FORTY-FOURTH ANNUAL ENGINEERING AND SURVEY REPORT ON WATER SUPPLY CONDITIONS OF THE SANTA YNEZ RIVER WATER CONSERVATION DISTRICT 2021-2022

FINAL

June 1, 2022

Accepted by the Board of Directors of the
Santa Ynez River Water Conservation District

STETSON ENGINEERS INC.
Northern California • Southern California • Arizona • Colorado • Oregon

Cover Photograph: *This photo, taken by Bill Buelow on January 22, 2022 (approximately 1:30 p.m.) from the south shore of Lake Cachuma, shows Bradbury Dam and a bathtub ring around Lake Cachuma indicating available water storage space.*

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STETSON ENGINEERS INC.

WATER RESOURCE PROFESSIONALS
SERVING CLIENTS SINCE 1957

◈ CARLSBAD, COVINA, AND SAN RAFAEL, CALIFORNIA ◈ APACHE JUNCTION, ARIZONA ◈
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Northern California • Southern California • Arizona • Colorado • Oregon

1126-13 June 17, 2022 San Rafael

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

Re: FINAL Forty-Fourth Annual Engineering and Survey Report on Water Supply Conditions of the Santa Ynez River Water Conservation District, 2021-2022

Dear Board Members:

Transmitted herewith is our Engineering and Survey Report on Water Supply Conditions of the Santa Ynez River Water Conservation District (District) for 2021-2022 incorporating changes from the April 20, 2022 version as approved by the Board of Directors after the Public Hearing on June 1, 2022 . This Forty-Fourth Annual Report presents the required and pertinent information for the Board of Directors to make necessary determinations for levying groundwater charges upon the production of groundwater from water-producing facilities (water wells) within the District. As such, it provides information on the status of the groundwater and surface water supplies, and the annual production of groundwater from within the District.

Sincerely,

Allan Richards

Allan Richards
Stetson Engineers Inc.

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Accumulated Overdraft ..... The amount of water necessary to be replaced in the intake areas of the groundwater basins within the District or any zone or zones thereof to prevent the landward movement of salt water into the fresh groundwater 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.
Defined in Water Code Section 75505. See also Dewatered Storage

Acre-Foot..... Volume of water to flood one acre to a depth of one foot (325,851 gallons).

Ad Valorem property tax..... Property tax assessed according to value of property.

AF, AC-FT ..... Acre-Foot.

Agricultural water	Produced water first used on lands in the production of plant crops or livestock for market. Defined in Water Code Section 75508.
Alluvium	Sediments deposited through stream or river action. In Santa Ynez these sediments are generally much younger, less consolidated, with greater hydraulic conductivity, than the surrounding marine and non-marine sediments.
ANA	Above Narrows Account. Water rights release from Bradbury Dam (Lake Cachuma) made to replenish the groundwater basin upstream of the Lompoc Narrows area.
Annual Overdraft	The amount, determined by the board, by which the production of water from groundwater supplies within the District or any zone or zones thereof during the water year exceeds the natural replenishment of such groundwater supplies in such water year. Defined in Water Code Section 75506.
BNA	Below Narrows Account. Water rights release from Bradbury Dam (Lake Cachuma) made to replenish the groundwater basin downstream of the Lompoc Narrows area, i.e. for the Lompoc Plain subarea.
Board	Refers to the five Directors of the Santa Ynez River Water Conservation District.
Bradbury Dam	Completed in 1953, the dam impounds the Santa Ynez River to form Lake Cachuma. Bradbury Dam and water rights releases are operated by the USBR. The dam stores floodwaters of the Santa Ynez River and SWP water.
Cachuma Member Units	Beneficiary organizations of the Cachuma Project. Consists of: Carpinteria Valley Water District City of Santa Barbara Goleta Water District Montecito Water District Santa Ynez River Water Conservation District, Improvement District No. 1 (ID No. 1).
Calendar Year	January 1 through December 31.
CCWA	Central Coast Water Authority. Public entity which owns and operates pipelines and water treatment facilities enabling deliveries of water from the State Water Project to Santa Barbara and San Luis Obispo Counties.
CFS	Cubic Feet per Second. Flow rate units commonly used in describing surface water flows.
Contractor	Organization contracted to receive State Water Project water. Term is used by the Department of Water Resources as well as CCWA.

Current Water Year ..... The water year in which the investigation and report on the groundwater 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 a groundwater charge levied therein.
Defined in Water Code Section 75507 (b).

Dewatered Storage ..... Unused and available space in the aquifer available for storing additional groundwater. See also Accumulated Overdraft.

Deposits ..... See Unconsolidated Deposits.

District ..... Santa Ynez River Water Conservation District.
Water conservation district representing the interests of the Santa Ynez and Lompoc Valleys.

District Fiscal Year ..... July 1 through June 30.

Drought Buffer ..... A term used to identify a source of supply within the State Water Project (SWP) system that will provide a higher level of reliability during times of drought. For most CCWA water purveyors, the drought buffer equals 10% of Table A amount.

Ensuing Water Year ..... The water year immediately following the current water year.
Defined in Water Code Section 75507 (d).

Entitlement ..... A term used formerly to refer to "Table A" amounts. Table A amounts are the maximum amount of State Water Project (SWP) water that the State agreed to make available to each SWP contractor for delivery during the year.

Forebay ..... Generally, a term applied to refer to a natural or artificial body of water below a dam. In the Santa Ynez River Basin, the term is used to refer to the area where most of the percolation occurs from the Santa Ynez River to the Lompoc Plain aquifer, which consists of the eastern four miles of the river beginning at the Robinson Road Bridge and downstream to Floradale Avenue.

Groundwater ..... 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.
Defined in Water Code Section 75502.

ID No.1 ..... Santa Ynez River Water Conservation District, Improvement District No. 1.
Special improvement district which distributes and serves municipal and irrigation water in the Santa Ynez Uplands.

Lake Cachuma ..... Reservoir formed by Bradbury Dam.

MG/L ..... Milligrams per Liter.
Concentration units of mass per volume. In fresh water this is approximately equivalent to parts per million (ppm).

NOAA..... National Oceanic and Atmospheric Administration
Federal agency organized under the Department of the Commerce concerned with oceans, waterways, and atmosphere.

Operator..... Public agencies, federal, state, and local, private corporations, firms, partnerships, limited liability companies, individuals, or groups of individuals, whether legally organized or not.
Defined in Water Code Section 75501.

Other Water ..... Water used for purposes not including: agriculture or irrigation at parks, golf courses, schools, cemeteries and publicly owned historic sites. Generally, refers to municipal, industrial or domestic uses of pumped or produced water.

Overdraft ..... Net water loss to groundwater basin. Calculated as the increase in dewatered storage.

Owner ..... 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.
Defined in Water Code Section 75501.

Person ..... See Operator.

Preceding Water Year..... The water year immediately preceding the current water year.
Defined in Water Code Section 75507 (c).

Precipitation..... Combination of rainfall, snow, and any other form of water vapor that condenses on the ground.

Producer..... An entity (person or corporate) which "produces" water by pumping groundwater from a well.

Production..... The act of extracting groundwater by pumping or otherwise.
Defined in Water Code Section 75503.

Project..... Cachuma Project.
Includes Bradbury Dam, Tecolote Tunnel and all conveyance infrastructure to deliver project water to the South Coast.

Pump Charge ..... Fee for extraction of groundwater from a well.

Purchased Water..... See definition of Turnback Pool Water. Refers to State Water Project (SWP) water purchased from another SWP Contractor.

Safe Yield ..... The amount of water that can be withdrawn from a groundwater basin without producing an undesired effect.

SBCWA ..... Santa Barbara County Water Agency.
County agency organized under the Santa Barbara County Public Works Department tasked with providing technical support to other public agencies and manages several water supply and public information programs.

South Coast..... Located in southern Santa Barbara County and includes the communities of Carpinteria, Goleta and portions of the Gaviota Coast, Montecito, Santa Barbara and Summerland.

Special Irrigation Water	Produced water used for irrigation purposes at parks, golf courses, schools, cemeteries, and publicly owned historic sites.
Streamflow Infiltration	Stream or river water that percolates into the subsurface.
Surface Water	Water on the ground surface, including lakes, rivers, and canals.
SWP	State Water Project. Water storage and delivery system operated by California Department of Water Resources which transports water from northern California to users located primarily in the San Francisco Bay area and southern California.
SWRCB	State of California Water Resources Control Board.
Turnback Pool	Turnback Pool Water refers to State Water Project (SWP) water that contractors may choose to offer from their allocated SWP Table A water to other Contractors through two pools in February and March.
Unconsolidated Deposits	Sedimentary material that is loosely arranged and have not been cemented (generally through a combination of physical compaction or chemical deposition) into a cohesive whole.
USBR	U.S. Bureau of Reclamation. Federal bureau organized under the Department of the Interior concerned with construction and operation of dams. Specifically, operates Bradbury Dam at Lake Cachuma.
USGS	U.S. Geological Survey. Federal bureau organized under the Department of the Interior concerned with natural science research.
Water Code	California state law related to water and water districts.
Water-producing facility	Any device or method, mechanical or otherwise, for the production of water from the groundwater supplies within the District. Defined in Water Code Section 75504.
Water Year (hydrologic)	One year period from October 1 through September 30 of the following year. Water year for the Sustainable Groundwater Management Act defined by Water Code Section 10721 (aa).
Water Year (statutory)	One year period from July 1 through June 30 of the following year, defined by Water Code Section 75507 (a).
Water Year (county)	One year period from September 1 through August 31 of the following year. Used in Santa Barbara County Hydrology reports.
WR 73-37	SWRCB Order of 1973. Order addresses the storage and release of water in Lake Cachuma, and the operation of the ANA and BNA accounts.
WR 89-18	SWRCB Order of 1973, as amended in 1989. Amends the permits regarding the operation of the Cachuma Project.

WR 94-5 ..... SWRCB Order of 1973, as amended in 1994. Amends the permits regarding the operation of the Cachuma Project.

Zones ..... Specific geographic areas of the Santa Ynez Basin within the District with distinct groundwater charge rates:

Zone A	Santa Ynez River alluvium within the Santa Ynez subarea, Buellton subarea, and Santa Rita subarea
Zone B	Lompoc Area: Lompoc Plain subarea, Lompoc Upland subarea, Lompoc Terrace subarea
Zone C	Miscellaneous unconsolidated deposits and consolidated rocks
Zone D	Buellton Upland subarea
Zone E	Santa Ynez Upland subarea
Zone F	Santa Rita Upland subarea

1.0 EXECUTIVE SUMMARY

This Forty-Fourth Annual Engineering and Survey Report on Water Supply Conditions of the Santa Ynez River Water Conservation District for 2021-2022 presents the required and pertinent information for the Board of Directors to make the necessary determinations with respect to levying groundwater charges upon the production of groundwater from water-producing facilities within the District. As such, it provides information on the status of groundwater and surface water supplies and the annual production of groundwater 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 groundwater charges necessary to generate sufficient revenue to supplement existing revenue sources of the District.

Subsequent chapters provide information on groundwater production and charges (Chapter 2.0), precipitation (Chapter 3.0), surface water conditions (Chapter 4.0) and groundwater conditions (Chapter 5.0). Additional information on provisions of the Water Code pertinent to groundwater charges, historical groundwater charge rates, streamflow records, water right releases, a general description of the hydrogeology of groundwater 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 the 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 budget from ad valorem property taxes, the remainder of the budget is funded from charges levied on the production of groundwater. 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 groundwater 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.

Groundwater 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 groundwater produced. Production is measured by water meters 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 groundwater charges, and submittal of fraudulent information. Should court action be necessary and a judgment obtained, a lien may be 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 may be released from Lake Cachuma if there is a need to meet downstream water rights.

Groundwater 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 groundwater 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 subareas.

Classification of water production within the District by water-use type is 73% Agricultural, 3% Special and 24% Other which includes domestic, municipal, and industrial water production. With the exception of the Cities of Lompoc, Solvang, Buellton, the communities of Santa Ynez and Los Olivos, and two federal installations, (Vandenberg Space Force Base and the Lompoc Federal Penitentiary), most of the District is a mixture of rural areas with agriculture and suburban development.

1.3. REPORT SUMMARY

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

1. Revenues from groundwater charges collected by the District for production during the July-June fiscal year 2020-21 amounted to $587,409.10. Revenues collected through April 1, 2022 for production during the first half of fiscal year 2021-22 amounted to $289,106.53. An additional $10,569.85 has been received as late payments and assessments in connection with production prior to fiscal year 2020-21.

2. The Board, for fiscal year 2021-22, reaffirmed the following six groundwater 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 groundwater subareas.

   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 subarea.

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

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

3. The groundwater charge rates per acre-foot of production for fiscal year 2021-22 were as follows:

	Agricultural Water	Other Water	Special Irrigation Water
Zone A	7.40	26.00	14.80
Zone B	7.40	26.00	14.80
Zone C	7.40	26.00	14.80
Zone D	7.40	26.00	14.80
Zone E	7.40	26.00	14.80
Zone F	7.40	26.00	14.80

Adopted June 2, 2021, Resolution No. 702

4. As of April 1, 2022, reported groundwater production for fiscal year 2020-21 totaled 47,672.32 acre-feet. This is about 102 percent of the 46,959.33 acre-feet total water production reported for fiscal year 2019-20.

5. Groundwater production, reported as of April 1, 2022 for the first half of fiscal year 2021-22 totaled 21,421.17 acre-feet or about 94 percent of the 22,696.58 acre-feet total water production reported for the first half of fiscal year 2020-21 as of April 3, 2021.

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Santa Ynez River Water Conservation District Boundary

Santa Ynez River Watershed

SANTA YNEZ RIVER WATER CONSERVATION DISTRICT

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FIGURE 1

6. Annual reported (as of April 1, 2022) groundwater production within the District for the past five years was as follows:

Fiscal Year (July-June)	Total Production (Acre-Feet)
2016-17	50,411
2017-18	51,667
2018-19	47,254
2019-20	47,791
2020-21	47,671

7. The projected estimated total groundwater production for fiscal years 2021-22 and 2022-23 is 47,675 acre-feet per year.

8. As of April 1, 2022, 1,214 wells have been registered with the District. Of that number, approximately 978 are active and 236 are inactive.

9. Precipitation at Bradbury Dam and Lompoc during calendar year 2021 and the October-September hydrologic water year 2022 through March was as follows:

	Bradbury Dam	Lompoc
2021 Calendar Year Precipitation (Inches)	18.50	16.97
Percent of Normal	84	106
2022 Hydrologic Water Year through March 2022 partial year (Inches)	12.67	9.82
Percent of Normal	63	68

Source: Santa Barbara County Flood Control District and National Oceanic and Atmospheric Administration (NOAA).

10. During hydrologic water year 2021, the flow of the Santa Ynez River at the Lompoc Narrows was 12,315 acre-feet. Through March 2022, the flow at the Narrows for hydrologic water year 2022 was 2,012 acre-feet.

11. During the summer of 2021 water rights releases were made. The following amounts were released.

2021 Calendar Year Releases	Above Narrows Account (Acre-Feet)	Below Narrows Account (Acre-Feet)	Total (Acre-Feet)
August	2,746	0	2,746
September	1,258	0	1,258
October	645	0	645
TOTAL	**4,649**	**0**	**4,649**

Source: U.S. Bureau of Reclamation

12. Deliveries to Central Coast Water Authority contractors receiving State Water Project water within the District were as follows:

Fiscal Year (July-June)	State Water Project Deliveries (Acre-Feet)			
	Improvement District No. 1	City of Solvang	City of Buellton	Vandenberg SFB
2020-21	1,545	693	285	2,349
2021-22 (First Half)	1,127	284	109	1,048

Source: Central Coast Water Authority

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

Source of Groundwater	Change in Storage 2021 to 2022 (Acre-Feet)	Accumulated Dewatered Storage Through 2021-22 (Acre-Feet)
Santa Ynez River Alluvium	1,500	13,800
Lompoc Plain	-2,800	18,100
Lompoc Upland	-700	37,400
Lompoc Terrace	-100	900
Santa Rita Upland	3,000	14,200
Buellton Upland (Eastern Portion)	-1,100	3,100
Santa Ynez Upland (District)	-3,900	66,300
TOTAL	**-4,100**	**153,800**

1.4. FINDINGS

The findings of this investigation are summarized below so that the Board may make the determinations required by law (Water Code Section 75574) for the July 1-June 30 water year (statutory). These findings are based upon either Spring 2022 water-level data or groundwater production reported through April 1, 2022 and are applicable to the entire District.

(a) The average annual overdraft for the immediate past ten (10) water years (statutory): 4,540 ± acre-feet;

(b) The estimated annual overdraft for the current (2021-22) water year (statutory): 8,600 ± acre-feet;

(c) The estimated annual overdraft for the ensuing (2022-23) water year (statutory): 8,600 ± acre-feet;

(d) The accumulated overdraft as of the last day of the preceding (2020-21) water year (statutory): 149,700 ± acre-feet in terms of accumulated dewatered storage. Accumulated overdraft as defined in Water Code Section 75505 is nominal, at this time;

(e) The estimated accumulated overdraft as of the last day of the current (2021-22) water year (statutory): 153,800 ± acre-feet in terms of accumulated dewatered storage. Accumulated overdraft as defined in Water Code 75505 is nominal, at this time;

(f) The estimated amount of agricultural and special irrigation water to be withdrawn from the groundwater supplies of the District for the ensuing water year (2022-23); 33,030 acre-feet of agricultural water and 1,845 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 groundwater supplies of the District for the ensuing (2022-23) water year (statutory): approximately 12,800 acre-feet;

(h) The estimated amount of water necessary for surface distribution for the ensuing (2022-23) water year (statutory): approximately 3,300 acre-feet scheduled to be delivered by the Central Coast Water Agency to contractors within the District;

(i) The amount of water, which is necessary for the replenishment of the groundwater supplies of the District: 153,800 ± 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 groundwater 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 actual groundwater charge the Board will levy for fiscal year 2022-23 will be based upon the District's anticipated expenses and revenue and consistent with applicable law.

1.5. SOURCES OF INFORMATION

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

- Groundwater production, revenue and well registration – District
- State Water Project use – Central Coast Water Authority
- Water-level measurements – Santa Barbara County Water Agency (SBCWA), 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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2.0 GROUNDWATER CHARGES

The Board has previously established six groundwater 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 groundwater subareas.

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 subarea.

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

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

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

For fiscal year 2021-22 the Board established the following groundwater charge rates, in dollars per acre-foot of production, for each zone.

	Agricultural Water	Other Water	Special Irrigation Water
Zone A	7.40	26.00	14.80
Zone B	7.40	26.00	14.80
Zone C	7.40	26.00	14.80
Zone D	7.40	26.00	14.80
Zone E	7.40	26.00	14.80
Zone F	7.40	26.00	14.80

Adopted June 2, 2021, Resolution No. 702

In accordance with Water Code Section 75594, the above rates are based on a ratio of 1:3.5 with Other Water rates being 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

groundwater 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 groundwater production through April 1, 2022 are presented below for specific time frames.

	2021-22	2020-21	2019-20	2018-19
First-Half of Fiscal Year (July through December)	$289,106.53	$289,032.02	$219,431.85	$294,678.58
Fiscal Year Total (July through June)	In Progress	587,409.10	$551,410.64	$552,151.83
Years Prior	In Progress	10,569.85	$16,951.81	$2,362.37

2.2. GROUNDWATER PRODUCTION

Summarized below is the reported (as of April 1, 2022) water production within the District, in acre-feet, for fiscal year 2020-21.

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	10,939.05	2,720.96	779.44	14,439.45
Zone B	14,906.47	6,063.67	1,026.48	21,996.62
Zone C	28.07	1,196.25	11.46	1,235.78
Zone D	2,072.77	549.48	15.40	2,637.65
Zone E	2,838.72	2,043.02	14.01	4,895.75
Zone F	2,240.53	226.54	0.00	2,467.07
TOTAL	**33,025.61**	**12,799.92**	**1,846.79**	**47,672.32**

The above total water production reported, as of April 1, 2022, for fiscal year 2020-21 is about 102 percent of the total water production reported for fiscal year 2019-20 as of April 3, 2021.

