' 43"	120 32' 24"	**--**		30.00	--	**24.47**		**--**
Table 7	7N/35W-23Q4	344008120320901	W Valley: Jordan Farm	13-Mar	34 40' 08"	120 32' 09"	**19.07**		37.32	18.25	**20.78**		**1.7**
Table 7	7N/35W-23Q2	344009120320402	W Valley: Jordan Farm	13-Mar	34 40' 09"	120 32' 04"	**16.77**		37.22	20.45	**15.61**		**-1.2**
Table 7	7N/35W-23Q3	344009120320403	W Valley: Jordan Farm	13-Mar	34 40' 09"	120 32' 04"	**18.84**		37.10	18.26	**20.46**		**1.6**
Table 7	7N/35W-26F4	343948120320901	W Valley: Jordan Farm	--	34 39' 48"	120 32' 09"	**--**		35.00	--	**19.28**		**--**
Table 7	7N/35W-26L1	343929120321001	W of Union Sugar Ave	13-Mar	34 39' 29"	120 32' 10"	**5.61**		36.09	30.48	**6.31**		**0.7**
Table 7	7N/35W-26L2	343929120321002	W of Union Sugar Ave	13-Mar	34 39' 29"	120 32' 10"	**7.42**		35.77	28.35	**9.84**		**2.4**
Table 7	7N/35W-26L4	343929120321004	W of Union Sugar Ave	13-Mar	34 39' 29"	120 32' 10"	**12.36**		36.00	23.64	**14.64**		**2.3**
Table 7	7N/35W-35A3	343859120314003	S Artesia Ave	--	34 38' 59"	120 31' 40"	**--**		46.00	--	**22.15**		**--**
Table 7	7N/35W-24N3	344046120321401	N Artesia Ave: Beattie	17-Mar	34 40' 07"	120 31' 34"	**17.92**		42.00	24.08	**18.39**		**0.5**
Table 7	7N/35W-25F6	343947120310703	NW of DeWolf & Central	13-Mar	34 39' 47"	120 31' 07"	**16.86**		47.00	30.14	**18.22**		**1.4**
Table 7	7N/35W-25F7	343947120310702	NW of DeWolf & Central	13-Mar	34 39' 47"	120 31' 07"	**9.78**		47.00	37.22	**10.52**		**0.7**
Table 7	7N/35W-24K5	344029120310305	DeWolf Ave: Henning	13-Mar	34 40' 29"	120 31' 03"	**24.70**		51.00	26.30	**26.32**		**1.6**

* Status Information: P = pumping; R = recently pumped; S = nearby pumping; T = nearby recently pumped; O = obstruction; D = dry; X = well is destroyed; Z = other, a blank implies a normal water level measurement...

United States Geological Survey

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Spring 2017 Groundwater Measurements for the Central and Eastern Lompoc Plain

Report Location	Well ID #	USGS #	Locality	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Sta-tus*	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 read	Status 2016*	change
Table 7	7N/35W-24J4	344021120303504	At N end of Douglas Ave	14-Mar	34 40' 21"	120 30' 35"	**31.45**		52.00	20.55	**32.58**		**1.1**
Table 7	7N/34W-30L10	343941120300106	SW cor Central & Leege	14-Mar	34 39' 41"	120 30' 01"	**30.33**		59.00	28.67	**30.57**		**0.2**
Table 7	6N/34W-6C4	343815120300602	E of San Pasqual Rd	13-Mar	34 38' 15"	120 30' 06"	**71.00**		103.00	32.00	**76.50**		**5.5**
Table 7	7N/34W-31R2	343828120293201	NW of Floradale-Ocean	14-Mar	34 38' 28"	120 29' 32"	**41.32**	**S**	70.35	29.03	**42.53**		**1.2**
Table 7	7N/34W-29N6	343926120293001	E of Floradale: Bob Witt	14-Mar	34 39' 26"	120 29' 30"	**35.77**		66.70	30.93	**35.78**		**0.0**
Table 7	7N/34W-29N7	343926120293002	E of Floradale: Bob Witt	14-Mar	34 39' 26"	120 29' 30"	**35.23**		66.70	31.47	**37.09**		**1.9**
Table 7	7N/34W-29E4	343948120292002	E of Floradale: J Fischer	14-Mar	34 39' 48"	120 29' 20"	**33.73**		68.00	34.27	**34.46**		**0.7**
Table 7	7N/34W-20K4	344017120285502	USPrison E of Floradale	13-Mar	34 40' 17"	120 28' 55"	**32.16**		75.00	42.84	**35.95**	**R**	**3.8**
Table 7	7N/34W-32H2	343901120284201	E of Bailey: Wineman	14-Mar	34 39' 01"	120 28' 42"	**41.71**		77.00	35.29	**42.27**		**0.6**
Table 7	7N/34W-27G6	343949120264901	E of North A Street	15-Mar	34 39' 49"	120 26' 49"	**43.58**		90.00	46.42	**48.70**		**5.1**
Table 7	7N/34W-35K9	343840120254701	Eastern Lompoc Valley	14-Mar	34 38' 40"	120 25' 47"	**23.79**		101.00	77.21	**59.22**		**35.4**
Table 7	7N/34W-26H3	343943120252201	Eastern Lompoc Valley	--	34 39' 43"	120 25' 22"	**--**		112.92	--	**65.64**		**--**
	7N/34W-22J6	344033120263404	E LV; W of Rucker Rd	17-Mar	34 40' 33"	120 26' 34"	**50.51**		97.00	46.49	**--**		**--**
	7N/34W-24N1	344010120251601	Purisima Mission nr 246	14-Mar	34 40' 10"	120 25' 16"	**82.54**		130.00	47.46	**81.60**		**-0.9**

* Status Information: P = pumping; R = recently pumped; S = nearby pumping; T = nearby recently pumped; O = obstruction; D = dry; X = well is destroyed; Z = other, a blank implies a normal water level measurement...

7N/34W-35K9 is monitored by the USGS and USBR. Monthly USBR records are used in Figure F-1 and Table 7.

United States Geological Survey

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Spring 2017 Groundwater Measurements for Vandenberg Air Force Base

Report Location	Well ID #	USGS #	Locality	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Sta-tus*	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 read	Status 2016*	change
	6N/36W-26G1	343426120380901	South VAFB near SLC6	13-Mar	34 34' 26"	120 38' 09"	**52.35**		330.00	277.65	**52.60**		**0.3**
	6N/36W-26C1	343445120382601	South VAFB near SLC6	13-Mar	34 34' 45"	120 38' 26"	**45.18**		170.00	124.82	**49.65**		**4.5**
	6N/36W-1K2	343755120372601	South VAFB near SLC4	13-Mar	34 37' 55"	120 37' 22"	**150.50**		248.70	98.20	**150.09**		**-0.4**
	7N/35W-31J2	343841120355202	South VAFB: Bear Cyn.	13-Mar	34 38' 41"	120 35' 52"	**5.30**		160.00	154.70	**5.97**		**0.7**
	7N/35W-30G1	343944120361901	South VAFB - Wade Rd.	13-Mar	34 39' 44"	120 36' 19"	**97.72**		130.00	32.28	**97.94**		**0.2**
Table 8	7N/35W-27P1	343923120332501	S. VAFB (Lom Terrace)	13-Mar	34 39' 23"	120 33' 25"	**222.00**		260.00	38.00	**223.06**		**1.1**
	7N/35W-27F1	343952120332001	E. of So. VAFB entrance	13-Mar	34 39' 52"	120 33' 20"	**11.85**		28.00	16.15	**12.68**		**0.8**
	7N/35W-27H5	343941120325701	E. of So. VAFB entrance	13-Mar	34 39' 41"	120 32' 57"	**17.18**		33.00	15.82	**14.59**		**-2.6**
	7N/35W-27J1	343942120325701	E. of So. VAFB entrance	13-Mar	34 39' 42"	120 32' 57"	**13.79**		28.00	14.21	**13.60**		**-0.2**
Table 7	7N/35W-22M1	344025120333401	W of VAFB entrance N	14-Mar	34 40' 25"	120 33' 34"	**12.38**		29.00	16.62	**13.55**		**1.2**
Table 7	7N/35W-21G2	344041120341101	AFB: 3300' NW of 22M1	14-Mar	34 40' 41"	120 34' 11"	**14.90**		20.00	5.10	**13.18**		**-1.7**
Table 7	7N/35W-23B2	344048120320201	N of SY River on VAFB	13-Mar	34 40' 48"	120 32' 02"	**26.51**		30.00	3.49	**25.96**		**-0.6**
Table 7	7N/35W-15M1	344124120334401	W. of 13th; N. of SYRivr	13-Mar	34 41' 24"	120 33' 44"	**102.20**		115.00	12.80	**102.10**		**-0.1**