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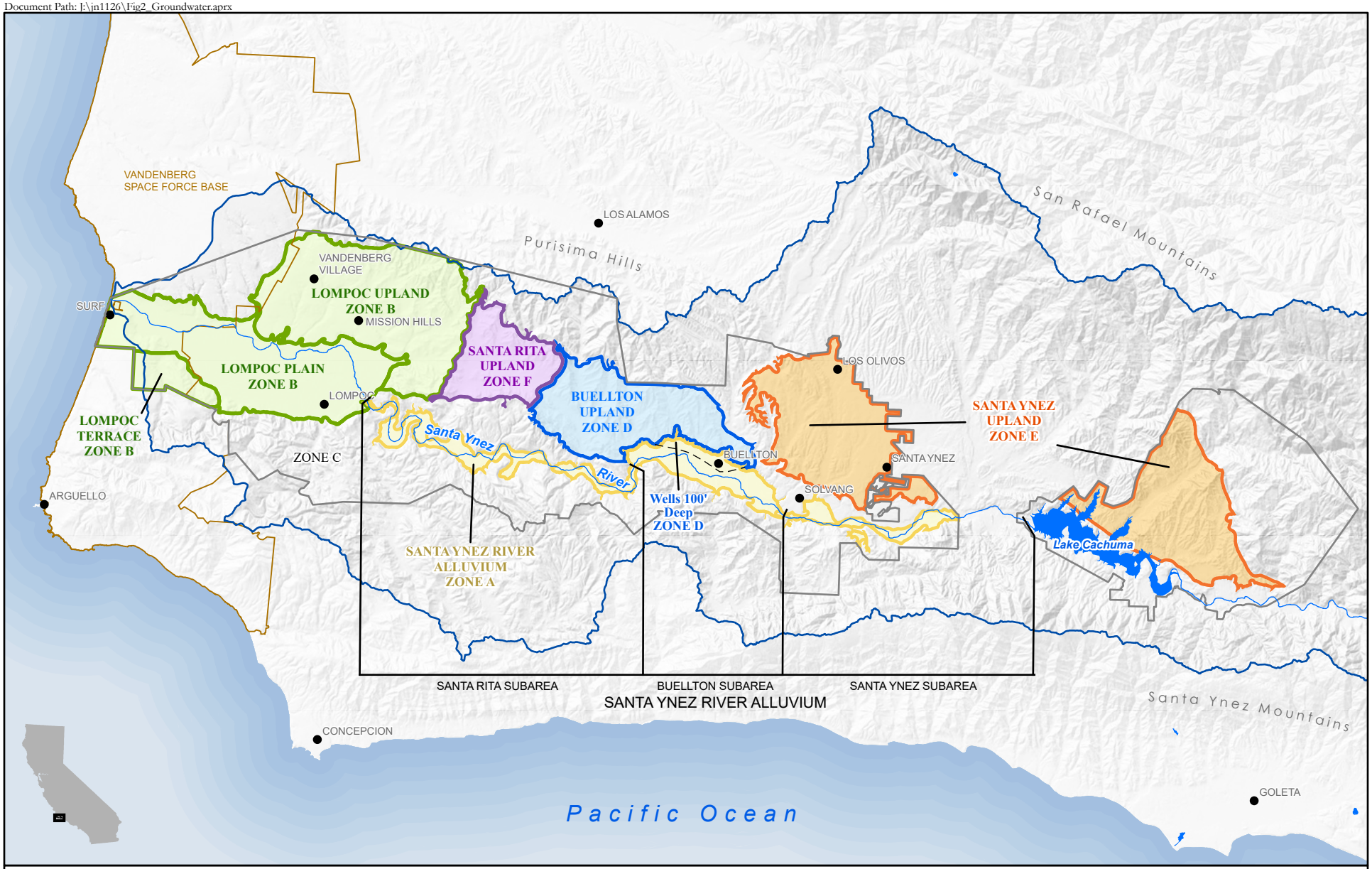

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Santa Ynez River Water Conservation District Boundary

Drainage Basin Boundary

GROUNDWATER CHARGE ZONES SANTA YNEZ RIVER WATER CONSERVATION DISTRICT

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FIGURE 2

The reported (as of April 1, 2022) water production within the District, in acre-feet, for the first half of fiscal year 2021-22 is as follows:

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	4,218.51	1,336.97	612.43	6,167.91
Zone B	6,742.39	2,988.20	713.03	10,443.62
Zone C	9.84	488.30	6.40	504.54
Zone D	520.36	261.80	27.40	809.56
Zone E	1,378.64	1,033.59	11.07	2,423.30
Zone F	989.87	82.37	0.00	1,072.24
TOTAL	**13,859.61**	**6,191.23**	**1,370.33**	**21,421.17**

The above total water production reported, as of April 1, 2022, for the first half of fiscal year 2021-22 is about 94 percent of the total water production reported for the first half of fiscal year 2020-21 as of April 3, 2021.

Additional production that actually occurred prior to fiscal year 2020-21 was reported during the current fiscal year (2021-22). That late reported production, in acre-feet, is as follows:

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	434.45	31.91	0.00	466.36
Zone B	32.61	8.92	0.00	41.53
Zone C	10.50	1.09	0.00	11.59
Zone D	281.03	9.37	0.00	290.40
Zone E	196.11	23.98	0.00	220.09
Zone F	0.00	0.70	0.00	0.70
TOTAL	**954.70**	**75.97**	**0.00**	**1,030.67**

The above late reported production, and late reported production in previous years, has been posted to the appropriate years. Tables 1A, 1B, 1C, and 1D summarizes the total annual production for the period 1979-80 through 2020-21 reported to the District as of April 1, 2022. Figure 3 shows the 5-year average annual groundwater production by zone for the same period. The values of production shown on Tables 1A, 1B, 1C, and 1D, Figure 3, and in this "Groundwater Production" section are subject to future revision as additional late reported production is received by the District.

The projected groundwater production, in acre-feet, within the District for the ongoing fiscal year (2021-22) and next fiscal year (2022-23) is tabulated below. The estimates are based on the reported groundwater production for fiscal year 2020-21.

	Agricultural Water	Other Water	Special Irrigation Water	Total
Zone A	10,940	2,720	780	14,440
Zone B	14,905	6,065	1,025	21,995
Zone C	30	1,195	10	1,235
Zone D	2,075	550	15	2,640
Zone E	2,840	2,045	15	4,900
Zone F	2,240	225	0	2,465
TOTAL	**33,030**	**12,800**	**1,845**	**47,675**

2.3. WELL REGISTRATION

As of April 1, 2022, 1,214 wells have been registered with the District. Of that number, approximately 978 are active and 236 are inactive.

2.4. MAJOR PRODUCERS

The major water producers, those reporting groundwater production by ownership and/or lease during fiscal year 2020-21, as of April 1, 2022, were as follows:

	Major Water Producer Fiscal Year 2020-21	Production (Acre-Feet)
Zone A	Acin Farms	**1,184**
	SYRWCD, ID No. 1 (also in Zone E)	**1,146**
	Espinoza / Big E Produce (also in Zone B)	**887**
	City of Buellton (also in Zone D)	**783**
	Sea Smoke, Rita's Crown & Souther Holdings	**744**
	Jackson, Palmer (The Alisal)	**698**
	Freitas Brothers	**493**
	Wygod (now Ballard Ranch, Fisher Edison & Novatt)	**374**
	Coggins (was Espinoza)	**363**
	Rancho LaVina	**270**
	City of Solvang (also in Zones C and E)	**211**
	LTC Rancho Sanja Cota-was Gainey (also Zone E)	**176**
	Williams, Norman (also in Zone D)	**124**
Zone B	City of Lompoc (Parks Dept. & Water Div.)	**4,382**
	Lompoc Farming	**3,935**
	Santa Barbara Farms (Witt/Guerra)	**3,365**
	Campbell Ranches (also in Zone F)	**2,158**
	Espinoza / Big E Produce (also in Zone A)	**1,534**
	Vandenberg Village CSD	**1,430**
	Mission Hills CSD	**533**
	Sorrento Berry Farms	**518**
	Hibbits (Ranch and Family Trust)	**378**
	Rancho Laguna	**372**
	U.S. Penitentiary Farm	**348**
	Wineman / Reiter Berry Farms	**300**
	Bodger & Sons Company	**187**
Zone C	Imerys (was Celite Corporation)	**751**
	City of Solvang (also in Zone A and E)	**309**
Zone D	Buell, James (incl. Marcelino, LLC)	**755**
	Williams, Norman (also in Zone A)	**325**
	City of Buellton (also in Zone A)	**273**
	Foley Estates Vineyards (also in Zone F)	**214**
Zone E	SYRWCD, ID No.1 (also in Zone A)	**1,429**
	City of Solvang (also in Zones A and C)	**172**
	LTC Rancho Sanja Cota-was Gainey (also Zone A)	**133**
Zone F	Campbell Ranches (also in Zone A)	**735**
	Oak Hills Ranch (was A & M Farms)	**427**
	Foley Estates Vineyards (also in Zone D)	**270**

TABLE 1A
ANNUAL REPORTED GROUNDWATER PRODUCTION WITHIN THE DISTRICT [a]
ALL DISTRICT ZONES
(Acre-Feet)

Fiscal Year [b]	Agricultural	Other	Special Irrigation [c]	Total Production
1979-80	20,918	10,576		31,494
1980-81	24,584	11,531		36,115
1981-82	33,706	14,124		47,830
1982-83	29,010	10,916		39,926
1983-84	30,873	11,476		42,349
1984-85	31,131	12,444		43,575
1985-86	31,130	13,673	872	45,675
1986-87	34,474	12,781	1,546	48,801
1987-88	32,653	13,329	1,433	47,415
1988-89	33,938	11,918	1,780	47,636
1989-90	34,424	13,173	1,712	49,309
1990-91	37,317	12,569	1,691	51,577
1991-92	35,020	11,427	1,936	48,383
1992-93	34,160	11,720	2,507	48,387
1993-94	30,794	13,005	2,121	45,920
1994-95	28,254	13,155	1,821	43,230
1995-96	32,792	15,320	1,842	49,954
1996-97	35,757	14,552	1,955	52,264
1997-98	34,257	12,022	1,368	47,647
1998-99	34,605	12,384	1,736	48,725
1999-00	37,039	13,883	2,164	53,086
2000-01	38,314	13,247	2,004	53,565
2001-02	39,146	13,734	2,071	54,951
2002-03	33,894	12,354	2,107	48,355
2003-04	33,241	13,423	2,160	48,824
2004-05	31,907	12,425	1,764	46,096
2005-06	32,592	12,059	1,632	46,283
2006-07	32,663	13,347	1,893	47,903
2007-08	35,464	14,076	2,117	51,657
2008-09	35,086	13,903	2,075	51,064
2009-10	34,675	12,944	1,914	49,533
2010-11	33,959	12,003	1,557	47,519
2011-12	36,438	11,917	1,570	49,925
2012-13	40,485	13,540	1,900	55,925
2013-14	39,947	13,989	2,063	55,999
2014-15	40,610	12,788	1,615	55,013
2015-16	39,704	11,960	1,457	53,121
2016-17	37,597	11,205	1,609	50,411
2017-18	37,573	12,259	1,835	51,667
2018-19	34,254	11,401	1,599	47,254
2019-20	35,072	10,985	1,734	47,791
2020-21	33,026	12,800	1,845	47,671

[a] *Revised April 1, 2022.*

[b] *July 1 through June 30.*

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

TABLE 1B
ANNUAL REPORTED GROUNDWATER PRODUCTION WITHIN THE DISTRICT [a, b]
AGRICULTURAL WATER
(Acre-Feet)

Fiscal Year [c]	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Total
1979-80	6,363	7,233	7,322				20,918
1980-81	7,535	9,486	7,563				24,584
1981-82	7,780	18,037	7,889				33,706
1982-83	7,501	13,934	7,575				29,010
1983-84	9,427	14,865	6,581				30,873
1984-85	8,418	15,589	7,124				31,131
1985-86	8,621	15,240	7,269				31,130
1986-87	9,251	19,656	5,567				34,474
1987-88	6,652	19,839	6,162				32,653
1988-89	8,303	19,218	6,417				33,938
1989-90	8,265	17,358	8,801				34,424
1990-91	8,495	18,018	10,804				37,317
1991-92	8,982	18,960	7,078				35,020
1992-93	7,852	19,122	7,186				34,160
1993-94	8,076	16,748	713	1,108	3,505	644	30,794
1994-95	8,173	14,190	1,060	843	3,018	970	28,254
1995-96	8,993	16,327	743	1,158	4,672	899	32,792
1996-97	8,977	19,235	787	970	4,347	1,441	35,757
1997-98	9,627	19,197	429	1,034	2,822	1,148	34,257
1998-99	9,702	18,724	115	1,693	3,088	1,283	34,605
1999-00	10,319	19,832	113	1,739	3,480	1,556	37,039
2000-01	11,169	20,261	121	2,247	3,306	1,210	38,314
2001-02	11,170	21,174	148	2,311	2,897	1,446	39,146
2002-03	10,515	17,559	153	1,549	2,744	1,374	33,894
2003-04	11,193	15,602	189	1,972	3,018	1,267	33,241
2004-05	10,622	15,768	141	1,856	2,439	1,081	31,907
2005-06	10,044	16,854	158	1,965	2,155	1,416	32,592
2006-07	10,756	15,834	172	1,719	2,679	1,503	32,663
2007-08	11,709	15,892	186	2,461	3,309	1,907	35,464
2008-09	11,182	16,004	174	2,823	3,155	1,748	35,086
2009-10	11,072	16,381	152	2,711	2,551	1,808	34,675
2010-11	9,635	17,493	161	2,227	2,652	1,791	33,959
2011-12	10,445	18,276	169	2,631	2,742	2,175	36,438
2012-13	11,498	21,257	145	2,357	3,365	1,863	40,485
2013-14	11,760	19,336	121	3,043	3,613	2,074	39,947
2014-15	12,342	19,511	106	3,468	3,067	2,116	40,610
2015-16	12,683	18,552	76	2,734	3,346	2,313	39,704
2016-17	11,440	18,300	77	2,898	2,932	1,950	37,597
2017-18	11,761	17,972	91	2,647	2,965	2,137	37,573
2018-19	11,085	16,287	47	1,877	2,868	2,090	34,254
2019-20	10,099	17,402	40	2,617	2,701	2,213	35,072
2020-21	10,939	14,906	28	2,073	2,839	2,241	33,026

[a] *Revised April 1, 2022.*

[b] *Groundwater charge zones for the period 1979-80 through 1992-93 included the District portion of Zone A, Zone B and Zone C. Groundwater charge zones since 1993-94 include the District portion of Zone A, Zone B, Zone C, Zone D, Zone E and Zone F.*

[c] *July 1 through June 30.*

TABLE 1C
ANNUAL REPORTED GROUNDWATER PRODUCTION WITHIN THE DISTRICT [a, b]
OTHER WATER
(Acre-Feet)

Fiscal Year [c]	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Total
1979-80	1,815	6,399	2,362				10,576
1980-81	1,940	7,283	2,308				11,531
1981-82	2,471	7,506	4,147				14,124
1982-83	2,110	6,644	2,162				10,916
1983-84	2,380	6,714	2,382				11,476
1984-85	2,380	7,905	2,159				12,444
1985-86	2,119	9,407	2,147				13,673
1986-87	1,794	8,992	1,995				12,781
1987-88	2,358	8,546	2,425				13,329
1988-89	2,750	7,445	1,696				11,918
1989-90	2,516	8,495	2,162				13,173
1990-91	2,433	7,547	2,589				12,569
1991-92	2,761	6,698	1,968				11,427
1992-93	1,993	7,307	2,420				11,720
1993-94	1,662	7,681	1,224	430	1,930	78	13,005
1994-95	2,098	7,777	1,081	430	1,703	66	13,155
1995-96	2,144	8,585	1,079	469	2,993	50	15,320
1996-97	2,065	8,075	958	461	2,924	69	14,552
1997-98	1,581	7,463	978	264	1,658	78	12,022
1998-99	1,997	7,432	995	236	1,637	87	12,384
1999-00	2,262	7,906	1,208	340	2,084	83	13,883
2000-01	2,524	7,395	1,241	458	1,526	103	13,247
2001-02	2,806	7,509	1,476	537	1,284	122	13,734
2002-03	2,048	7,684	1,084	584	845	109	12,354
2003-04	2,260	8,027	1,067	508	1,455	106	13,423
2004-05	2,489	7,285	1,129	348	1,067	107	12,425
2005-06	1,992	7,624	880	265	1,194	104	12,059
2006-07	1,946	8,134	896	587	1,645	139	13,347
2007-08	2,216	8,173	886	813	1,844	144	14,076
2008-09	2,262	7,493	848	984	2,167	149	13,903
2009-10	2,611	7,006	830	1,026	1,317	154	12,944
2010-11	1,356	6,869	1,470	955	1,208	145	12,003
2011-12	1,511	6,859	982	711	1,702	152	11,917
2012-13	2,310	7,084	1,022	708	2,277	139	13,540
2013-14	2,444	7,203	1,121	750	2,325	146	13,989
2014-15	2,612	6,376	771	1,012	1,879	138	12,788
2015-16	2,273	5,994	1,081	911	1,586	115	11,960
2016-17	2,065	5,779	1,099	678	1,474	110	11,205
2017-18	2,448	6,178	1,225	559	1,722	127	12,259
2018-19	2,122	5,856	1,171	594	1,492	166	11,401
2019-20	2,043	5,773	1,019	499	1,480	171	10,985
2020-21	2,721	6,064	1,196	549	2,043	227	12,800

[a] *Revised April 1, 2022.*

[b] *Groundwater charge zones for the period 1979-80 through 1992-93 included the District portion of Zone A, Zone B and Zone C. Groundwater charge zones since 1993-94 include the District portion of Zone A, Zone B, Zone C, Zone D, Zone E and Zone F.*

[c] *July 1 through June 30.*

TABLE 1D
ANNUAL REPORTED GROUNDWATER PRODUCTION WITHIN THE DISTRICT [a, b]
SPECIAL IRRIGATION WATER [c]
(Acre-Feet)

Fiscal Year [d]	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Total
1979-80							
1980-81							
1981-82							
1982-83							
1983-84							
1984-85							
1985-86	554	303	15				872
1986-87	523	955	68				1,546
1987-88	594	805	34				1,433
1988-89	738	1,002	40				1,780
1989-90	658	1,028	26				1,712
1990-91	669	981	41				1,691
1991-92	753	1,163	20				1,936
1992-93	1,052	1,205	250				2,507
1993-94	1,059	1,005	0	57	0	0	2,121
1994-95	1,056	729	0	36	0	0	1,821
1995-96	941	839	10	52	0	0	1,842
1996-97	935	988	10	22	0	0	1,955
1997-98	838	445	74	11	0	0	1,368
1998-99	862	836	17	13	8	0	1,736
1999-00	976	1,152	17	19	0	0	2,164
2000-01	906	1,054	12	32	0	0	2,004
2001-02	899	1,132	17	23	0	0	2,071
2002-03	1,012	1,058	10	27	0	0	2,107
2003-04	965	1,161	20	14	0	0	2,160
2004-05	876	861	19	8	0	0	1,764
2005-06	726	883	20	3	0	0	1,632
2006-07	796	1,039	23	35	0	0	1,893
2007-08	870	1,171	30	46	0	0	2,117
2008-09	858	1,126	22	69	0	0	2,075
2009-10	795	1,053	20	46	0	0	1,914
2010-11	568	939	17	33	0	0	1,557
2011-12	620	900	21	29	0	0	1,570
2012-13	762	1,088	18	32	0	0	1,900
2013-14	804	1,203	18	38	0	0	2,063
2014-15	619	939	11	46	0	0	1,615
2015-16	576	830	13	38	0	0	1,457
2016-17	626	937	12	34	0	0	1,609
2017-18	754	1,043	14	24	0	0	1,835
2018-19	639	913	12	27	7	0	1,599
2019-20	691	1,010	11	18	4	0	1,734
2020-21	779	1,026	11	15	14	0	1,845