* Status Information: P = pumping; R = recently pumped; S = nearby pumping; T = nearby recently pumped; O = obstruction; D = dry; X = well is destroyed; Z = other ; a blank implies a normal water level measurement

United States Geological Survey

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Spring 2017 Groundwater Measurements for Lompoc Uplands

Report Location	Well ID #	USGS #	Locality	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Sta-tus*	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 read	Status 2016*	change
Table 8	7N/34W-15P2	344101120265901	Uplands E of Hyw 1	16-Mar	34 41' 00"	120 27' 04"	**261.11**		305.00	43.89	**253.92**		**-7.2**
Table 8	7N/34W-12E1	344219120250601	N of Mission Hills	16-Mar	34 42' 19"	120 25' 06"	**329.17**		386.00	56.83	**327.43**		**-1.7**
Table 8	7N/34W-15E1	344134120272201	Vandnbrg Village CSD	16-Mar	34 41' 34"	120 27' 22"	**134.29**		180.00	45.71	**134.04**		**-0.3**
Table 8	7N/34W-15D3	344142120272301		16-Mar	34 41' 42"	120 27' 23"	**140.48**		188.00	47.52	**--**		**--**
Table 8	7N/34W-14F4	344126120255201	Mission Hills CSD	16-Mar	34 41' 26"	120 25' 52"	**230.04**		272.00	41.96	**229.68**		**-0.4**
Table 8	7N/34W-14L1	344117120255001	Mission Hills CSD	16-Mar	34 41' 17"	120 25' 50"	**220.31**	**S**	250.00	29.69	**217.95**		**-2.4**
Table 8	7N/33W-19D1	344035120235901	Lower Cebada Canyon	16-Mar	34 40' 35"	120 23' 59"	**203.14**		270.00	66.86	**201.84**		**-1.3**
Table 8	7N/33W-17N2	344051120224901	Upper Cebada Canyon	16-Mar	34 40' 51"	120 22' 49"	**298.89**		360.00	61.11	**296.91**		**-2.0**
Table 8	7N/33W-17M1	344100120224901	Upper Cebada Canyon	16-Mar	34 41' 00"	120 22' 49"	**282.67**		360.00	77.33	**273.83**		**-8.8**
Table 8	7N/33W-20G1	344025120221601	W of Tularosa Road	16-Mar	34 40' 25"	120 22' 16"	**323.17**		400.00	76.83	**322.65**		**-0.5**

* Status Information: P = pumping; R = recently pumped; S = nearby pumping; T = nearby recently pumped; O = obstruction; D = dry; X = well is destroyed; Z = other, a blank implies a normal water level measurement...

United States Bureau of Reclamation and Others

Spring 2017 Groundwater Measurements for Wells not Monitored by the USGS

Report Location	Well ID #	USGS #	Source	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 DTW	Spring 2016 W.S.E.L.	W.S.E.L. change
Table 7	7N/34W-22M6	344021120271301	USBR	March	34 40' 21"	120 27' 13"	44.0	100	**56.0**	48.1	**51.9**	4.1
Table 7	7N/34W-26B4	343957120254501	USBR	March	34 39' 57"	120 25' 45"	69.0	110	**41.0**	65.2	**44.8**	-3.8
Table 7	7N/34W-27F9	--	USBR	March	34 39' 49"	120 26' 52"	--	--	**41.0**	--	**33.5**	7.5
Table 7	7N/34W-26Q5	343924120254501	USBR	March	34 39' 24"	120 25' 45"	69.4	105	**35.6**	68.2	**36.8**	-1.2
Table 7	7N/34W-25F3	343940120245702	USBR	March	34 39' 40"	120 24' 57"	84.5	130	**45.5**	84.4	**45.6**	-0.1
Table 7	6N/34W-4G4	343805120275501	USBR	March	34 38' 05"	120 27' 55"	56.1	97.5	**41.4**	54.2	**43.3**	-1.9
Table 7	7N/34W-34R1	343821120262701	USBR	March	34 38' 21"	120 26' 27"	63.2	112	**48.8**	57.7	**54.3**	-5.5
Table 7	7N/34W-35K9	343840120254701	USBR	March	34 38' 40"	120 25' 47"	22.6	101	**78.4**	62.3	**38.7**	39.7
Figure 8	7N/35W-26F5	343948120320902	--	--	34 39' 48"	120 32' 09"	--	35	--	**--**	**--**	--
Figure F-2	7N/34W-14F3	344130120255201	--	--	34 41' 30"	120 25' 52"	--	268	--	**--**	**--**	--
Table 9	6N/32W-12K2	343649120114401	Buellton	March	34 36' 49"	120 11' 44"	**64**	350	286	**62**	288	-2

Bolded are reported values.

7N/34W-35K9 is monitored by the USGS and USBR. Monthly USBR records are used in Figure F-1 and Table 7.

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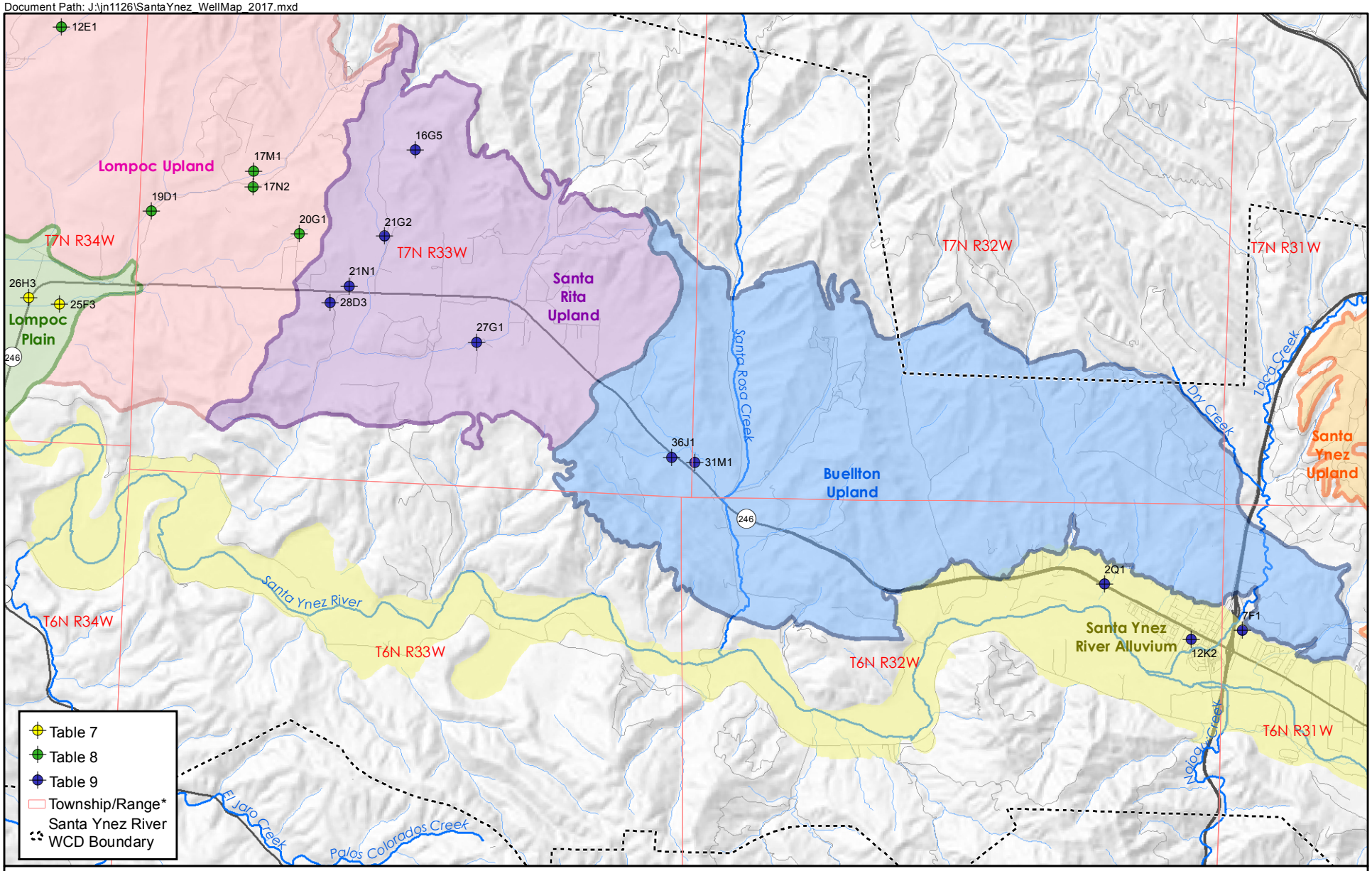

STETSON ENGINEERS INC.