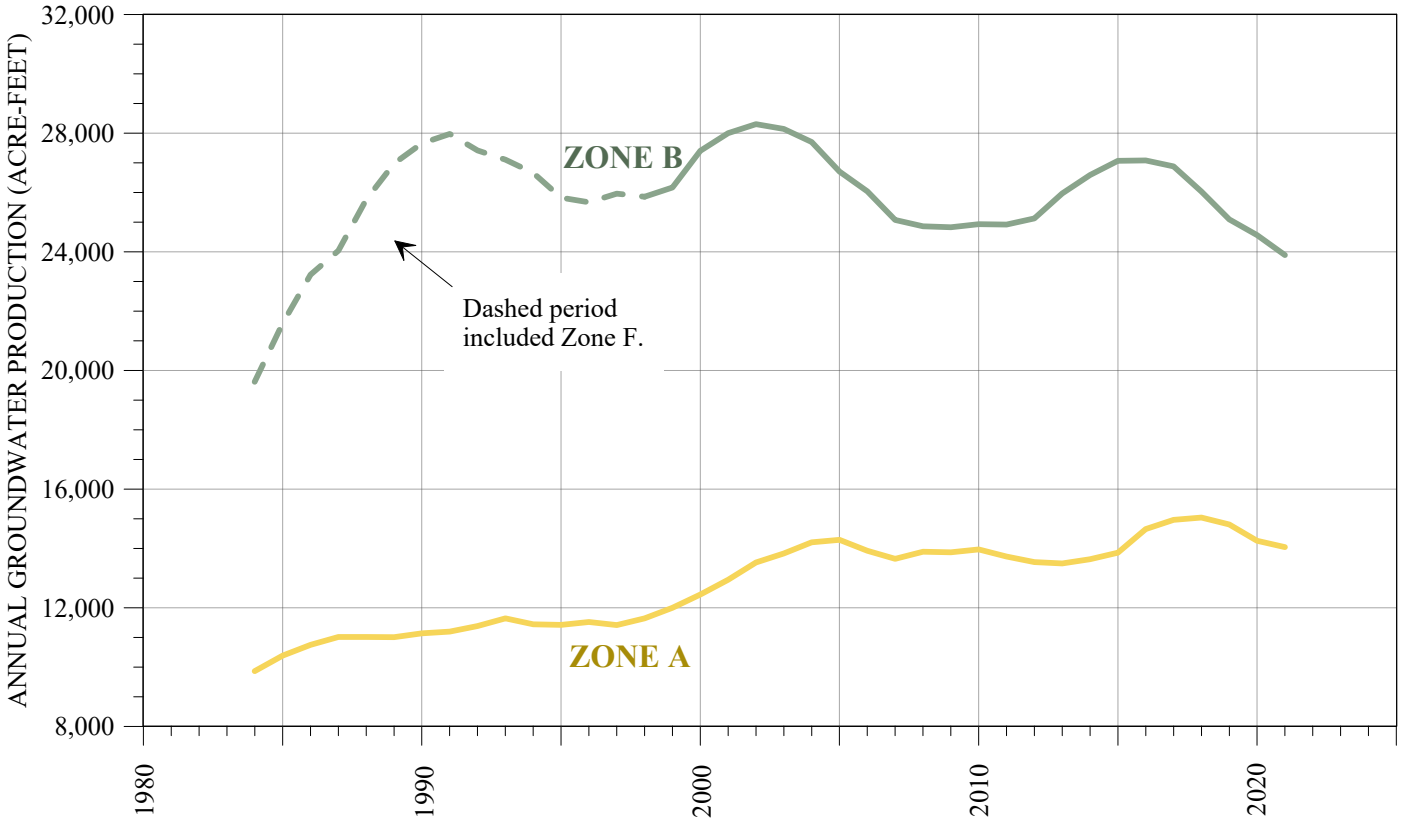
[a] *Revised April 1, 2022.*

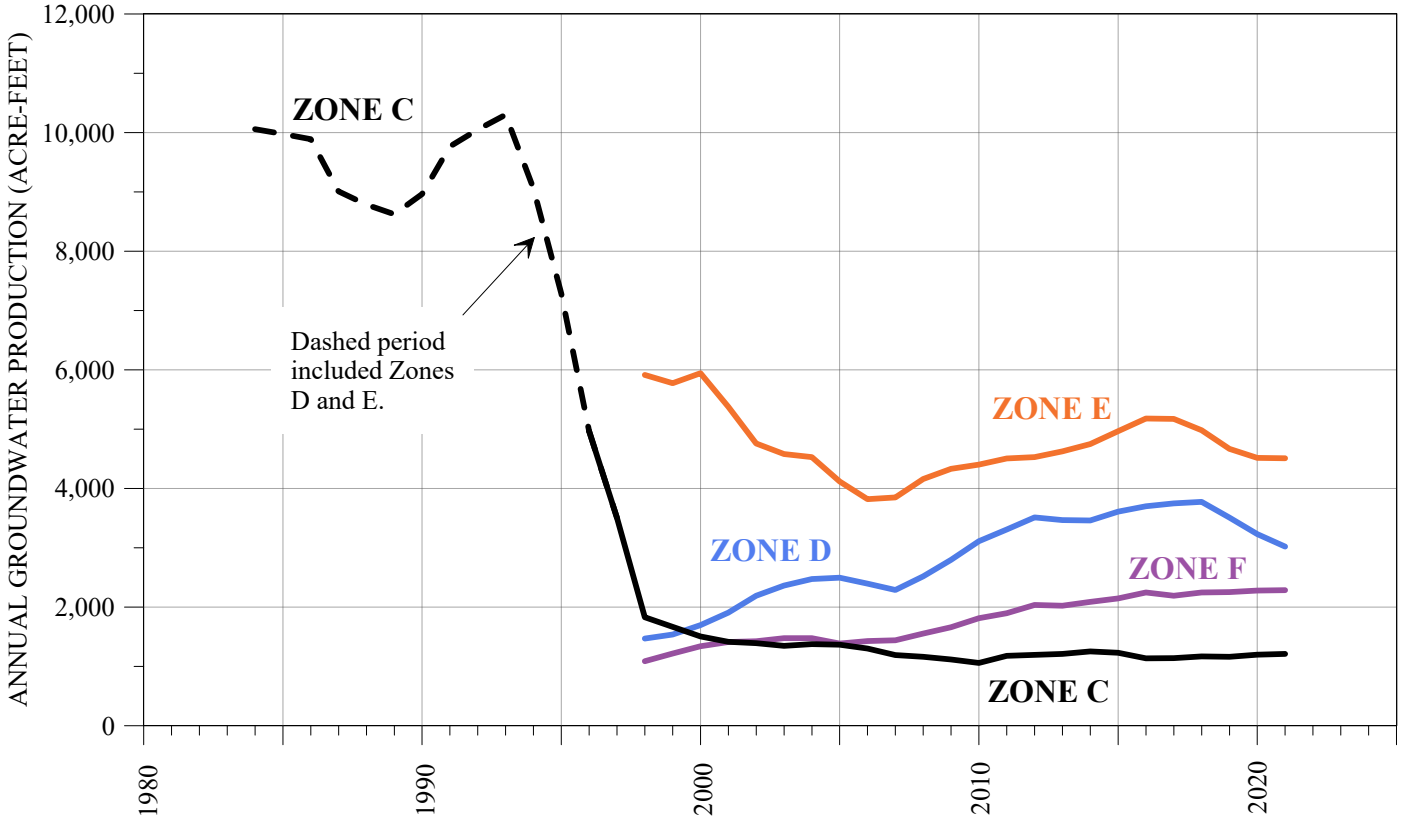
[b] *Groundwater charge zones for the period 1979-80 through 1992-93 included the District portion of Zone A, Zone B and Zone C. Groundwater charge zones since 1993-94 include the District portion of Zone A, Zone B, Zone C, Zone D, Zone E and Zone F.*

[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.*

ANNUAL GROUNDWATER PRODUCTION WITHIN THE DISTRICT
5-YEAR MOVING AVERAGE





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3.0 PRECIPITATION

Water supply, water use, and groundwater conditions within the District are dependent upon precipitation. Precipitation, either directly or as streamflow infiltration, recharges the groundwater 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, Bradbury Dam and Lompoc, for the period January 2021 through March 2022. Precipitation during the current hydrologic water year to date (October 2021 through March 2022) is 63 and 68 percent of normal at Bradbury Dam and Lompoc, respectively.

The long-term annual variation in precipitation at Santa Barbara, Gibraltar Dam, Bradbury Dam 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 analyses 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, a dry period is indicated where the graph trends downward over a period of years.

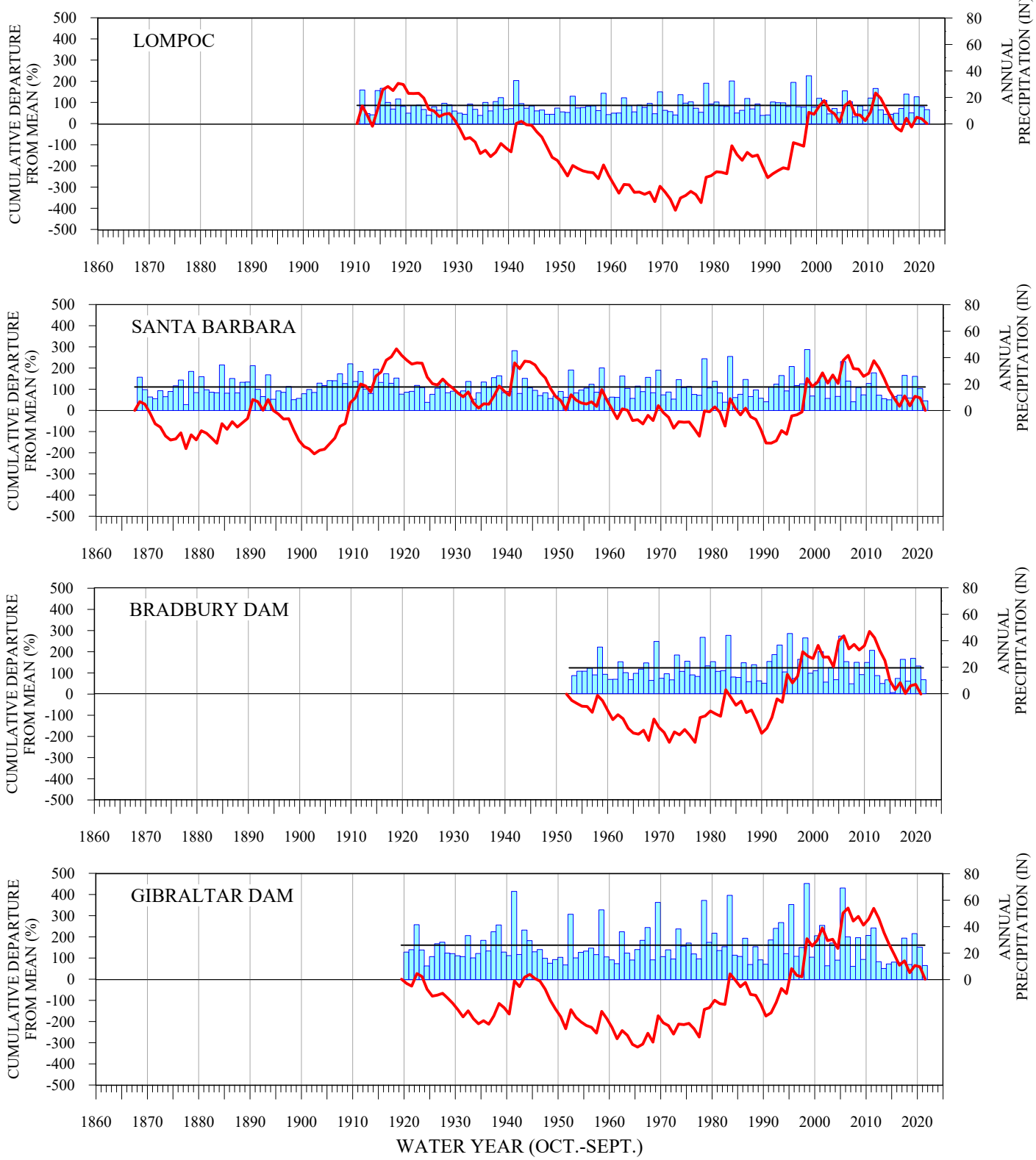
TABLE 2
MONTHLY PRECIPITATION AND DEPARTURE FROM NORMAL AT BRADBURY DAM AND LOMPOC JANUARY 2021 THROUGH MARCH 2022 [a]
(Inches)

Month	Bradbury Dam		Lompoc	
	Precipitation	Departure [b]	Precipitation	Departure [b]
January 2021	7.33	2.39	7.53	4.20
February	0.12	-5.06	0.19	-3.40
March	1.01	-2.92	1.13	-1.75
April	0.02	-1.41	0.00	-1.01
May	0.00	-0.46	0.04	-0.25
June	0.00	-0.05	0.02	-0.02
July	0.00	-0.01	0.03	0.02
August	0.00	-0.03	0.00	-0.03
September	0.00	-0.13	0.01	-0.09
October	1.68	0.69	1.24	0.50
November	0.11	-1.47	0.08	-1.33
December	8.23	4.87	6.70	4.14
2021 Total	**18.50**	**-3.59**	**16.97**	**0.98**
Percent of Normal	**84**		**106**	
January 2022	0.45	-4.49	0.13	-3.20
February	0.06	-5.12	0.21	-3.38
March	2.14	-1.79	1.46	-1.42
2022 Hydrologic Water Year Total Through March	**12.67**		**9.82**	
Percent of Normal	**63**		**68**	

[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 the National Oceanic and Atmospheric Administration (NOAA).

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



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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 (Lake Cachuma), 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 groundwater in the Santa Ynez River alluvial aquifer and the Lompoc Plain groundwater subarea.

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 (193,305 acre-feet with a fish surcharge of three 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 hydrologic water year 2020-21, 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 in 1959 established the Santa Ynez River Water Conservation District, 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. With the creation of an independently elected trustee board in 1966, ID No. 1 became essentially a separate entity. In 1993 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

TABLE 3
SUMMARY OF CACHUMA PROJECT OPERATIONS
WATER YEARS 1953 THROUGH 2021 [a]

(Acre-Feet)

Water Year (Oct.-Sept.) [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
1953	9,188	17,942		106	1,319	0				7,541	
1954	21,779	18,955		598	2,327	0				4,635	
1955	19,584	4,941		936	2,540	0				3,922	
1956	36,629	24,330		1,482	4,200	0	2,118			2,449	
1957	30,154	6,150		1,162	4,642	0	5,470			3,674	
1958	196,889	219,129		4,459	11,210	35,738	4,850			5,050	
1959	187,178	15,068		3,629	14,624	3,056	8,432			2,296	
1960	163,149	2,643		2,669	13,613	0	11,410	169	300	3,849	
1961	134,493	795		2,382	12,015	0	17,309	662	239	1,608	
1962	190,475	100,134		4,963	12,446	21,822	11,921	402	890	1,633	
1963	171,736	4,270		3,788	12,157	0	10,595	510	694	2,843	
1964	141,506	2,439		2,378	11,786	0	17,352	447	1,504	3,958	
1965	122,308	12,314		3,043	10,204	0	14,909	182	1,837	7,423	
1966	168,926	79,292		3,707	12,524	0	17,522	345	2,129	3,862	
1967	191,622	208,961		5,774	12,683	153,823	14,155	246	2,575	8,557	
1968	160,871	10,404		2,414	13,524	0	18,199	357	3,669	7,820	
1969	190,181	525,370		9,727	12,305	472,411	15,031	240	2,597	3,199	
1970	176,407	28,740		1,793	13,525	0	21,448	335	4,115	4,888	
1971	161,345	31,045		3,497	12,308	0	22,800	357	3,115	11,028	
1972	121,314	8,754		2,231	11,452	0	28,158	167	4,469	6,769	
1973	185,591	125,804		5,948	12,056	29,300	18,456	129	3,552	3,982	
1974	182,039	33,670		4,112	12,677	5,655	17,805	138	3,469	1,590	
1975	184,467	50,544		5,867	11,866	16,804	20,854	128	3,057	1,275	
1976	145,187	5,310		3,189	11,804	0	26,020	148	4,655	5,152	
1977	112,077	1,520		2,601	10,775	0	18,740	98	4,583	3,035	
1978	193,424	329,219		9,573	13,535	219,295	20,701	114	3,011	790	
1979	183,949	61,692		5,250	13,917	36,385	20,102	147	4,029	1,837	
1980	187,382	153,543		6,003	13,353	116,915	22,057	139	2,483	1,166	
1981	168,871	22,066		4,019	13,811	0	20,856	178	5,007	4,743	
1982	159,528	26,848		3,868	11,479	0	20,956	187	2,963	4,474	
1983	196,347	428,601		10,995	12,630	361,675	22,616	183	1,532	4,142	
1984	171,599	39,074		3,354	14,534	17,217	25,601	193	5,054	4,577	
1985	135,748	5,057		2,816	12,275	0	22,781	142	2,664	5,862	
1986	171,873	76,571		4,831	12,782	0	21,690	108	2,686	8,010	
1987	128,352	2,374		1,996	12,147	0	27,209	150	3,812	4,573	
1988	99,150	8,732		4,092	10,293	0	23,917	102	2,803	4,911	
1989	66,098	4,044		1,459	8,366	0	20,632	86	2,802	6,670	

TABLE 3 – CONTINUED
SUMMARY OF CACHUMA PROJECT OPERATIONS
WATER YEARS 1953 THROUGH 2021 [a]

(Acre-Feet)

Water Year (Oct.-Sept.) [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
1990	34,188	2,627		909	6,019	0	16,384	66	863	4,792	
1991	60,995	53,566		2,057	6,373	0	15,762	43	1,656	4,983	
1992	157,066	135,828		4,022	11,239	0	18,170	52	891	13,427	
1993	177,479	333,387		8,875	13,428	280,698	22,582	79	2,042	1,591	1,429
1994	151,046	16,729		4,144	12,561	0	22,821	73	1,819	9,537	494
1995	134,855	365,092		10,063	10,321	354,402	23,887	64	109	1,823	740
1996	120,503	33,243		2,653	11,627	0	24,721	76	2,109	9,703	2,012
1997	124,771	56,552	148	2,911	11,861	0	26,785	83	1,785	13,205	1,623
1998	185,500	475,175	1354	12,071	11,350	386,055	24,473	60	0	3,956	1,976
1999	168,772	21,562	323	4,077	12,341	0	26,397	70	0	883	2,999
2000	170,840	51,895	2156	4,972	12,435	6,067	30,365	79	0	5,972	2,037
2001	173,479	152,773	818	7,712	11,995	112,313	26,089	78	0	3,502	2,157
2002	129,370	5,508	4,627	2,040	11,004	0	30,976	90	0	11,961	2,253
2003	115,449	18,822	6,816	3,707	9,402	0	28,781	99	0	2,292	2,691
2004	71,378	5,750	5,924	1,782	8,829	0	32,269	83	0	14,217	2,131
2005	179,997	401,755	3,137	8,365	11,763	260,078	26,796	62	0	2,894	3,045
2006	180,203	100,562	1,014	6,075	12,354	62,869	24,119	66	0	0	8,037
2007	132,392	4,348	5,204	1,716	11,940	0	32,797	83	0	9,327	4,932
2008	173,280	109,536	4,701	4,712	13,449	22,994	32,591	63	0	2,274	6,689
2009	142,479	13,218	2,602	3,112	12,220	0	27,634	82	0	0	8,688
2010	152,855	56,628	1,736	5,057	11,374	0	27,259	73	0	7,165	7,175
2011	180,986	151,343	1,258	7,226	11,871	85,755	26,866	79	0	1,481	5,642
2012	142,970	6,005	408	2,959	11,724	0	28,682	79	0	0	6,904
2013	91,922	2,982	2,101	1,497	9,943	0	31,039	76	0	12,613	3,956
2014	61,107	3,947	11,522	1,367	8,441	0	29,023	34	0	7,561	2,591
2015	32,989	4,006	8,316	1,074	7,443	0	17,137	25	0	12,600	2,156
2016	14,222	4,697	10,220	860	5,444	0	15,604	24	0	11,620	1,853
2017	82,459	87,508	14,073	2,196	11,352	0	14,451	25	0	8,612	807
2018	61,273	4,910	13,308	1,269	7,730	0	18,681	23	0	11,654	2,584
2019	144,475	105,371	4,606	3,500	9,467	0	13,867	23	0	0	6,918
2020	135,570	26,207	825	4,309	11,094	0	16,000	22	0	5,861	7,318
2021	95,720	3,536	1,530	2,227	9,634	0	24,741	20	0	8,625	4,123
Average [d]	134,029	79,876	4,349	3,916	10,837	44,367	21,067	141	1,574	5,332	3,654

[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. End of WY2017 storage corrected by 293 AF due to gage reading error.

Cachuma entitlement water to serve the County Park at Lake Cachuma. Table 3 shows annual 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 forty thousand acre-feet per year of winter flow from the Santa Ynez River near Lompoc. Earthen dams were constructed and maintained in the Santa Ynez 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 and 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 would be 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 SFB (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 (2020-21) and the first half of the current fiscal year (2021-22) in acre-feet are as follows:

Fiscal Year (July-June)	ID No. 1 (Acre-Feet)	City of Solvang (Acre-Feet)	City of Buellton (Acre-Feet)	Vandenberg SFB (Acre-Feet)
2020-21	1,545	693	285	2,349
2021-22 (First Half)	1,127	284	109	1,048

Source: Central Coast Water Authority

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 Lake Cachuma are set forth in the SWRCB Order of 1973 (WR 73-37), as amended in 1989 (WR 89-18) and 2019 (WR 2019-0148). These releases are based on the establishment of two accounts, and accrual of credits (storing water) in Lake Cachuma 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 subarea. ANA releases are made to replenish the groundwater basin in the above Narrows area and combined releases of ANA and BNA are made to replenish the groundwater basin 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	2,310
1917	137,000	1937	209,000	1957	1,460	1977	270	1997	39,130	2017	31,918
1918	320,000	1938	352,400	1958	140,000	1978	391,600	1998	681,520	2018	4,812
1919	60,300	1939	32,960	1959	16,940	1979	70,200	1999	28,460	2019	42,989
1920	43,500	1940	20,610	1960	1,570	1980	189,100	2000	51,850	2020	11,277
1921	16,800	1941	652,300	1961	330	1981	20,240	2001	250,425	2021	12,315
1922	190,500	1942	67,310	1962	87,890	1982	6,450	2002	9,530	2022	2,012
1923	23,000	1943	231,900	1963	9,520	1983	503,600	2003	15,730	(through Mar)	
1924	5,300	1944	119,400	1964	0	1984	34,110	2004	6,710		

Average (1908-2021)	103,770
Average (1953-2021)	80,440

2019 flows do not include equipment failure January 14-17, likely totalling less than 400 Acre-Feet.
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.

Flow regulated by Lake Cachuma since November 1952.

MONTHLY SURFACE FLOW, SANTA YNEZ RIVER NEAR LOMPOC

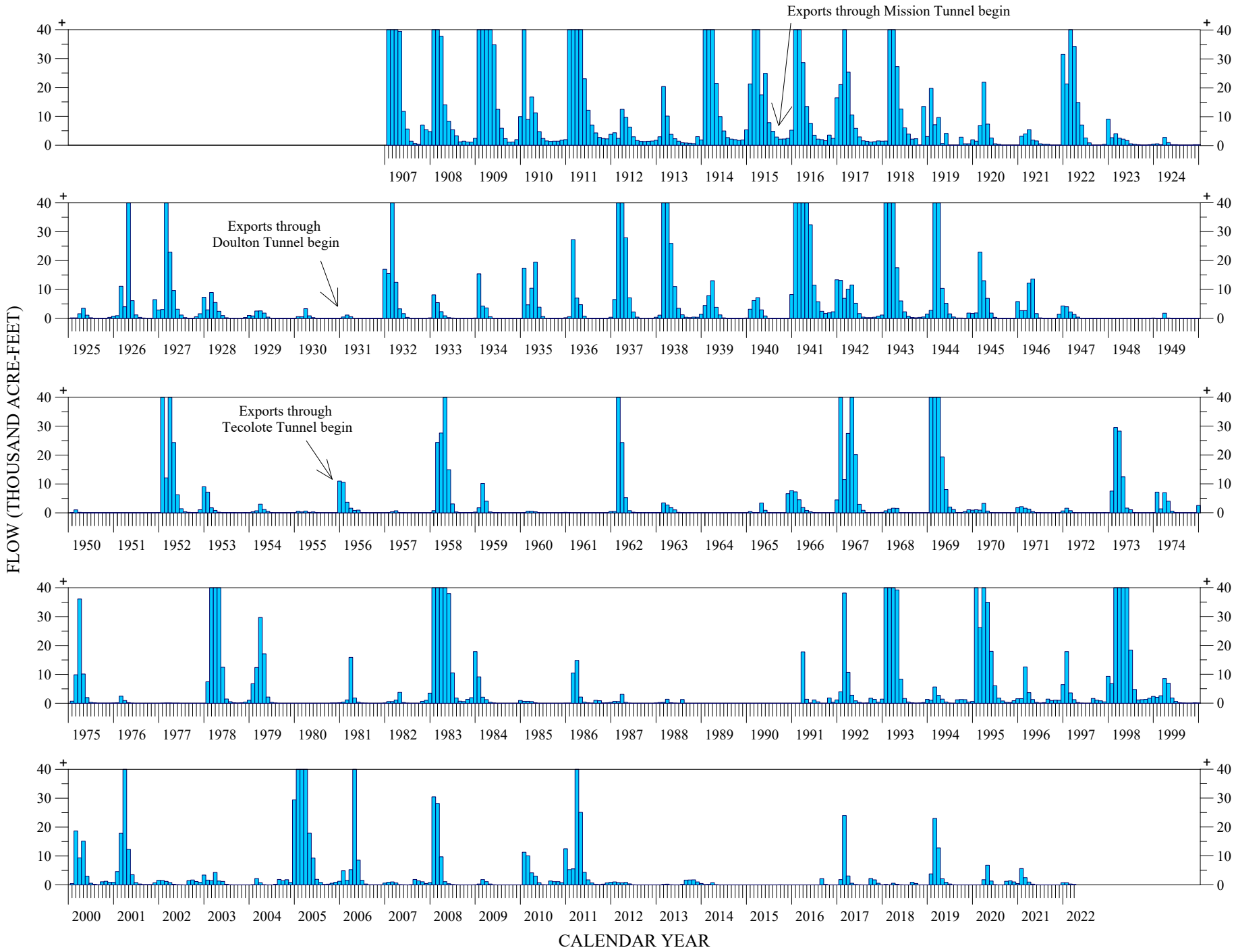

FIGURE 5

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	Water Year (Oct.-Sept.)	Flow
		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	9,695
		1958	23,570	1978	36,290	1998	41,180	2018	239
		1959	2,620	1979	8,410	1999	6,160	2019	12,314
		1960	1,420	1980	14,980	2000	10,850	2020	1,596
		1961	690	1981	5,060	2001	19,986	2021	2,974
1942	10,650	1962	22,200	1982	1,610	2002	1,653	2022	896
1943	10,710	1963	5,330	1983	36,850	2003	3,630	(through Mar)	
1944	8,870	1964	930	1984	3,360	2004	1,662		
								Average (1942-2021)	7,750

Data from U.S. Geological Survey.

In calendar year 2021, water rights releases were made starting on August 2, 2021 to replenish the Above Narrows area. These releases extended through October 22, 2021 for a period of 82 days. There were no water rights releases made for Below Narrows areas during calendar year 2021. The amounts of water released for groundwater replenishment, in acre-feet, are summarized below.

2021 Calendar Year Releases	Above Narrows Account (Acre-Feet)	Below Narrows Account (Acre-Feet)	Total (Acre-Feet)
August	2,746	0	2,746
September	1,258	0	1,258
October	645	0	645
TOTAL	**4,649**	**0**	**4,649**

Source: U.S. Bureau of Reclamation

The rate, duration, and geographical extent of the above releases are shown in Appendix D. 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

Calendar Year	Releases (Acre-Feet) Above Narrows Account (ANA)	Below Narrows Account (BNA)	Total
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
2017	7,758	4,454	12,212
2018	6,606	1,448	8,054
2019	0	0	0
Releases under WR 2019-0148			
2020	6,379	4,101	10,480
2021	4,649	0	4,649

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 groundwater 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 SFB. As a part of State Water delivery schedules submitted by ID No. 1, Solvang, Buellton, and Vandenberg SFB, the following delivery requests are indicated for fiscal year 2021-22. 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	692
City of Solvang	951
City of Buellton	216
Vandenberg SFB	1,475
TOTAL	3,334

[a] *Includes buffer.*
Source: Central Coast Water Authority

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 2021-22. The District does not have any contracts to purchase surface water nor the facilities to divert Santa Ynez River and/or tributary flow.

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5.0 GROUNDWATER 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 GROUNDWATER

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

Zone A - Santa Ynez River alluvial deposits

- Santa Ynez subarea
- Buellton subarea
- Santa Rita subarea

Zone B - Lompoc Area

- Lompoc Plain subarea
- Lompoc Upland subarea
- Lompoc Terrace subarea

Zone C - Miscellaneous unconsolidated deposits and consolidated rocks

Zone D - Buellton Upland subarea

Zone E - Santa Ynez Upland subarea

Zone F - Santa Rita Upland subarea

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

5.2. GROUNDWATER LEVEL CHANGES

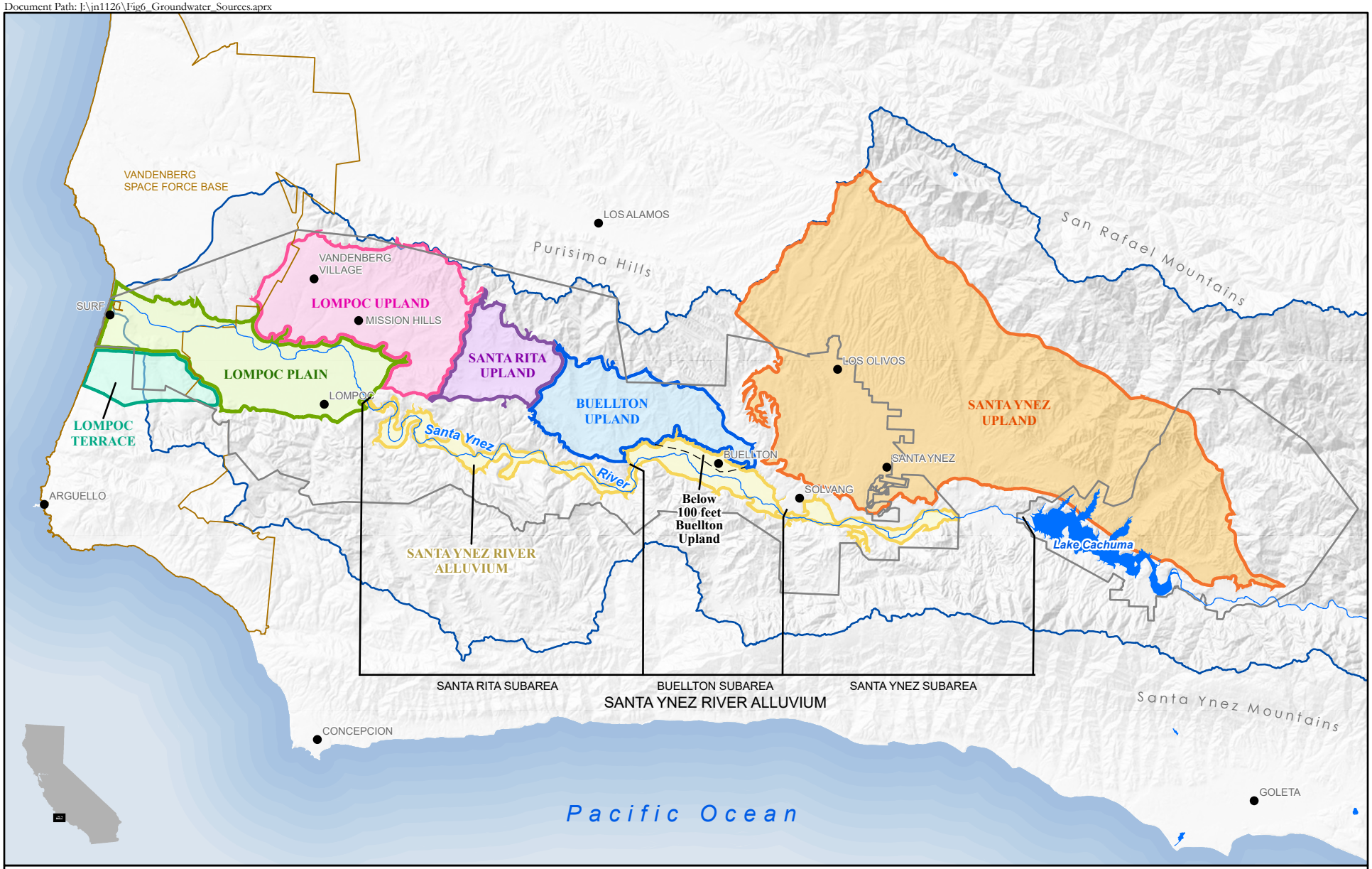
Water-level changes from Spring 2021 to Spring 2022 provide the best direct indication of groundwater conditions during the past year. The water-level changes in wells monitored by the Santa Barbara County Water Agency (SBCWA), City of Buellton, and USBR are summarized for the Lompoc Plain, Lompoc Upland, Lompoc Terrace, Santa Rita Upland, Buellton Upland and Santa Ynez Upland subareas. In Tables 7 through 10, a 0.0 reading indicates a change of less than 0.1 feet, while a dash is a null value meaning the change could not be quantified due to one or two years of missing data.

Table 7 presents the water-level changes for eight wells quantified by the USBR and SBCWA in the forebay of the Lompoc Plain subarea and 29 additional wells quantified by the SBCWA in the central and western portions of the Lompoc Plain. In the forebay, water levels increased from Spring 2021 to Spring 2022 in two of the wells quantified and decreased in six wells. The forebay well not quantified by SBCWA and USGS has been dry since March 2016, so the water level change at this location is unknown. The water levels declined over the past year in 12 of the 29 measured wells located in the central and western portion of the Lompoc Plain while water levels rose in 16 of the 29 measured wells, one well remained the same. The hydrographs of three wells located in the Lompoc Plain subarea are shown on Figure F-1 (Appendix F).

Water-level changes over the past year are shown on Table 8 for ten wells quantified by the SBCWA in the Lompoc Upland subarea. The water levels rose from Spring 2021 to Spring 2022 in one well and declined in the remaining nine wells. Hydrographs for five wells located in the Lompoc Upland subarea are shown in Figure F-2 (Appendix F). The water level in the only well measured in the Lompoc Terrace subarea declined by 0.7 feet over the past year (Table 8 and Figure F-3, Appendix F).

In the Santa Rita Upland water levels rose in one well, stayed the same in one well, and declined in two wells (Table 9). A hydrograph of Well 7N/33W-27G1 is shown on Figure F-3 (Appendix F).

Document Path: J:\jn1126\Fig6_Groundwater_Sources.aprx



STETSON ENGINEERS INC.

Santa Ynez River Water Conservation District Boundary

Drainage Basin Boundary

MAJOR GROUNDWATER SOURCES
SANTA YNEZ RIVER BASIN

0 2 4 Miles

N

FIGURE 6

TABLE 7
WATER-LEVEL CHANGES
LOMPOC PLAIN SUBAREA
2021 TO 2022

Forebay [a]		Central and Western Plain [b]	
Well No.	Water-Level Change (Feet)	Well No.	Water-Level Change (Feet)
6N/34W-4G4	1.7 [b]	6N/34W-6C4	2.4
7N/34W-22M6	-15.7 [b]	7N/34W-20K4	3.8
7N/34W-25F3	0.8	7N/34W-27G6	-6.7
7N/34W-26B4	-1.3	7N/34W-29E4	-3.2
7N/34W-26H3	-- [c]	7N/34W-29N6	2.9
7N/34W-26Q5	-0.7	7N/34W-29N7	5.9
7N/34W-27F9	-15.7	7N/34W-30L10	1.1
7N/34W-34R1	-4.0	7N/34W-31R2	9.5
7N/34W-35K9	-4.8	7N/34W-32H2	-1.4
		7N/35W-15M1	0.0
		7N/35W-17M1	2.9
		7N/35W-17K20	3.0
		7N/35W-18J2	--
		7N/35W-21G2	2.3
		7N/35W-22J1	-1.3
		7N/35W-22M1	-1.6
		7N/35W-23B2	1.4
		7N/35W-23Q2	0.3
		7N/35W-23Q3	-3.5
		7N/35W-23Q4	-3.8
		7N/35W-24J4	0.6
		7N/35W-24K5	-4.2
		7N/35W-24N3	--
		7N/35W-25F6	0.6
		7N/35W-25F7	5.9
		7N/35W-26F4	-15.3
		7N/35W-26L1	0.5
		7N/35W-26L2	-0.5
		7N/35W-26L4	-3.0
		7N/35W-27C1	-1.3
		7N/35W-35A3	0.1

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

[b] Based upon estimated elevations by the U.S. Bureau of Reclamation.

[c] Based upon measurements made during March and April by the Santa Barbara County Water Agency. Well 26H3 has been dry since 2016, so change in groundwater elevation could not be determined.

TABLE 8
WATER-LEVEL CHANGES
LOMPOC UPLAND AND LOMPOC TERRACE SUBAREAS
2021-2022

Lompoc Upland Subarea		Lompoc Terrace Subarea	
Well No.	Water-Level Change (Feet)	Well No.	Water-Level Change (Feet)
7N/33W-17M1	-2.1	7N/35W-27P1	-0.7
7N/33W-17N2	-2.2		
7N/33W-19D1	-0.1		
7N/33W-20G1	-0.6		
7N/34W-12E1	-0.2		
7N/34W-14F4	-3.8		
7N/34W-14L1	-1.4		
7N/34W-15D3	-6.8		
7N/34W-15E1	5.0		
7N/34W-15P2	-0.2		

Based upon measurements made during March and April by the Santa Barbara County Water Agency.

TABLE 9
WATER-LEVEL CHANGES
SANTA RITA AND BUELLTON UPLAND SUBAREAS
2021 TO 2022

Santa Rita Upland Subarea		Buellton Upland Subarea	
Well No.	Water-Level Change (Feet)	Well No.	Water-Level Change (Feet)
7N/33W-21G2	-1.7	6N/31W-7F1	-0.8
7N/33W-21N1	0.0	6N/32W-2Q1	-0.4
7N/33W-27G1	17.0	6N/32W-12K2	-8.9
7N/33W-28D3	-0.5	7N/32W-31M1	-1.2
		7N/33W-36J1	-2.0

Based upon measurements made during March by the Santa Barbara County Water Agency.

The change in water levels over the past year in all five wells measured in the Buellton Upland subarea are also presented in Table 9. 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 2021 to Spring 2022 in 29 wells located in the Santa Ynez Upland subarea are shown in Table 10. Ten of these wells are located within the District portion of the Santa Ynez Upland subarea. Within the District portion of the subarea, the water level was observed to decline in all ten wells with two years of valid measurements. Hydrographs of two wells located in the Santa Ynez Upland subarea are included as Figure F-4 (Appendix F).

TABLE 10
WATER-LEVEL CHANGES
SANTA YNEZ UPLAND SUBAREA
2021 TO 2022

District Portion of Subarea

Well No.	Water-Level Change (Feet)
6N/30W-7G5	-6.1
6N/30W-7G6	-6.1
6N/31W-1P2	--
6N/31W-1P3	-6.3
6N/31W-2K1	-3.2
6N/31W-3A1	-4.3
6N/31W-4A1	-1.8
6N/31W-10F1	-3.0
6N/31W-11D4	-7.6
6N/31W-13D1	-2.3
7N/31W-23P1	--
7N/31W-36L2	-9.2

Non-District Portion of Subarea

Well No.	Water-Level Change (Feet)
6N/29W-6F1	-1.2
6N/29W-6G1	-2.0
6N/29W-7L1	-28.4
6N/29W-8P1	--
6N/29W-8P2	-12.8
6N/30W-1R3	-11.5
6N/30W-11G4	-20.5
7N/30W-16B1	-5.1
7N/30W-19H1	-0.4
7N/30W-22E1	0.4
7N/30W-24Q1	-3.4
7N/30W-27H1	1.9
7N/30W-29D1	-2.6
7N/30W-30M1	-14.1
7N/30W-33M1	-6.9
8N/30W-30R1	-1.8
8N/31W-36H1	14.6

Based upon measurements made during March by the Santa Barbara County Water Agency.

5.3. STORAGE CHANGES

The general status of groundwater conditions of the District can be shown by estimates of change in groundwater storage of the major sources of groundwater 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 groundwater conditions of the District portions 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 groundwater in storage and overdraft.

Table 11 summarizes the estimated annual (Spring to Spring) change in groundwater storage in the alluvium of the Santa Ynez River for the past ten years, 2011-2021 through 2020-21 and the current year, 2021-22. The change in groundwater storage is based upon the USBR's 25 node 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 groundwater storage in these nodes are reflected in the totals shown on Table 11 for the Santa Ynez subarea. Table 11 indicates that the accumulated dewatered storage at the end of March 2022 was about 13,800 acre-feet. As of March 31, 2022, the District had 10,254 acre-feet in the Above Narrows Account in Lake Cachuma.

Table 12 summarizes the estimated annual (Spring to Spring) change in groundwater storage in the Lompoc Plain subarea for the past ten years, 2011-12 through 2020-21 and the current year, 2021-22. Table 12 indicates that the accumulated dewatered storage at the end of March 2022 was 18,100 acre-feet. There was a decrease in groundwater in storage in the Lompoc Plain subarea of 2,800 acre-feet during the past year. As of March 31, 2022, the District had 4,981 acre-feet of water in the Below Narrows Account in Lake Cachuma which could otherwise be considered groundwater in storage in the alluvium of the Lompoc Plain.

TABLE 11
ESTIMATED ANNUAL CHANGE OF GROUNDWATER IN STORAGE IN THE SANTA YNEZ RIVER ALLUVIUM FOR THE PAST TEN YEARS AND CURRENT YEAR (2021-22)

(Acre-Feet)

Year (Spring to Spring)	Santa Ynez Subarea		Buellton Subarea		Santa Rita Subarea		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
2010-11		2,600		3,700		2,100		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
2017-18	-1,000	4,600	-200	6,300	-2,500	5,700	-3,700	16,600
2018-19	600	4,000	-300	6,600	1,000	4,700	1,300	15,300
2019-20	400	3,600	1,300	5,300	-1,100	5,800	600	14,700
2020-21	-500	4,100	100	5,200	-200 [a]	6,000 [a]	-600 [a]	15,300 [a]
2021-22	0	4,100	600	4,600	900	5,100	1,500	13,800

[a] Revised rounding to match total storage.

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

TABLE 12
ESTIMATED ANNUAL CHANGE OF GROUNDWATER IN STORAGE IN THE LOMPOC PLAIN SUBAREA FOR THE PAST TEN YEARS AND CURRENT YEAR (2021-22)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2010-11		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
2017-18	900	19,800
2018-19	1,800	18,000
2019-20	2,900	15,100
2020-21	-200	15,300
2021-22	-2,800	18,100

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

The estimated annual change in groundwater storage beneath the Lompoc Upland and the Lompoc Terrace subareas, is shown on Table 13 for the past ten years, 2011-12 through 2020-21 and the current year, 2021-22. Table 13 indicates that during that 10-year period there has been a total decrease of 6,500 acre-feet in the quantity of groundwater in storage in the Lompoc Upland. During the current year, 2021-22, there has been a decrease of 700 acre-feet in storage. The estimated total dewatered storage in the Lompoc Upland subarea through Spring 2022 is 37,400 acre-feet. In the Lompoc Terrace during the current year, 2021-22, there has been a decrease of 100 acre-feet in storage. The estimated dewatered storage in the Lompoc Terrace subarea through Spring 2022 is 900 acre-feet.

The estimated annual change in groundwater storage in the Santa Rita Upland subarea is shown on Table 14 for the past ten years, 2011-12 through 2020-21 and the current year. Table 14 indicates that during that 10-year period, there has been a decline of 500 acre-feet in the quantity of groundwater in storage in the Santa Rita Upland subarea. During the current year, 2021-22, there has been an increase of 3,000 acre-feet in storage.

The estimated annual change in groundwater storage in the eastern portion of the Buellton Upland subarea (deeper aquifer in the Buellton area) is shown on Table 15 for the past ten years, 2011-12 through 2020-21 and the current year, 2021-22. Table 15 indicates that during that 10-year period, there has been an increase of 300 acre-feet in the quantity of groundwater in storage. During the current year, 2021-22, there has been a decline in storage of 1,100 acre-feet.

The estimated annual change in groundwater storage within the District portion of the Santa Ynez Upland subarea is shown on Table 16 for the past ten years, 2011-12 through 2020-21 and for the current year, 2021-22. Table 16 indicates that during that 10-year period, there has been a decrease of about 26,900 acre-feet in the quantity of groundwater in storage in the District portion of the subarea. During the current year, 2021-22, there has been a decrease of water in storage of 3,900 acre-feet. The estimated total dewatered storage in the District portion of the subarea through Spring 2022 is 66,300 acre-feet.