LOCATION OF WELLS REFERENCED IN TABLE 9, SANTA RITA UPLAND AND BUELLTON UPLAND BASINS

N

0 0.75 1.5 Miles

* Note: Township/Range interpolated from USGS WSP-1107

FIGURE G-2

United States Geological Survey

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Spring 2017 Groundwater Measurements for Santa Rita and Santa Rosa Areas

Report Location	Well ID #	USGS #	Locality	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Sta-tus*	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 read	Status 2016*	change
Table 9	7N/33W-28D3	343946120215301	W Santa Rita Valley	14-Mar	34 39' 46"	120 21' 53"	**304.92**		360.00	55.08	**305.74**		**0.8**
Table 9	7N/33W-21N1	343956120214001	W Santa Rita Valley	15-Mar	34 39' 56"	120 21' 40"	**302.74**		360.00	57.26	**303.18**		**0.4**
Table 9	7N/33W-21G2	344025120211501	Mid Santa Rita Valley	15-Mar	34 40' 25"	120 21' 15"	**346.33**		430.00	83.67	**345.25**		**-1.1**
Table 9	7N/33W-16G5	344115120212601	Mid Santa Rita Valley	15-Mar	34 41' 15"	120 21' 26"	**385.88**		520.00	134.12	**--**		**--**
Table 9	7N/33W-27G1	343926120201001	E Santa Rita Valley	15-Mar	34 39' 26"	120 20' 10"	**384.50**		432.00	47.50	**376.15**		**-8.4**
Table 9	7N/33W-36J1	343824120175201	Drum Cyn - Santa Rosa	15-Mar	34 38' 24"	120 17' 52"	**128.07**		495.00	366.93	**126.63**		**-1.4**
Table 9	7N/32W-31M1	343821120173601	Drum Cyn - Santa Rosa	15-Mar	34 38' 21"	120 17' 36"	**75.35**		450.00	374.65	**74.23**		**-1.1**
	6N/34W-12C5	343735120245902	SYR Alluvial; Santa Rita	15-Mar	34 37' 36"	120 24' 59"	**45.60**		125.00	79.40	**46.47**		**0.9**
	6N/33W-8J3	343645120220301	SYR; BIG E packing plnt	15-Mar	34 36' 45"	120 22' 03"	**43.70**		186.00	142.30	**44.76**		**1.1**
	6N/33W-9M1	343647120215001	SYR; BIG E packing plnt	15-Mar	34 36' 47"	120 21' 50"	**49.36**		201.00	151.64	**49.63**		**0.3**
	6N/33W-8R1	343640120220401	SYR; BIG E packing plnt	15-Mar	34 36' 40"	120 22' 04"	**48.21**		233.00	184.79	**50.60**		**2.4**
	6N/32W-18H1	343613120164501	SYR Alluvial; Santa Rita	15-Mar	34 36' 13"	120 16' 45"	**33.48**		267.00	233.52	**35.02**		**1.5**
	6N/32W-16P3	343544120151801	SYR Alluvial; Santa Rita	15-Mar	34 35' 44"	120 15' 18"	**46.51**		293.00	246.49	**47.05**		**0.5**
	6N/32W-11L4	343644120131101	SYR Alluvial; Buellton	15-Mar	34 36' 44"	120 13' 11"	**39.47**		321.00	281.53	**40.91**		**1.4**

* Status Information: P = pumping; R = recently pumped; S = nearby pumping; T = nearby recently pumped; O = obstruction; D = dry; X = well is destroyed; a blank implies a normal water level measurement...