TABLE 13
ESTIMATED ANNUAL CHANGE OF GROUNDWATER IN STORAGE IN THE LOMPOC UPLAND AND LOMPOC TERRACE SUBAREAS FOR THE PAST TEN YEARS AND CURRENT YEAR (2021-22)
(Acre-Feet)

Year (Spring to Spring)	Lompoc Upland Subarea		Lompoc Terrace Subarea	
	Change in Storage	Accumulated Dewatered Storage	Change in Storage	Accumulated Dewatered Storage
2010-11		30,500		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
2017-18	-300	35,600	-500	1,000
2018-19	-200	35,800	400	600
2019-20	-400	36,200	-100	700
2020-21	-500 [a]	36,700 [a]	-100	800
2021-22	-700	37,400	-100	900

[a] Revised water level reported in 2021.

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

TABLE 14
ESTIMATED ANNUAL CHANGE OF GROUNDWATER IN STORAGE IN THE SANTA RITA UPLAND SUBAREA FOR THE PAST TEN YEARS AND CURRENT YEAR (2021-22)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2010-11		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
2017-18	-700	14,400
2018-19	1,000	13,400
2019-20	-1,000	14,400
2020-21	-2,800	17,200
2021-22	3,000	14,200

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 OF GROUNDWATER IN STORAGE IN THE EASTERN PORTION OF THE BUELLTON UPLAND SUBAREA FOR THE PAST TEN YEARS AND CURRENT YEAR (2021-2022)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2010-11		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
2017-18	1,700	1,100
2018-19	-200	1,300
2019-20	-500	1,800
2020-21	-200	2,000
2021-22	-1,100	3,100

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 OF GROUNDWATER IN STORAGE IN THE DISTRICT PORTION OF THE SANTA YNEZ UPLAND SUBAREA FOR THE PAST TEN YEARS AND CURRENT YEAR (2021-2022)

(Acre-Feet)

Year (Spring to Spring)	Change in Storage	Accumulated Dewatered Storage
2010-11		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
2017-18	-2,300	57,500
2018-19	-1,800	59,300
2019-20	200	59,100
2020-21	-3,300	62,400
2021-22	-3,900	66,300

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 and accumulated dewatered storage for 2020-21 and 2021-22 are shown on Table 17 for the major sources of groundwater 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 subarea and to a lesser degree in the Lompoc Upland subarea. In the other groundwater subareas, 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 groundwater within the District.

5.6. HISTORICAL GROUNDWATER PRODUCTION

Table 19 shows estimated reported average historical groundwater production from the principal sources for groundwater within the District for the past ten years (2011-12 through 2020-21).

5.7. OVERDRAFT

For the District portion of each subarea, the average annual overdraft for the past ten years and the estimated annual overdraft for the current (2021-22) and ensuing (2022-23) years is shown on Table 20. The information shown on Table 20 is based on estimates of change in the quantity of groundwater in storage. The values of overdraft were determined solely for the purpose of meeting the provisions in the California Water Code pertaining to the implementation of a groundwater charge and do not necessarily represent the hydrologic status of the groundwater basin. The values of overdraft for the ensuing water year are assumed to be the same as for the current water year.

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

Source of Groundwater	Change in Storage [a]		Accumulated Dewatered Storage	
	2020-21	2021-22	2020-21	2021-22
Santa Ynez River Alluvium	-600	1,500	15,300	13,800
Lompoc Plain (Lompoc Forebay)	-200	-2,800	15,300	18,100
Lompoc Upland	-500	-700	36,700	37,400
Lompoc Terrace	-100	-100	800	900
Santa Rita Upland	-2,800	3,000	17,200	14,200
Buellton Upland (Eastern Portion)	-200	-1,100	2,000	3,100
Santa Ynez Upland (District Portion)	-3,300	-3,900	62,400	66,300
TOTAL	**-7,700**	**-4,100**	**149,700**	**153,800**

ACCUMULATED DEWATERED STORAGE
(2002 THROUGH 2022)

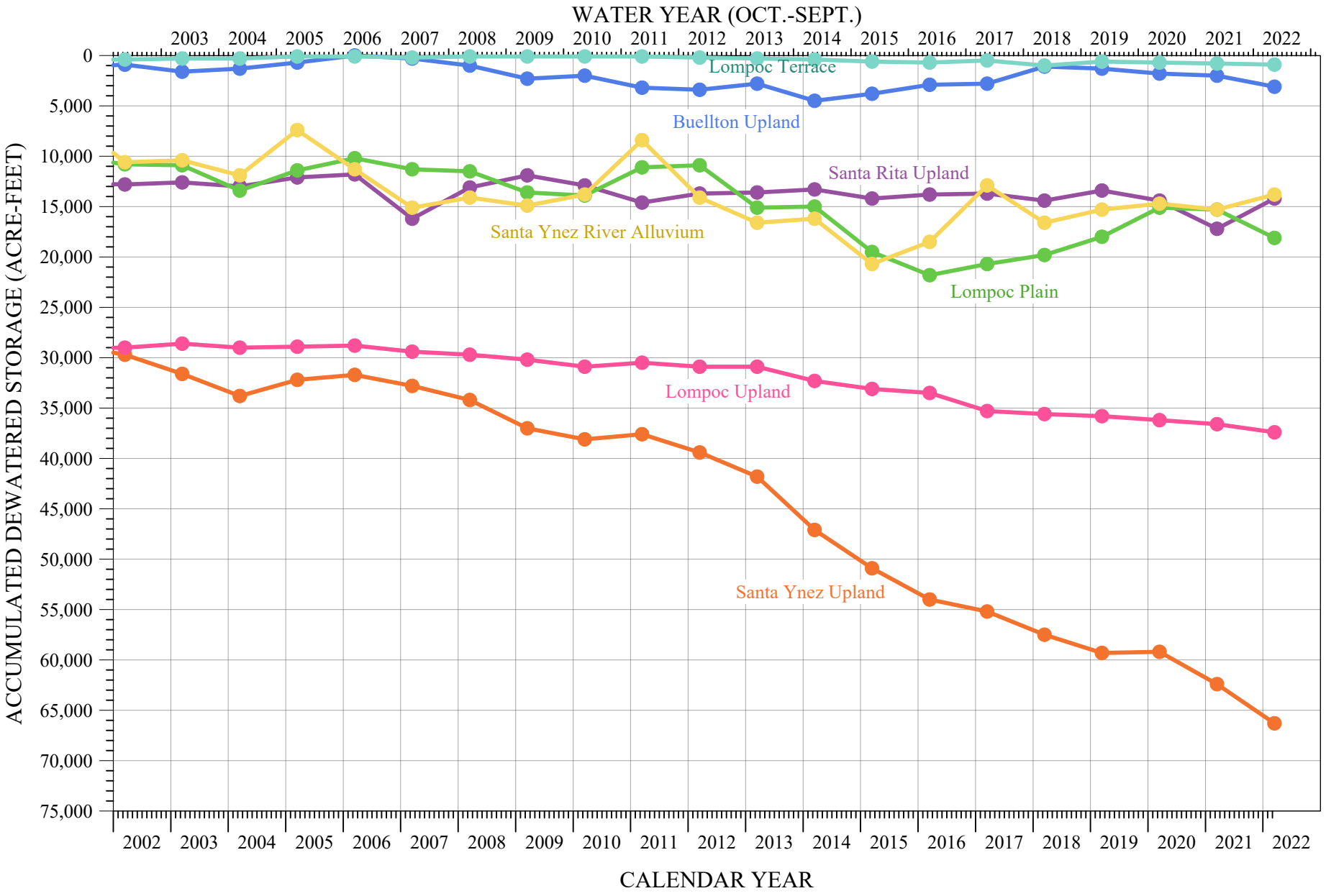


FIGURE 7

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

Source of Groundwater	Safe Yield (Acre-Feet per Year)
Santa Ynez River Alluvium	Subject to shortages during drought periods.
Lompoc Plain Subarea	22,000 - 24,100
Lompoc Upland Subarea	3,000
Lompoc Terrace Subarea	300
Santa Rita Upland Subarea	1,100 - 1,800
Buellton Upland Subarea [a]	2,800
Santa Ynez Upland Subarea [a]	9,800 - 12,200
Bedrock and other deposits	Unknown

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

Sources:

Stetson Engineers, January 18, 2022, Groundwater Sustainability Plan. Santa Ynez River Valley Groundwater Basin Western Management Area.

GSI Water Solutions, January 18, 2022, Santa Ynez River Valley Groundwater Basin - Eastern Management Area Groundwater Sustainability Plan. Eastern Management Area Groundwater Sustainability Agency

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

TABLE 19
ESTIMATED AVERAGE ANNUAL HISTORICAL REPORTED GROUNDWATER PRODUCTION FROM THE PRINCIPAL SOURCES OF GROUNDWATER WITHIN THE DISTRICT
(Acre-Feet)

Source of Groundwater	Estimated Average Annual Pumpage for the Past Ten Years (2011-12 through 2020-21)
Zone A Santa Ynez River Alluvium	14,347
Zone B Lompoc Plain, Lompoc Upland, and Lompoc Terrace Subareas	25,485
Zone C All portions of the District not included in other zones	1,173
Zone D Buellton Upland Subarea	3,362
Zone E Santa Ynez Upland Subarea (District Portion)	4,844
Zone F Santa Rita Upland Subarea	2,266
DISTRICT TOTAL	**51,477**

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

Source of Groundwater	Average Annual Overdraft for the Past Ten Years (2011-12 through 2020-21)	Annual Overdraft Estimated 2021-22	Annual Overdraft Projected 2022-23
Zone A			
Santa Ynez River Alluvium	690	0	0
Zone B			
Lompoc Plain Subarea	420	2,800	2,800
Lompoc Upland Subarea	620	700	700
Lompoc Terrace Subarea	70	100	100
Zone C			
Bedrock and other deposits	Unknown	Unknown	Unknown
Zone D			
Buellton Upland Subarea (Eastern Portion)	0	1,100	1,100
Zone E			
Santa Ynez Upland Subarea (District Portion)	2,480	3,900	3,900
Zone F			
Santa Rita Upland Subarea	260	0	0
DISTRICT TOTALS	**4,540 ±**	**8,600 ±**	**8,600 ±**

Overdraft is based upon annual estimates of change in groundwater storage.

Estimates of accumulated overdraft based upon estimated groundwater storage depletions are shown on Table 21. As of March 31, 2021, there were 4,981 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 10,254 acre-feet in the Above Narrows Account in Lake Cachuma to off-set the accumulated overdraft in the Santa Ynez River alluvium.

5.8. GROUNDWATER QUALITY

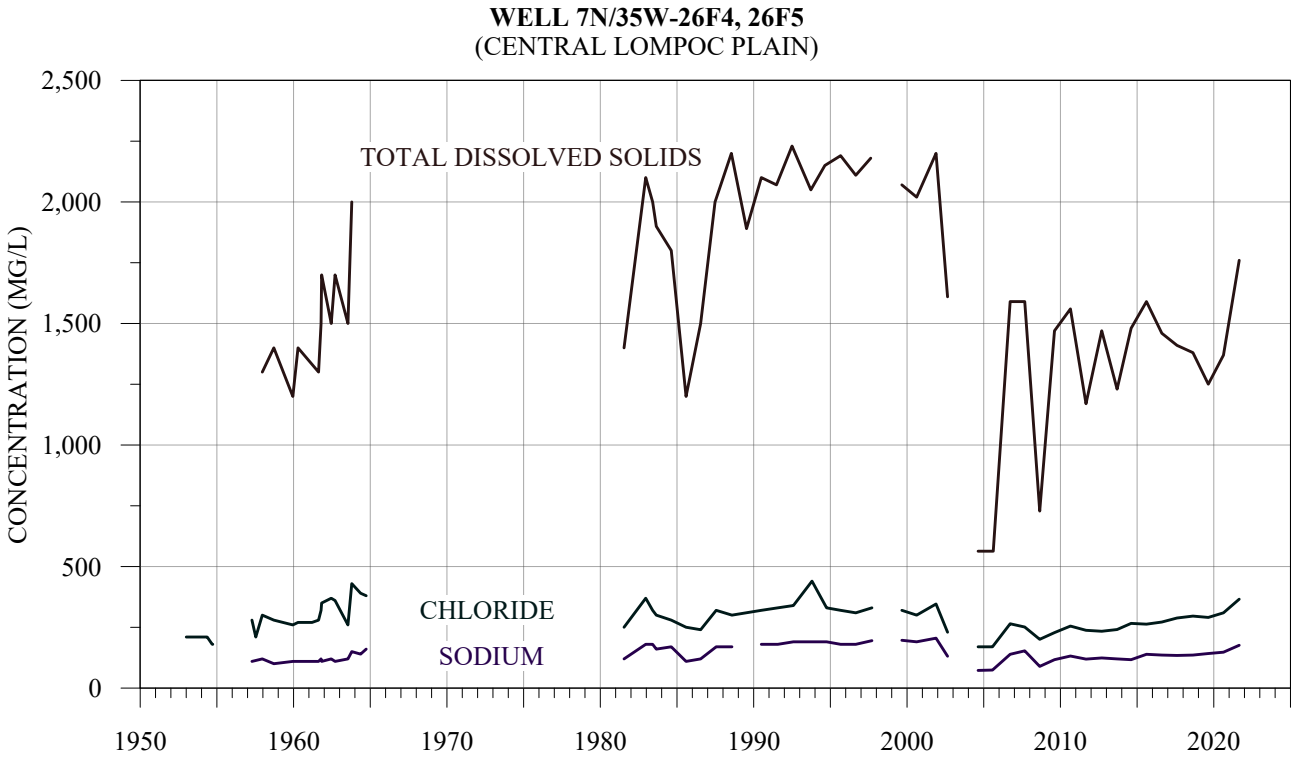
High concentrations of dissolved solids along the coast have been attributed by the USGS to downward leakage of brackish water from the overlying Santa Ynez River estuary. Graphs showing total dissolved solids, chloride and sodium concentrations of water from two wells located in the Lompoc Plain are presented on Figure 8. One of the wells (7N/35W-17K20) is located about one mile inland from the ocean. Based on its location, this well can be used to monitor potential sea water intrusion.

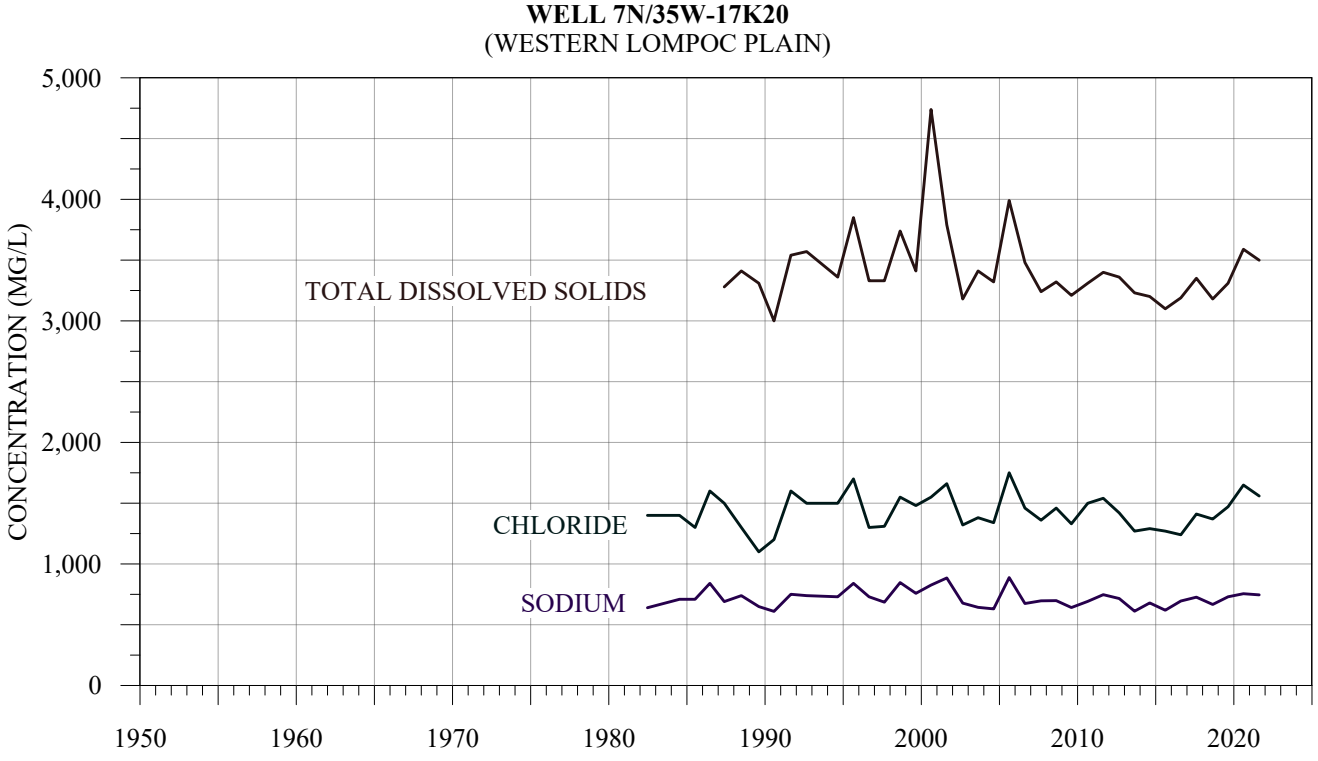
TABLE 21
ESTIMATED ACCUMULATED OVERDRAFT OF PRINCIPAL SOURCES OF GROUNDWATER WITHIN THE DISTRICT
(Acre-Feet)

Principal Source of Groundwater	Accumulated Overdraft Through Preceding Year (2020-21)	Accumulated Overdraft Through Current Year (2021-22)
Zone A		
Santa Ynez River Alluvium (Subarea is replenished annually. Some shortages in supply during drought periods)	15,300	13,800
Zone B		
Lompoc Plain Subarea	15,300	18,100
Lompoc Upland Subarea	36,700	37,400
Lompoc Terrace Subarea	800	900
Zone C		
Bedrock and other deposits	Unknown	Unknown
Zone D		
Buellton Upland Subarea (Eastern Portion)	2,000	3,100
Zone E		
Santa Ynez Upland Subarea (District Portion)	62,400	66,300
Zone F		
Santa Rita Upland Subarea	17,200	14,200
DISTRICT TOTALS	**149,700 ±**	**153,800 ±**

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

GRAPHS SHOWING TOTAL DISSOLVED SOLIDS, CHLORIDE AND SODIUM CONCENTRATIONS IN GROUNDWATER FROM SELECTED WELLS LOCATED IN THE LOMPOC PLAIN SUBAREA





Appendix A

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

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Appendix A

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

Implementation of a groundwater charge within the District requires an engineering investigation report on the groundwater 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 groundwater 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 groundwater 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 groundwater supplies of the District for the ensuing water year;

7. The amount of water other than agricultural water to be withdrawn from the groundwater 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 groundwater 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 groundwater or surface water supplies of the District are invited to submit evidence concerning the groundwater and surface water supplies of the District. The Board thereafter makes findings and determinations relating to the status of water supplies and groundwater 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 groundwater charge is levied.

The Board must then establish the groundwater charge to be levied in any zone or zones and proceed to assess such charge against all persons operating groundwater 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 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 groundwater 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 groundwater charge is payable to the District on or before the last date that the water production statement is due, January 31 and July 31.

Appendix B

HISTORICAL GROUNDWATER CHARGE RATES

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Appendix B

HISTORICAL GROUNDWATER CHARGE RATES

(Dollars per Acre-Foot)

Fiscal 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 GROUNDWATER CHARGE RATES

(Dollars per Acre-Foot)

Fiscal 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 GROUNDWATER CHARGE RATES

(Dollars per Acre-Foot)

Fiscal 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
2017-18	Zone A	4.85	16.98	9.70
	Zone B	4.85	16.98	9.70
	Zone C	4.85	16.98	9.70
	Zone D	4.85	16.98	9.70
	Zone E	4.85	16.98	9.70
	Zone F	4.85	16.98	9.70
2018-19	Zone A	7.15	25.00	14.30
	Zone B	7.15	25.00	14.30
	Zone C	7.15	25.00	14.30
	Zone D	7.15	25.00	14.30
	Zone E	7.15	25.00	14.30
	Zone F	7.15	25.00	14.30
2019-20	Zone A	7.15	25.00	14.30
	Zone B	7.15	25.00	14.30
	Zone C	7.15	25.00	14.30
	Zone D	7.15	25.00	14.30
	Zone E	7.15	25.00	14.30
	Zone F	7.15	25.00	14.30
2020-21	Zone A	7.15	25.00	14.30
	Zone B	7.15	25.00	14.30
	Zone C	7.15	25.00	14.30
	Zone D	7.15	25.00	14.30
	Zone E	7.15	25.00	14.30
	Zone F	7.15	25.00	14.30
2021-22	Zone A	7.40	26.00	14.80
	Zone B	7.40	26.00	14.80
	Zone C	7.40	26.00	14.80
	Zone D	7.40	26.00	14.80
	Zone E	7.40	26.00	14.80
	Zone F	7.40	26.00	14.80

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Appendix C

ADDITIONAL STREAMFLOW RECORDS
SANTA YNEZ RIVER BASIN

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Appendix C

ADDITIONAL STREAMFLOW RECORDS
SANTA YNEZ RIVER BASIN

(Acre-Feet)

Water Year (Oct.-Sept.)	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
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		

Appendix C

ADDITIONAL STREAMFLOW RECORDS
SANTA YNEZ RIVER BASIN

(Acre-Feet)

Water Year (Oct.-Sept.)	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
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
2017	463		20,212		18,652	626	44,664
2018	0		2,078		9,315	0	401
2019	180		21,435		14,179	197	61,195
2020	57		4,536		13,510	1	14,091
2021	0		452		9,139	0	0

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

Appendix D

WATER RIGHTS RELEASES

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Appendix D

2021 WATER RIGHTS RELEASES (WRR)
THROUGH BRADBURY DAM OUTLET WORKS

USBR Date of Record[a] (Start Time)	USBR Date of Record[a] (End Time)	USBR Release (acre-feet)	USBR Release (cfs)	Notes
8/2/2021 8:00	8/3/2021 8:00	44.4	22.4	First day; ramping release up over 4 days
8/3/2021 8:00	8/4/2021 8:00	71.3	35.9	
8/4/2021 8:00	8/5/2021 8:00	101.2	51.0	
8/5/2021 8:00	8/6/2021 8:00	153.0	77.1	
8/6/2021 8:00	8/7/2021 8:00	179.7	90.6	Hold at 90 cfs for 6 days
8/7/2021 8:00	8/8/2021 8:00	182.7	92.1	
8/8/2021 8:00	8/9/2021 8:00	180.7	91.1	
8/9/2021 8:00	8/10/2021 8:00	180.7	91.1	
8/10/2021 8:00	8/11/2021 8:00	180.6	91.1	
8/11/2021 8:00	8/12/2021 8:00	180.7	91.1	
8/12/2021 8:00	8/13/2021 8:00	166.7	84.0	Changes in release: 90 to 60 cfs
8/13/2021 8:00	8/14/2021 8:00	126.9	64.0	
8/14/2021 8:00	8/15/2021 8:00	122.0	61.5	
8/15/2021 8:00	8/16/2021 8:00	121.9	61.5	
8/16/2021 8:00	8/17/2021 8:00	88.1	44.4	Changes in release: 60 to 40 cfs
8/17/2021 8:00	8/18/2021 8:00	82.1	41.4	
8/18/2021 8:00	8/19/2021 8:00	64.1	32.3	Changes in release: 40 to 21 cfs
8/19/2021 8:00	8/20/2021 8:00	48.1	24.3	
8/20/2021 8:00	8/21/2021 8:00	42.2	21.3	
8/21/2021 8:00	8/22/2021 8:00	44.2	22.3	
8/22/2021 8:00	8/23/2021 8:00	42.1	21.2	
8/23/2021 8:00	8/24/2021 8:00	43.2	21.8	
8/24/2021 8:00	8/25/2021 8:00	42.1	21.2	
8/25/2021 8:00	8/26/2021 8:00	43.2	21.8	
8/26/2021 8:00	8/27/2021 8:00	43.1	21.7	
8/27/2021 8:00	8/28/2021 8:00	42.1	21.2	
8/28/2021 8:00	8/29/2021 8:00	43.2	21.8	
8/29/2021 8:00	8/30/2021 8:00	42.1	21.2	
8/30/2021 8:00	8/31/2021 8:00	43.1	21.7	
8/31/2021 8:00	9/1/2021 8:00	42.2	21.3	
9/1/2021 8:00	9/2/2021 8:00	43.1	21.7	
9/2/2021 8:00	9/3/2021 8:00	42.1	21.2	
9/3/2021 8:00	9/4/2021 8:00	42.1	21.2	
9/4/2021 8:00	9/5/2021 8:00	44.1	22.2	
9/5/2021 8:00	9/6/2021 8:00	42.2	21.3	
9/6/2021 8:00	9/7/2021 8:00	42.1	21.2	
9/7/2021 8:00	9/8/2021 8:00	42.1	21.2	
9/8/2021 8:00	9/9/2021 8:00	43.1	21.7	
9/9/2021 8:00	9/10/2021 8:00	42.1	21.2	
9/10/2021 8:00	9/11/2021 8:00	42.1	21.2	
9/11/2021 8:00	9/12/2021 8:00	43.1	21.7	
9/12/2021 8:00	9/13/2021 8:00	43.0	21.7	

Appendix D

2021 WATER RIGHTS RELEASES (WRR)
THROUGH BRADBURY DAM OUTLET WORKS

USBR Date of Record[a] (Start Time)	USBR Date of Record[a] (End Time)	USBR Release (acre-feet)	USBR Release (cfs)	Notes
9/13/2021 8:00	9/14/2021 8:00	42.1	21.2	
9/14/2021 8:00	9/15/2021 8:00	42.1	21.2	
9/15/2021 8:00	9/16/2021 8:00	42.1	21.2	
9/16/2021 8:00	9/17/2021 8:00	43.1	21.7	
9/17/2021 8:00	9/18/2021 8:00	42.0	21.2	
9/18/2021 8:00	9/19/2021 8:00	43.1	21.7	
9/19/2021 8:00	9/20/2021 8:00	42.0	21.2	
9/20/2021 8:00	9/21/2021 8:00	42.1	21.2	
9/21/2021 8:00	9/22/2021 8:00	42.0	21.2	
9/22/2021 8:00	9/23/2021 8:00	42.1	21.2	
9/23/2021 8:00	9/24/2021 8:00	43.0	21.7	
9/24/2021 8:00	9/25/2021 8:00	42.0	21.2	
9/25/2021 8:00	9/26/2021 8:00	41.1	20.7	Begin gradual rampdown
9/26/2021 8:00	9/27/2021 8:00	39.0	19.7	Changes in release: 21 to 20 cfs
9/27/2021 8:00	9/28/2021 8:00	39.0	19.7	
9/28/2021 8:00	9/29/2021 8:00	39.0	19.7	
9/29/2021 8:00	9/30/2021 8:00	39.1	19.7	
9/30/2021 8:00	10/1/2021 8:00	38.8	19.6	
10/1/2021 8:00	10/2/2021 8:00	36.7	18.5	Changes in release: 20 to 18 cfs
10/2/2021 8:00	10/3/2021 8:00	36.7	18.5	
10/3/2021 8:00	10/4/2021 8:00	35.7	18.0	
10/4/2021 8:00	10/5/2021 8:00	33.7	17.0	Changes in release: 18 to 17 cfs
10/5/2021 8:00	10/6/2021 8:00	33.7	17.0	
10/6/2021 8:00	10/7/2021 8:00	32.7	16.5	Changes in release: 17 to 16 cfs
10/7/2021 8:00	10/8/2021 8:00	32.7	16.5	
10/8/2021 8:00	10/9/2021 8:00	30.7	15.5	Changes in release: 16 to 15 cfs
10/9/2021 8:00	10/10/2021 8:00	30.8	15.5	
10/10/2021 8:00	10/11/2021 8:00	30.6	15.4	
10/11/2021 8:00	10/12/2021 8:00	27.7	14.0	Changes in release: 15 to 14 cfs
10/12/2021 8:00	10/13/2021 8:00	28.7	14.5	
10/13/2021 8:00	10/14/2021 8:00	26.7	13.5	
10/14/2021 8:00	10/15/2021 8:00	27.7	14.0	
10/15/2021 8:00	10/16/2021 8:00	24.6	12.4	Changes in release: 14 to 12 cfs
10/16/2021 8:00	10/17/2021 8:00	24.7	12.5	
10/17/2021 8:00	10/18/2021 8:00	25.7	13.0	
10/18/2021 8:00	10/19/2021 8:00	21.7	10.9	Changes in release: 13 to 11 cfs
10/19/2021 8:00	10/20/2021 8:00	22.6	11.4	
10/20/2021 8:00	10/21/2021 8:00	21.7	10.9	
10/21/2021 8:00	10/22/2021 8:00	20.6	10.4	End WRR on 10/22; continue releases for fish at 10 cfs
Total Water Rights Releases (Aug 2 - Oct 22)		**4,649 AF**		

a) USBR Date of Record is from 8:00AM previous day to 8:00AM current day.

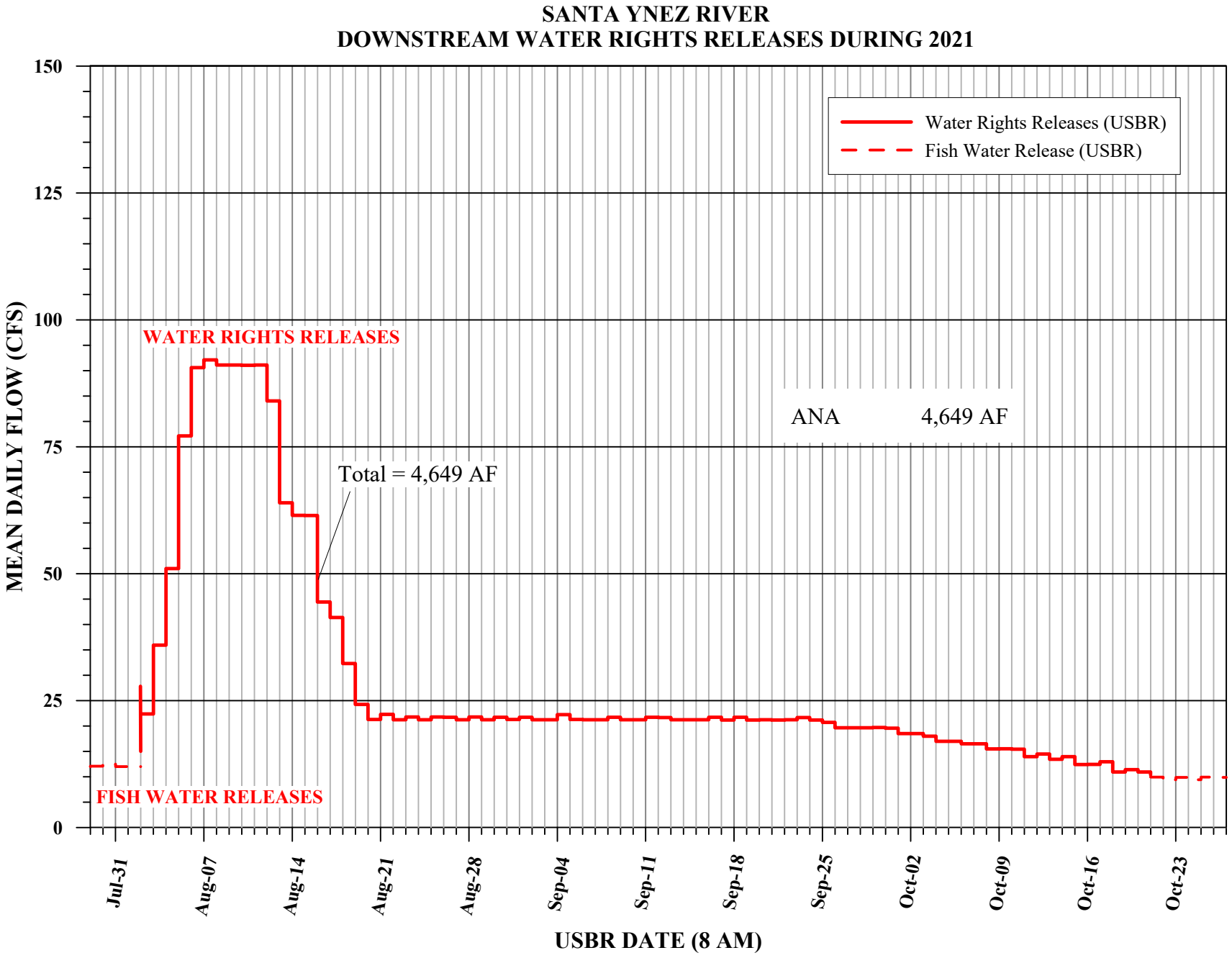
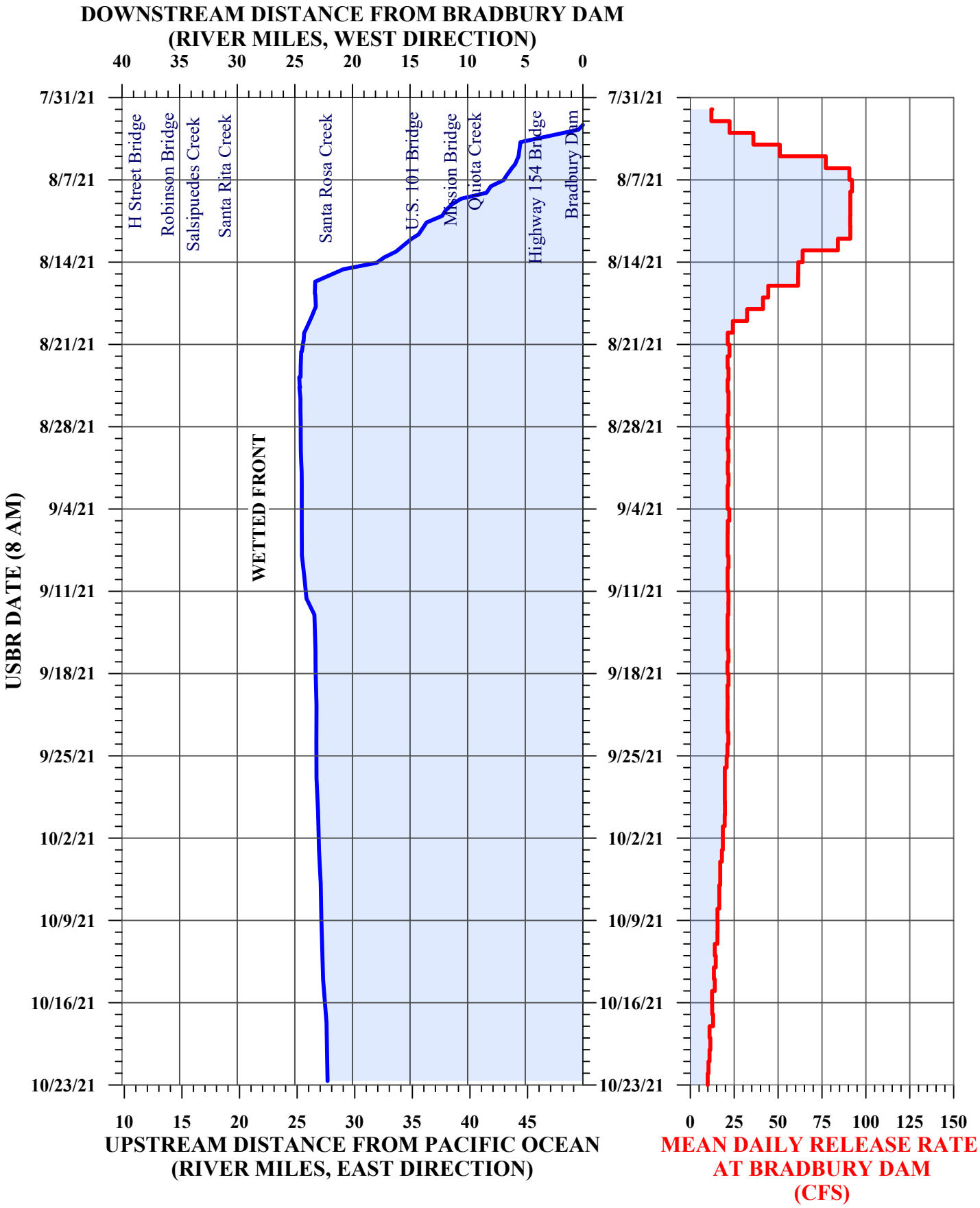

SANTA YNEZ RIVER
DOWNSTREAM WATER RIGHTS RELEASES DURING 2021
MEAN DAILY FLOW (CFS)
150
125
100
75
50
25
0
Water Rights Releases (USBR)
Fish Water Release (USBR)
WATER RIGHTS RELEASES
ANA 4,649 AF
Total = 4,649 AF
FISH WATER RELEASES
Jul-31
Aug-07
Aug-14
Aug-21
Aug-28
Sep-04
Sep-11
Sep-18
Sep-25
Oct-02
Oct-09
Oct-16
Oct-23
USBR DATE (8 AM)

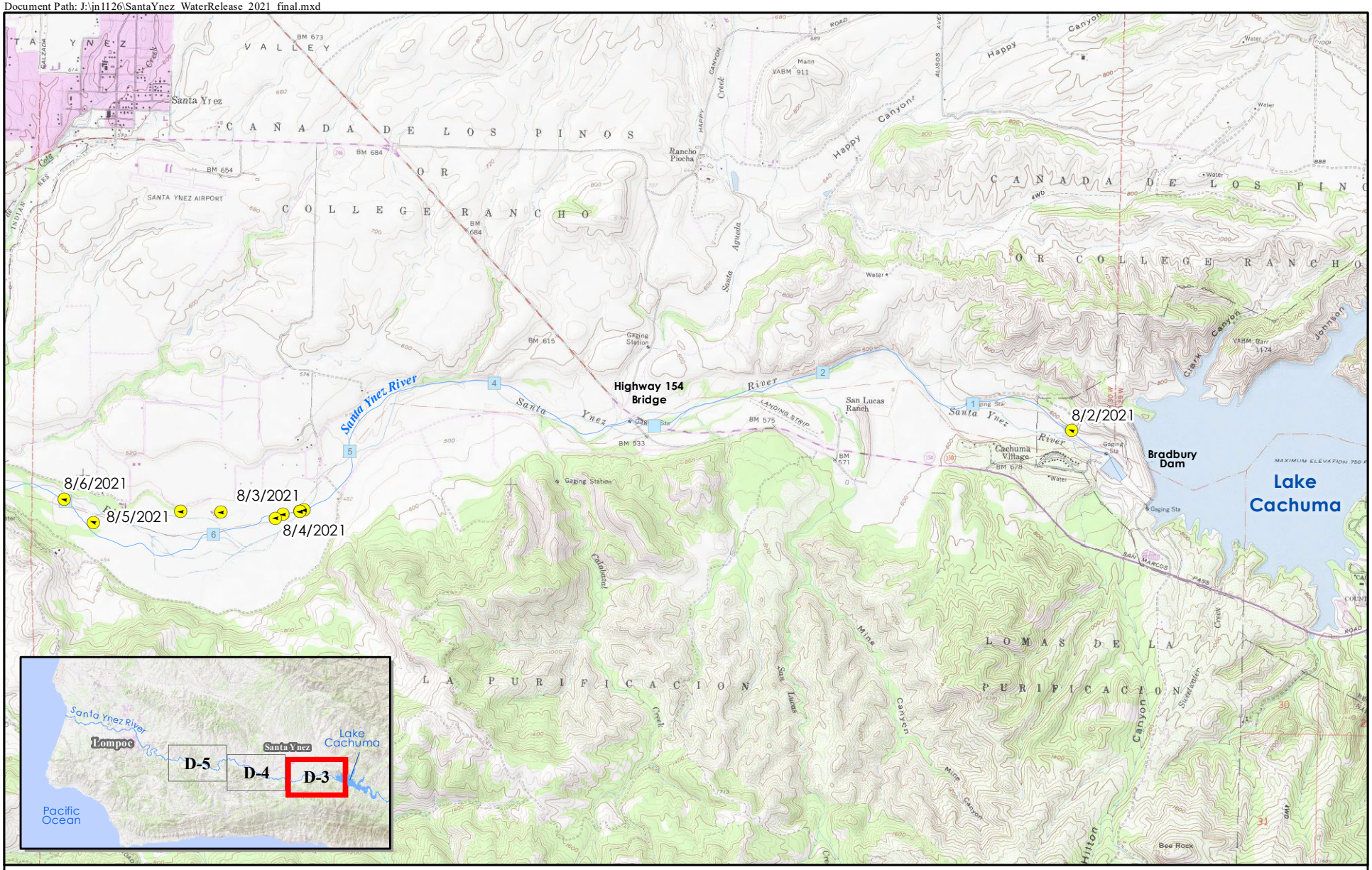
FIGURE D-1

LAKE CACHUMA RELEASE AND WETTED FRONT IN SANTA YNEZ RIVER DURING 2021

August 2 - October 22, 2021



Document Path: J:\jn1126\SantaYnez_WaterRelease_2021_final.mxd



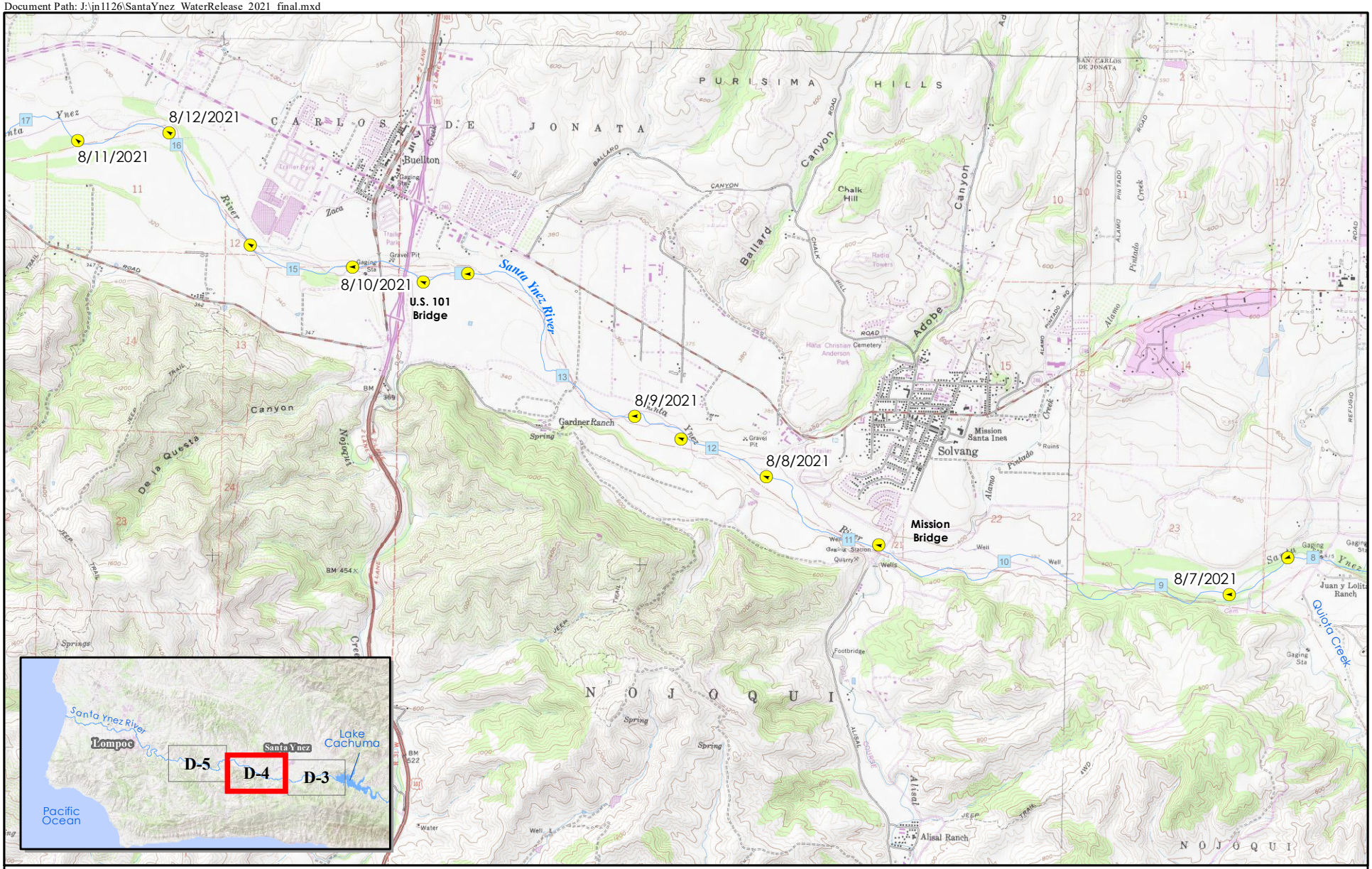
STETSON ENGINEERS INC.