United States Geological Survey

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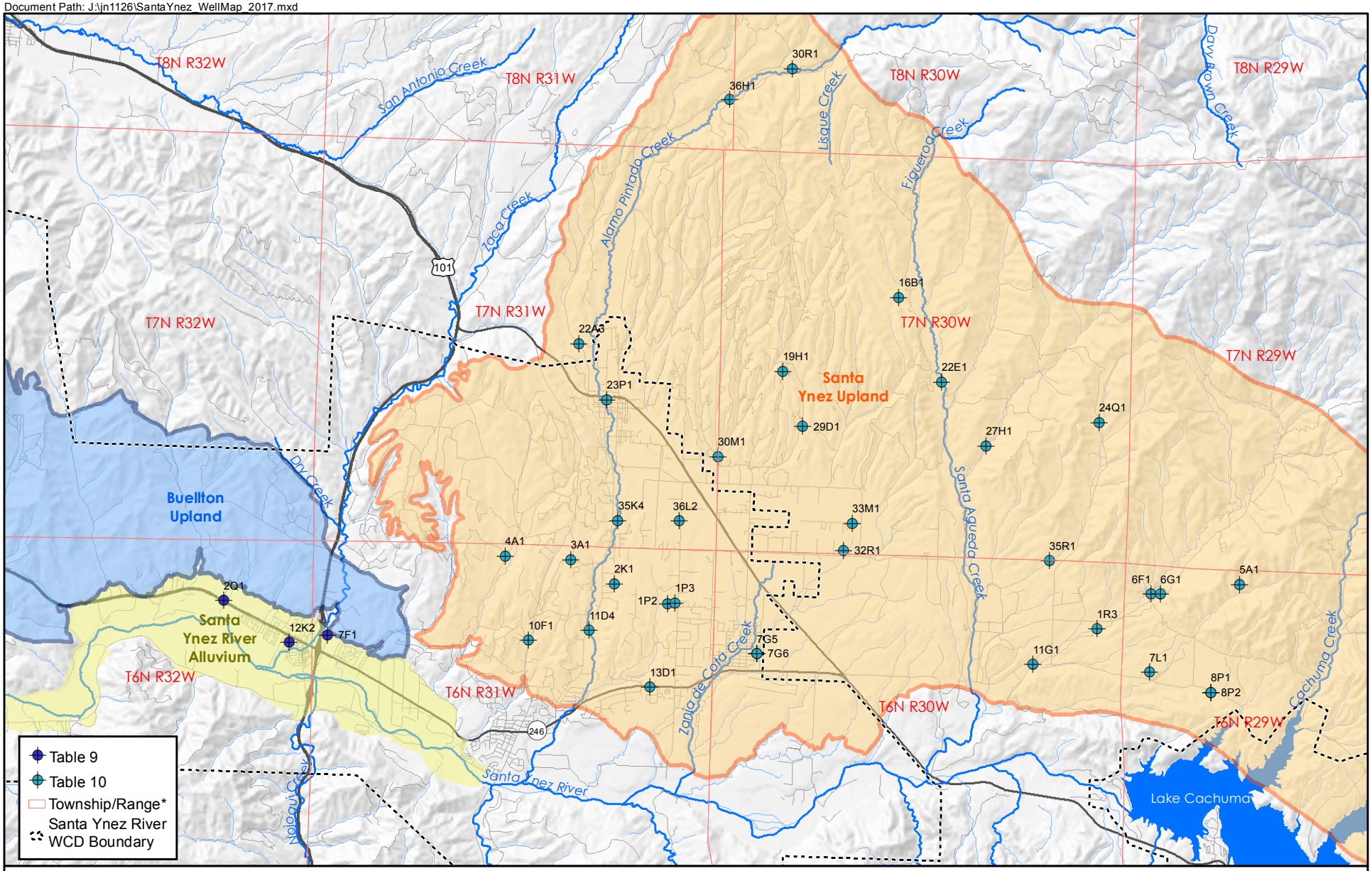
Spring 2017 Groundwater Measurements for Buellton, Solvang and Los Olivos Areas