FRONT LOCATION
2021 WATER RELEASE
SANTA YNEZ RIVER

AUGUST 2, 2021 TO OCTOBER 22, 2021

FIGURE D-3

Document Path: J:\jn1126\SantaYnez_WaterRelease_2021_final.mxd



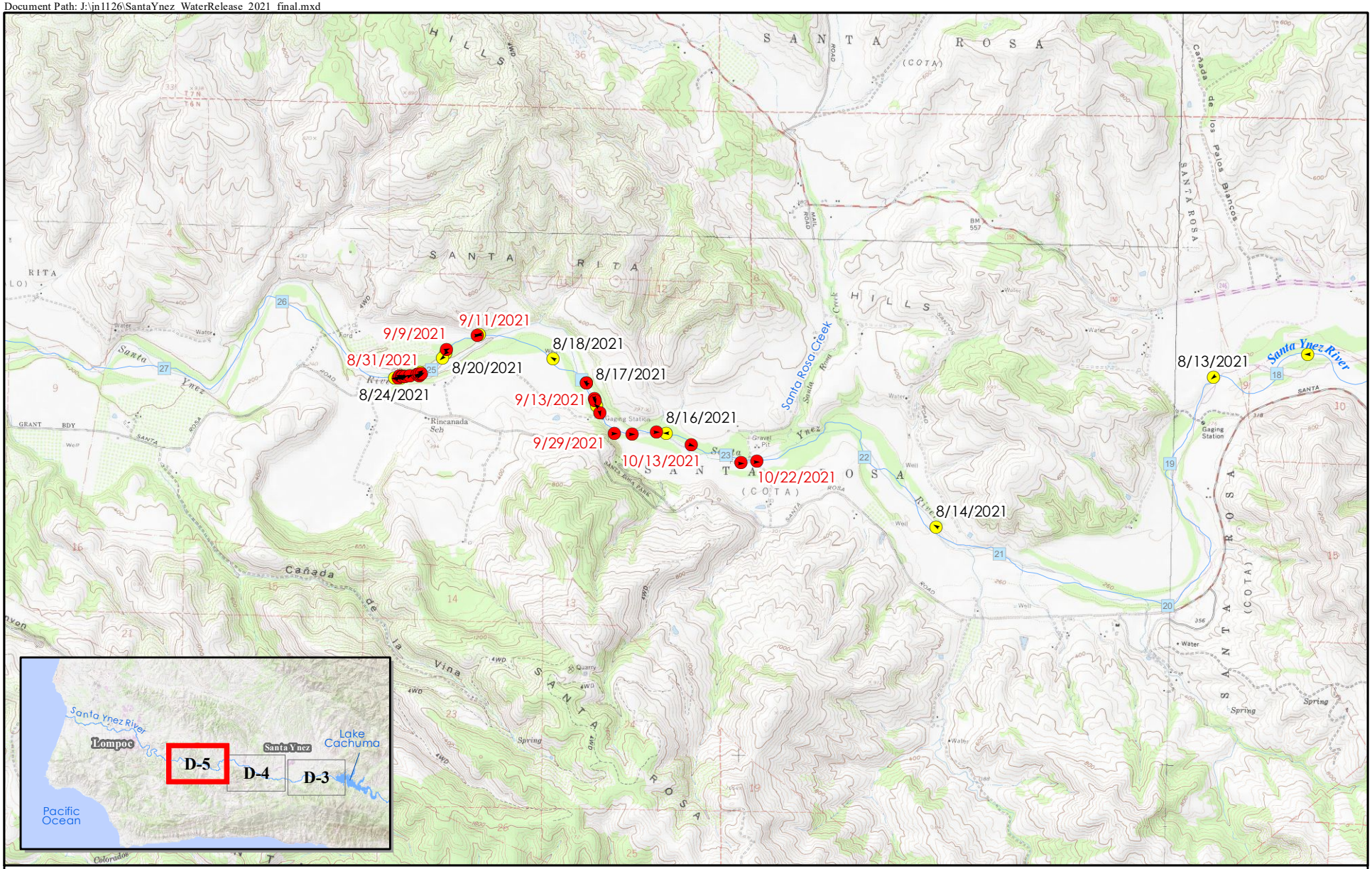
STETSON ENGINEERS INC.

FRONT LOCATION
2021 WATER RELEASE
SANTA YNEZ RIVER

AUGUST 2, 2021 TO OCTOBER 22, 2021

FIGURE D-4

Document Path: J:\jn1126\SantaYnez_WaterRelease_2021_final.mxd



STETSON ENGINEERS INC.

Advance

Retreat

12 River Mile Downstream of Bradbury Dam

FRONT LOCATION
2021 WATER RELEASE
SANTA YNEZ RIVER

AUGUST 2, 2021 TO OCTOBER 22, 2021

0 2,000 4,000 Feet

N

FIGURE D-5

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Appendix E

GENERAL DESCRIPTION OF THE HYDROGEOLOGY OF THE SOURCES OF GROUNDWATER WITHIN THE DISTRICT

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Appendix E

GENERAL DESCRIPTION OF THE HYDROGEOLOGY OF THE SOURCES OF GROUNDWATER WITHIN THE DISTRICT

Santa Ynez River Alluvial Deposits

Along the Santa Ynez River channel groundwater occurs in the river channel deposits and thin bodies of younger alluvium. The groundwater is generally unconfined and in hydrologic continuity with surface water. In the Santa Ynez subarea, 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 wastewater effluent from the City of Solvang wastewater treatment plant, and releases from Lake Cachuma to satisfy downstream water rights.

In the Buellton subarea, 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 subarea). The older deposits probably slowly discharge groundwater to the alluvial deposits. Additional recharge to the river alluvium in the Buellton subarea is primarily from seepage from the Santa Ynez River and tributary creeks. During the irrigation season, some return flow recharges these deposits. Treated wastewater effluent from the City of Buellton wastewater treatment plant also recharges the alluvial groundwater.

The alluvial deposits along the Santa Ynez River in the Santa Rita subarea downstream of the Buellton subarea to the Lompoc Narrows, occur in a very similar condition to those in the Santa Ynez subarea to the extent that they are essentially separated from older unconsolidated deposits by generally non-water bearing consolidated rocks. The alluvial deposits in this subarea 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:

Subarea	Acre-Feet
Santa Ynez Subarea	21,000
Buellton Subarea	27,500
Santa Rita Subarea	56,500
TOTAL	105,000

Santa Ynez Upland Subarea

The Santa Ynez Upland subarea 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 subarea. Relatively non-water bearing rocks separate this subarea from Santa Ynez River alluvium to the south. The northern boundary of the subarea is formed by faulting of consolidated non-water bearing rocks of the San Rafael Mountains against the unconsolidated basin deposits.

The Santa Ynez Upland subarea is comprised of thick unconsolidated deposits primarily of the Paso Robles Formation and the Careaga Sand which are the primary sources of groundwater. Terrace and alluvial deposits are also present in portions of the subarea, but are generally not sources of major groundwater 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 subarea and irrigation return flow including return flow from imported State Water Project water and pumped underflow of the Santa Ynez River.

The U.S. Geological Survey (USGS) (La Freniere and French, 1968) estimated the groundwater in storage in the Santa Ynez Upland groundwater subarea in 1964 to be ten million acre-feet with about one million acre-feet in the upper 200 saturated feet.

Buellton Upland Subarea

The Buellton Upland subarea generally includes the area north of the Santa Ynez River that extends eastward from the Santa Rita Upland subarea to the east of the City of Buellton. For the most part, this subarea 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 Subarea

Groundwater 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 subarea is in hydrologic continuity with the Buellton and Lompoc Upland subareas, but is separated from the Santa Ynez River alluvium by non-water bearing rocks. Groundwater is present in a "shallow" perched condition as well as a deep body. Both bodies appear to contain water under unconfined conditions.

Lompoc Area Subareas

Three groundwater sources are present in the Lompoc area. They include the Lompoc Plain, Lompoc Upland and Lompoc Terrace subareas. The Lompoc Plain subarea 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 subarea. 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 subarea. 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 subarea 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 subarea, the confining deposits are less continuous or absent, allowing movement of groundwater 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 subarea which lies north of the Lompoc Plain. The main water bearing deposits in the subarea are the Paso Robles Formation and Careaga Sand. These deposits extend under the Lompoc Plain to form the lower aquifer. Most of the groundwater in storage occurs in these two formations. Perched groundwater occurs locally in the Orcutt Sand.

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

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

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

Subarea	Groundwater 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

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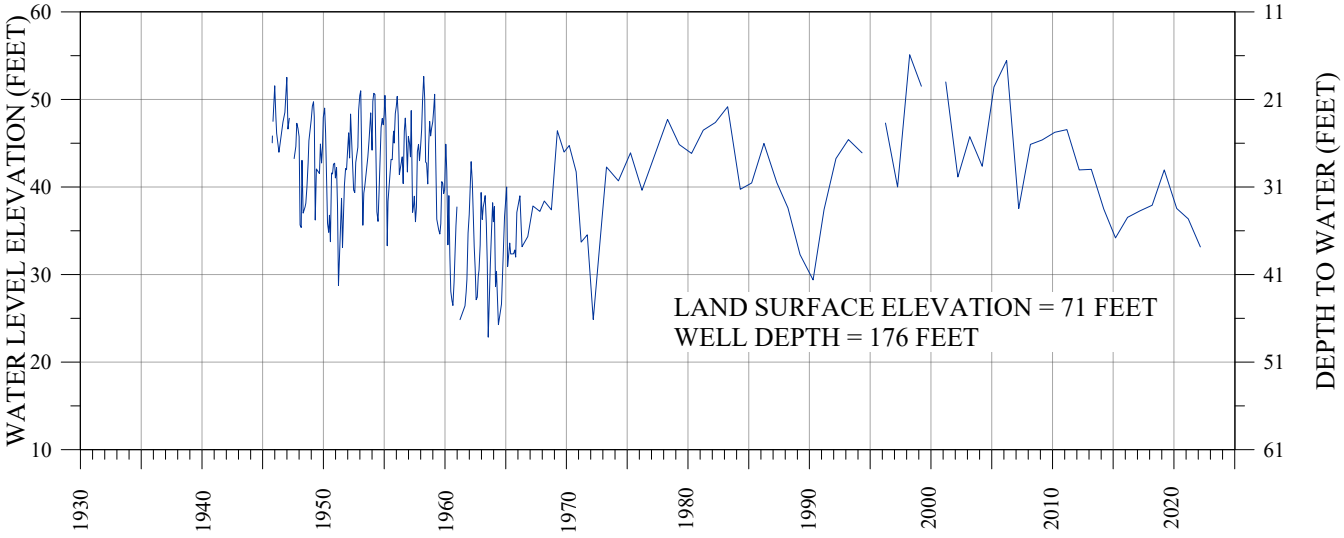
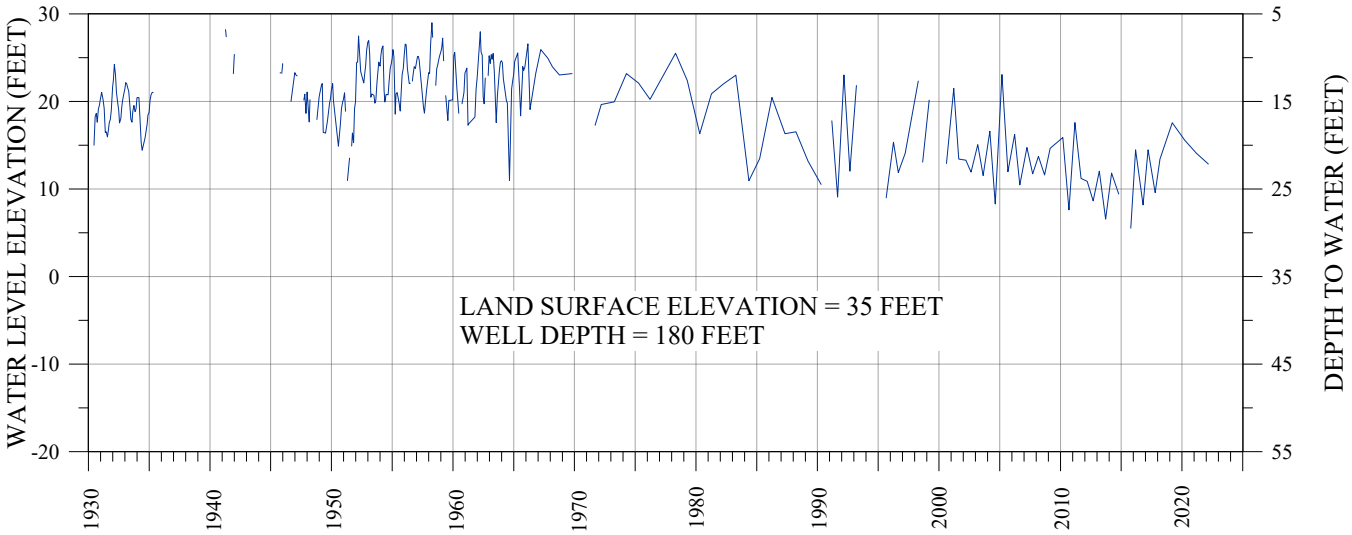
HYDROGRAPHS OF WELLS LOCATED IN THE LOMPOC PLAIN SUBAREA