Report Location	Well ID #	USGS #	Locality	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Sta-tus*	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 read	Status 2016*	change
Table 9	6N/32W-2Q1	343719120124901	SYR Alluvial; Buellton	13-Mar	34 37' 19"	120 12' 49"	**60.93**		359.46	298.53	**62.81**		**1.9**
Table 9	6N/31W-7F1	343655120111201	Buellton Upland Well	13-Mar	34 36' 55"	120 11' 12"	**78.86**		385.00	306.14	**82.08**		**3.2**
	6N/31W-17F1	343609120101201	SYR Alluvial; Buellton	13-Mar	34 36' 09"	120 10' 12"	**38.33**		363.00	324.67	**--**		**--**
	6N/31W-17F3	343608120101001	SYR Alluvial; Buellton	13-Mar	34 36' 08"	120 10' 10"	**39.08**		360.00	320.92	**40.26**		**1.2**
Table 10	6N/31W-10F1	343656120080601	Fredenborg Cyn: Solvng	14-Mar	34 36' 56"	120 08' 06"	**72.11**		540.00	467.89	**80.81**	**avg**	**8.7**
Table 10	6N/31W-4A1	343800120083001	Ballard Cyn nr Solvang	14-Mar	34 38' 00"	120 08' 30"	**105.64**		615.00	509.36	**105.31**		**-0.3**
Table 10	6N/31W-11D4	343705120071001	Alamo Pintado Road	13-Mar	34 37' 05"	120 07' 10"	**43.19**		559.00	515.81	**45.35**		**2.2**
Table 10	6N/31W-2K1	343741120064801	Alamo Pintado Road	13-Mar	34 37' 41"	120 06' 48"	**41.81**		627.00	585.19	**45.90**		**4.1**
Table 10	6N/31W-3A1	343759120072901	Hilltop West of Ballard	13-Mar	34 37' 59"	120 07' 29"	**149.42**		760.00	610.58	**149.63**		**0.2**
Table 10	7N/31W-35K4	343830120065001	North of Ballard School	--	34 38' 27"	120 06' 46"	**--**		683.00	--	**51.71**		**--**
Table 10	7N/31W-36L2	343831120055001	Refugio Rd N of Baseln	13-Mar	34 38' 31"	120 05' 50"	**81.74**		721.00	639.26	**75.15**		**-6.6**
Table 10	7N/31W-22A3	344044120072801	Foxen Cyn nr Los Olivos	13-Mar	34 40' 44"	120 07' 28"	**89.05**		865.00	775.95	**84.25**		**-4.8**
Table 10	7N/31W-23P1	344002120070001	Los Olivos: Matties Tav	13-Mar	34 40' 02"	120 07' 00"	**86.34**		822.00	735.66	**--**		**--**
Table 10	8N/31W-36H1	344354120051501	Midland School	13-Mar	34 43' 54"	120 05' 15"	**10.91**		1180.00	1169.09	**59.93**		**49.0**
Table 10	8N/30W-30R1	344420120041701	Midland School	--	34 44' 20"	120 04' 17"	**--**		1255.00	--	**--**		**--**

* Status Information: P = pumping; R = recently pumped; S = nearby pumping; T = nearby recently pumped; O = obstruction; D = dry; X = well is destroyed; a blank implies a normal water level measurement...

Document Path: J:\jn1126\SantaYnez_WellMap_2017.mxd



STETSON ENGINEERS INC.

LOCATION OF WELLS REFERENCED IN TABLE 10, SANTA YNEZ UPLAND BASIN

* Note: Township/Range interpolated from USGS WSP-1107

FIGURE G-3

United States Geological Survey

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Spring 2017 Groundwater Measurements for Santa Ynez to Lake Cachuma Areas

Report Location	Well ID #	USGS #	Locality	Date of Read	Latitude	Longitude	**Depth to Water (ft)**	Sta-tus*	Well Elev. (ft, MSL)	W.S.E.L. Spr. 2017 (ft, MSL)	Spring 2016 read	Status 2016*	change
Table 10	6N/31W-13D1	343623120061201	Santa Ynez: nr Hyw 246	14-Mar	34 36' 23"	120 06' 12"	**115.34**		608.00	492.66	**115.87**		**0.5**
Table 10	6N/31W-1P2	343727120055801	West of Refugio Road	14-Mar	34 37' 27"	120 05' 58"	**69.23**		620.00	550.77	**68.85**		**-0.4**
Table 10	6N/31W-1P3	343728120055101	West of Refugio Road	15-Mar	34 37' 28"	120 05' 51"	**98.74**		640.00	541.26	**98.23**		**-0.5**
Table 10	6N/30W-7G5	343651120043401	S Ynez off Meadowvale	15-Mar	34 36' 51"	120 04' 34"	**71.29**		600.00	528.71	**71.34**		**0.0**
Table 10	6N/30W-7G6	343651120043402	S Ynez off Meadowvale	15-Mar	34 36' 51"	120 04' 34"	**70.80**		600.00	529.20	**70.85**		**0.0**
Table 10	7N/30W-30M1	343921120051601	SY Upl: Long Cyn Loop	14-Mar	34 39' 21"	120 05' 16"	**228.01**		795.00	566.99	**--**		**--**
Table 10	7N/30W-19H1	344028120041801	SY Upl: Long Cyn Loop	14-Mar	34 40' 28"	120 04' 18"	**178.18**		1120.00	941.82	**177.50**		**-0.7**
Table 10	7N/30W-29D1	343946120035801	SY Upl: Long Cyn Loop	14-Mar	34 39' 46"	120 03' 58"	**26.88**		910.00	883.12	**50.46**		**23.6**
Table 10	7N/30W-16B1	344127120023301	Sedgewick Ranch	14-Mar	34 41' 27"	120 02' 33"	**39.14**		1077.00	1037.86	**36.74**		**-2.4**
Table 10	7N/30W-22E1	344023120015101	Bar-Go Ranch	14-Mar	34 40' 23"	120 01' 51"	**9.88**		920.00	910.12	**10.18**		**0.3**
	7N/30W-22E2	344028120015701	Bar-Go Ranch	14-Mar	34 40' 28"	120 01' 57"	**196.82**		927.00	730.18	**241.12**		**44.3**
Table 10	7N/30W-27H1	343935120010801	Bar-Go Ranch	14-Mar	34 39' 35"	120 01' 08"	**9.33**		852.00	842.67	**--**		**--**
Table 10	7N/30W-33M1	343833120030901	300 ft W of Mora Ave	14-Mar	34 38' 34"	120 03' 00"	**229.50**	**R**	753.00	523.50	**228.12**		**-1.4**
Table 10	7N/30W-32R1	343812120031701	NW Baseline-Mora Jct	--	34 38' 12"	120 03' 17"	**--**		701.00	--	**--**		**--**
Table 10	7N/30W-24Q1	343956119592401	Starlane Ranch	15-Mar	34 39' 56"	119 59' 24"	**56.80**		1190.00	1133.20	**--**		**--**
	7N/30W-25Q2	343907119593001	Starlane Ranch mid-cyn	--	34 39 07'	119 59' 30"	**--**		1059.00	--	**329.25**		**--**
	7N/30W-36N2	343809120000301	Starlane lower 1	--	34 38 09'	120 00' 03"	**--**		865.00	--	**--**		**--**
	7N/30W-36N3	343814119595901	Starlane lower 2	17-Mar	34 38 14'	119 59' 59"	**314.78**	**R**	888.00	573.22	**308.69**		**-6.1**
Table 10	7N/30W-35R1	343809120000601	Nr Starlane entrance rd	17-Mar	34 38' 09"	120 00' 06"	**272.39**		880.00	607.61	**--**		**--**
Table 10	6N/30W-11G1	343649120001801	Happy Cyn: Westerly	15-Mar	34 36' 49"	120 00' 18"	**105.16**		680.00	574.84	**--**		**--**
Table 10	6N/29W-7L1	343646119583001	N of Rd to Phillips Rnch	15-Mar	34 36' 46"	119 58' 30"	**210.37**		868.00	657.63	**206.42**		**-4.0**
Table 10	6N/29W-8P1	343632119573301	Phillips Ranch @ House	15-Mar	34 36' 32"	119 57' 33"	**219.38**		910.00	690.62	**215.09**		**-4.3**
Table 10	6N/29W-8P2	343632119573302	Phillips Ranch @ House	15-Mar	34 36' 32"	119 57' 33"	**222.22**		910.00	687.78	**221.14**		**-1.1**
Table 10	6N/29W-5A1	343755119570901	Phillips Ranch - North	15-Mar	34 37' 55"	119 57' 09"	**14.67**		1190.00	1175.33	**17.77**		**3.1**
Table 10	6N/30W-1R3	343718119592001	Happy Canyon	13-Mar	34 37' 18"	119 59' 20"	**23.72**		760.00	736.28	**27.85**		**4.1**
Table 10	6N/29W-6F1	343746119583101	Happy Cyn: Kastner	--	34 37' 46"	119 58' 31"	**--**		840.00	--	**22.70**		**--**
Table 10	6N/29W-6G1	343746119582201	Happy Cyn: Kastner	--	34 37' 46"	119 58' 22"	**--**		875.00	--	**54.48**		**--**
	7N/29W-29R1	343900119570201	Happy Canyon	13-Mar	34 39' 00"	119 57' 02"	**66.03**		1050.00	983.97	**101.75**		**35.7**
	7N/29W-29R2	343900119570301	Happy Canyon	13-Mar	34 39' 00"	119 57' 03"	**65.02**		1050.00	984.98	**101.53**		**36.5**
	5N/29W-1C1	343251119522201	San Marcos Ranch	14-Mar	34 32' 51"	119 52' 22"	**5.30**		794.00	788.70	**12.88**		**7.6**

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