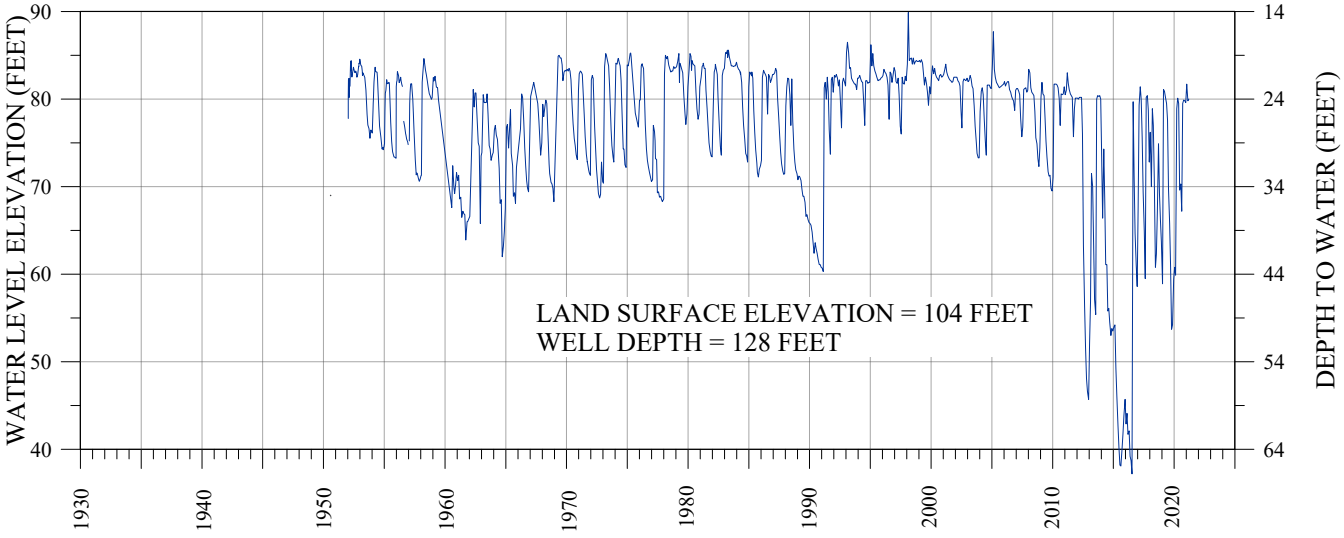
WELL 7N/34W-29E4



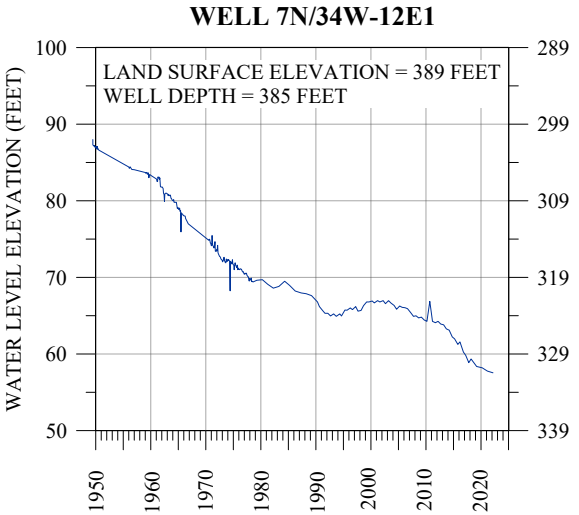
WELL 7N/35W-22J1

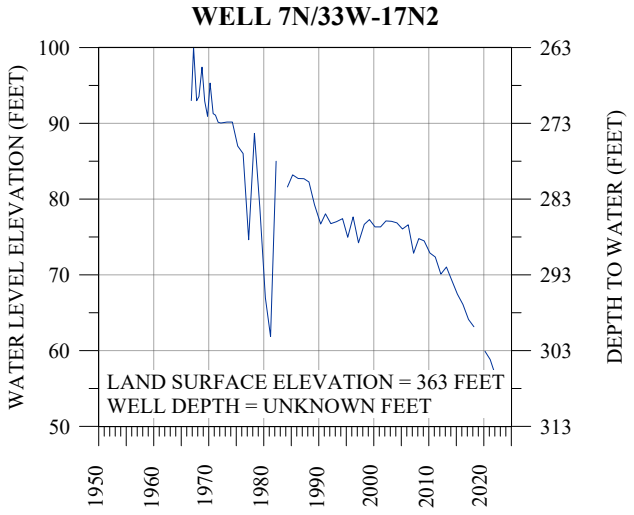


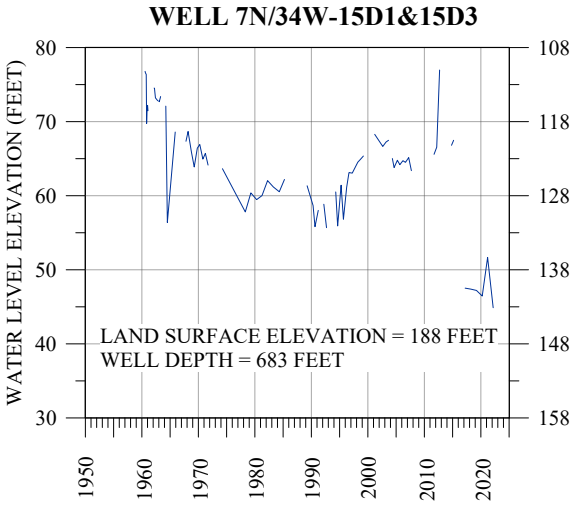
WELL 7N/34W-35K9

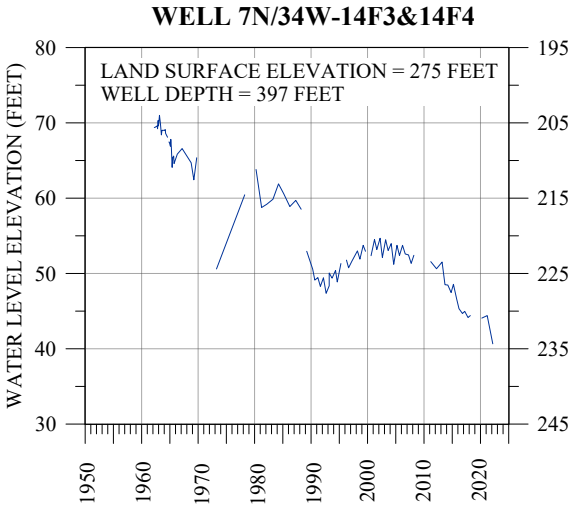


HYDROGRAPHS OF WELLS LOCATED IN THE LOMPOC UPLAND SUBAREA









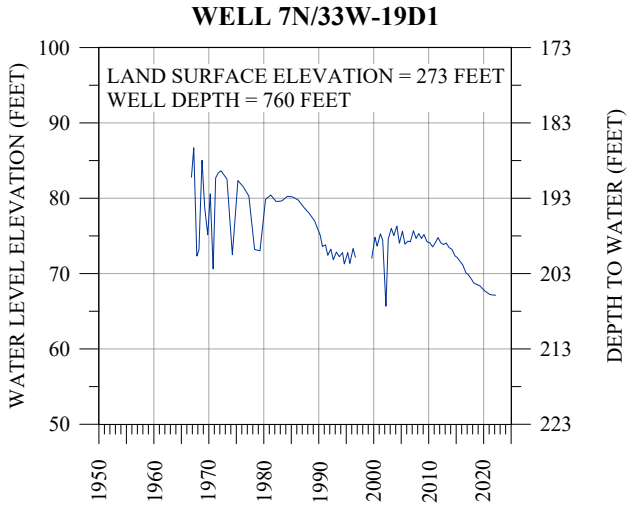
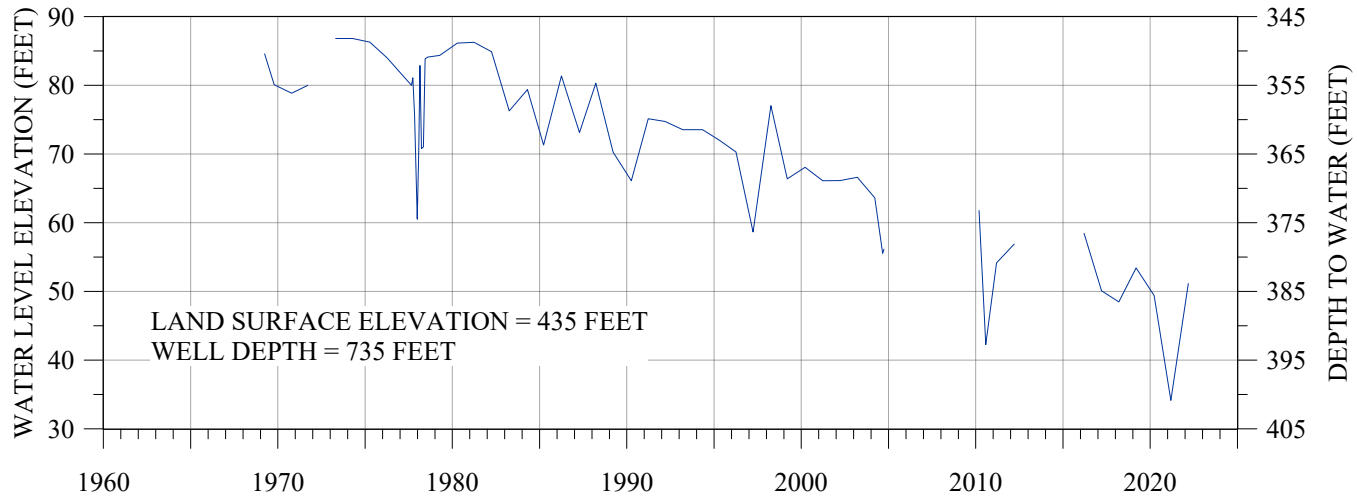


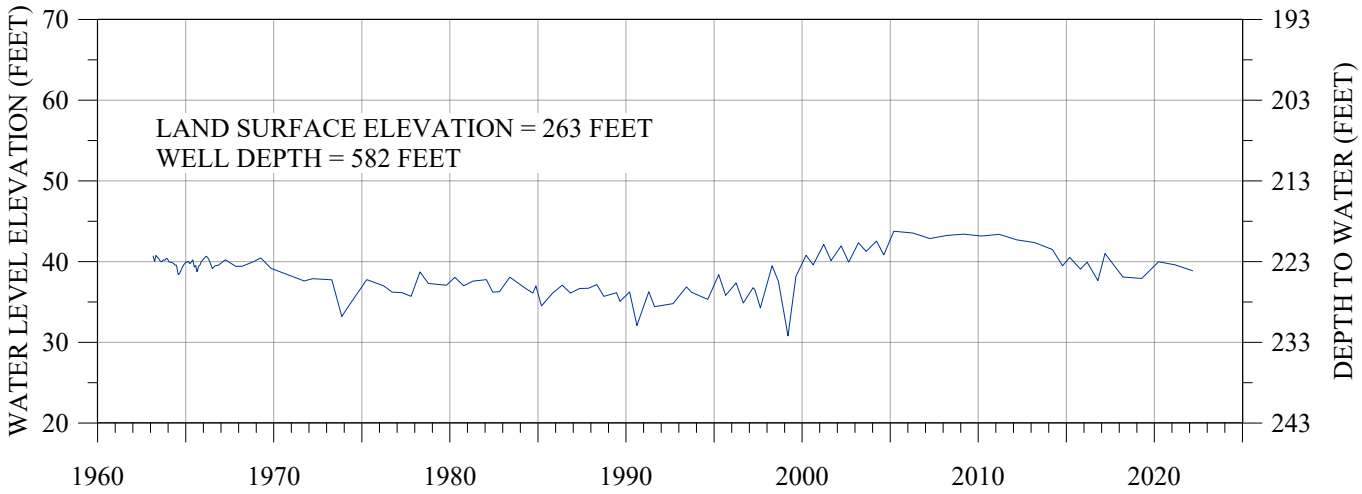
FIGURE F-2

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

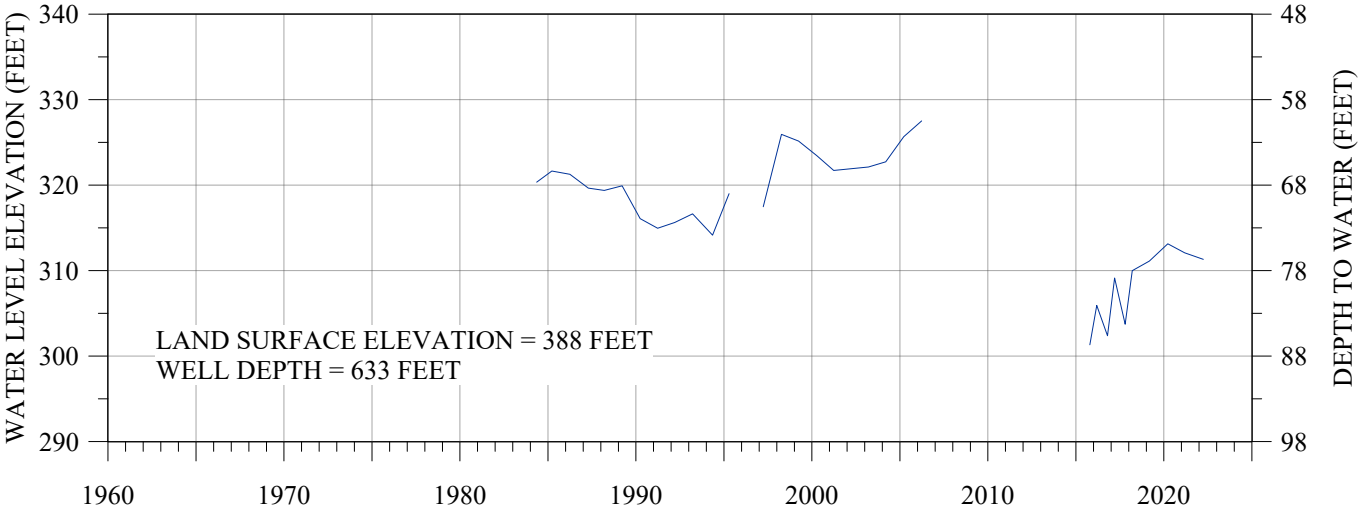
WELL 7N/33W-27G1
SANTA RITA UPLAND



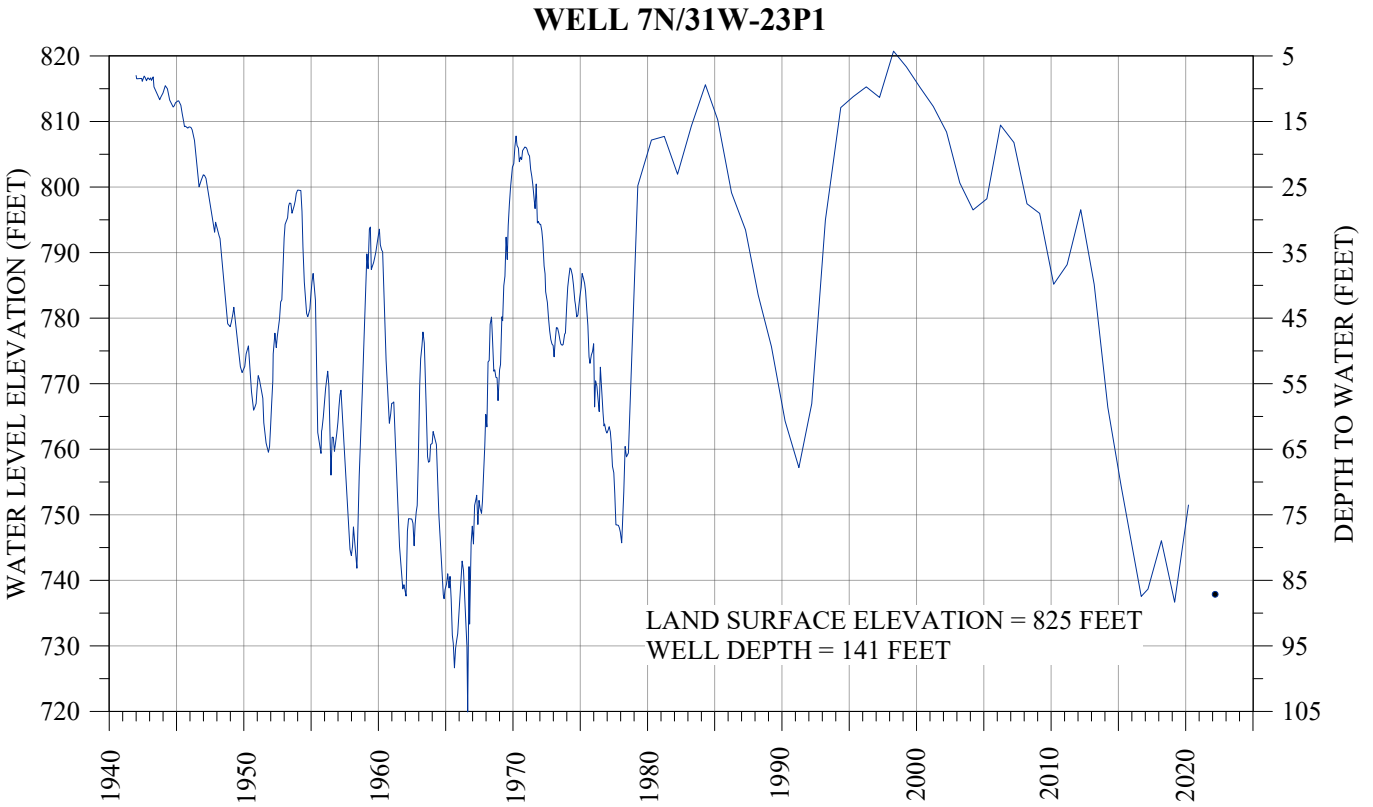
WELL 7N/35W-27P1
LOMPOC TERRACE

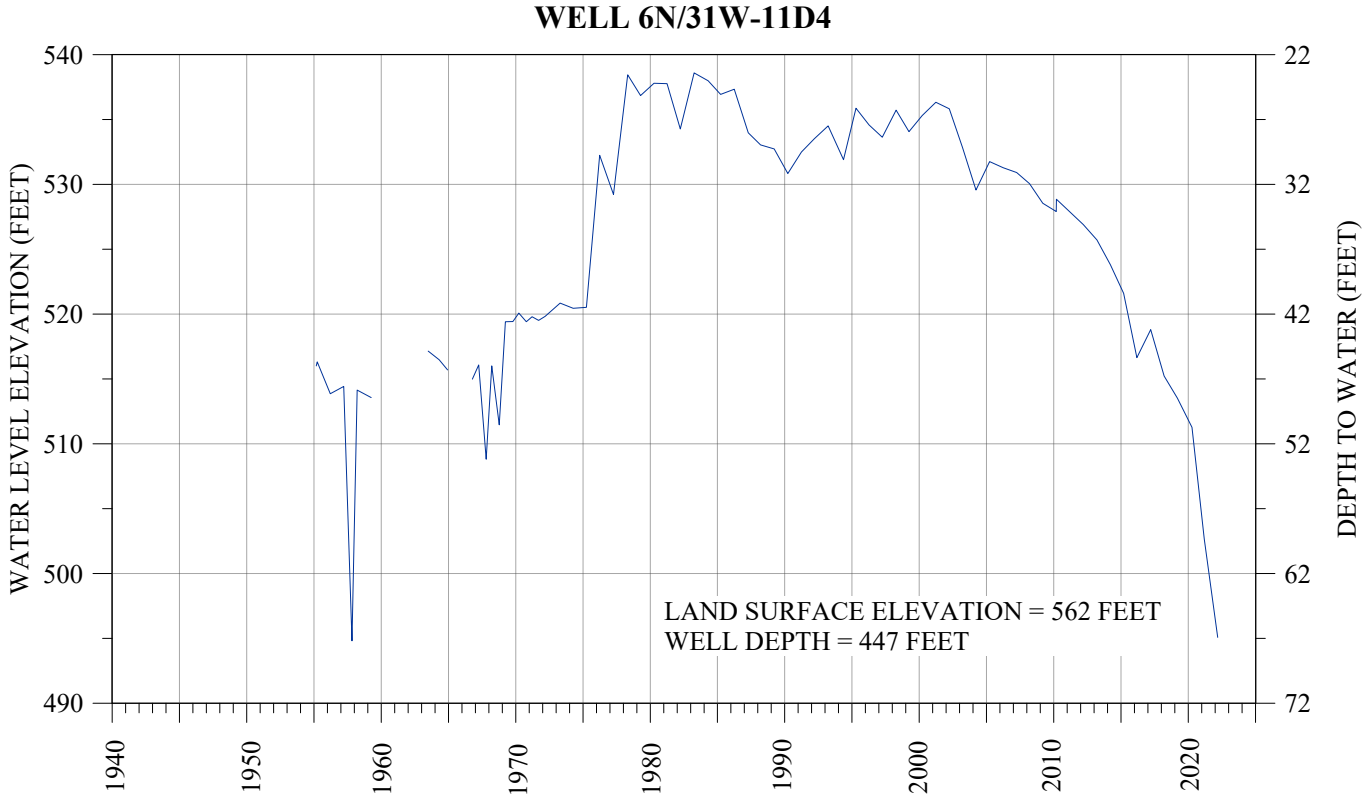


WELL 6N/31W-7F1
BUELLTON UPLAND



HYDROGRAPHS OF WELLS LOCATED IN THE SANTA YNEZ UPLAND SUBAREA





Appendix G

WELL INVENTORY

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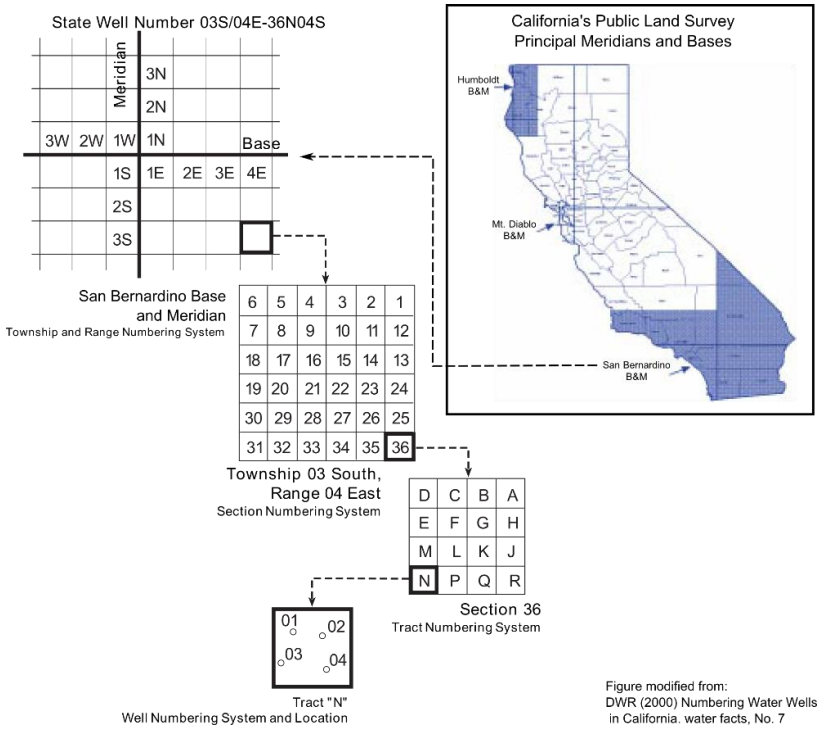
Appendix G

WELL INVENTORY

Wells in this inventory are indexed by their State Well Number which is based on the public land grid. The State Well Number is based on the township, range, and section in which the well is located. Each section is a square mile, and is further subdivided into sixteen 40-acre tracts, which are assigned a letter designation as shown in the figure below. Following that unique number is assigned in the order of drilling. All wells in Santa Ynez use the San Bernardino ("S") base line and meridian, so this letter is omitted. Most land within the Santa Ynez District is former Mexican Land grant, and so the grids are interpolated from sources other than the Bureau of Land Management. In the tables on the following pages, wells in township 8N are highlighted in blue, wells in township 7N are not highlighted, and wells in township 6N are highlighted in gray.

The United States Geological Survey (USGS) 15-digit well number is based on degrees, minutes, and seconds of latitude (6 digits) and longitude (7 digits) and sequential number (2 digits). This is shown on wells that are part of the USGS databases.

California Department of Water Resources' Numbering System for Water Wells



Well Status

Wells may have additional conditions that are noted when water levels were collected, which may influence interpretation of the measurement. These well status used in the following tables are indicated by the following letters.

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

Appendix G
WELL INDEX
RANGE 35W, 34W
2022

Report Location	Map	Well ID #	Locality	SGMA DBID	USGS # Latitude-Longitude	GWL Source	2022 Date	2022 Depth to Water (ft)	2022 Status	2021 Date	2021 Depth to Water (ft)	2021 Status	change
Table 7		7N/35W-15M1	W. of 13th; N. of SYRivr	38	344124120334401	COSB	3/2	102.21		3/2	102.18		-0.03
Table 7		7N/35W-17M1	Surf (near RR xing)	2	344114120353501	COSB	3/2	0.5	F	3/2	3.44		2.94
Table 7		7N/35W-17K20	Surf (old Barrier Bridge)	1	344112120351001	COSB	3/2	13.98		3/2	17.01		3.03
Table 7		7N/35W-18J2	Surf (S. side of Lagoon)	3	344118120355902	COSB	3/2	---		3/2	2.39		---
Table 7		7N/35W-21G2	AFB: 3300' NW of 22M1	39	344041120341101	COSB	3/2	12.38		3/2	14.72		2.34
Table 7		7N/35W-22J1	W Valley: Jordan Farm	4	344021120324101	COSB	3/2	22.15		3/4	20.89		-1.26
Table 7		7N/35W-22M1	W of VAFB entrance N	37	344025120333401	COSB	3/2	14.07		3/2	12.46		-1.61
Table 7		7N/35W-23Q2	W Valley: Jordan Farm	7	344009120320402	COSB	3/2	17.62		3/4	17.9		0.28
Table 7		7N/35W-23B2	N of SY River on VAFB	40	344048120320201	COSB	3/2	25.56		3/2	26.98		1.42
Table 7		7N/35W-23Q3	W Valley: Jordan Farm	8	344009120320403	COSB	3/2	26.47		3/4	22.98		-3.49
Table 7		7N/35W-23Q4	W Valley: Jordan Farm	9	344008120320901	COSB	3/2	26.33		3/4	22.51		-3.82
Table 7		7N/35W-24N3	N Artesia Ave: Beattie	11	344046120321401	COSB	3/2	---	P	3/16	---	P	---
Table 7		7N/35W-24J4	At N end of Douglas Ave	33	344021120303504	COSB	3/1	33.63		3/5	34.23		0.6
Table 7		7N/35W-24K5	DeWolf Ave: Henning	10	344029120310305	COSB	3/2	28.52		3/16	24.28		-4.24
Table 7		7N/35W-25F6	NW of DeWolf & Central	12	343947120310703	COSB	3/2	14.82		3/4	15.38		0.56
Table 7		7N/35W-25F7	NW of DeWolf & Central	13	343947120310702	COSB	3/2	9.18		3/4	15.11		5.93
Table 7		7N/35W-26L1	W of Union Sugar Ave	15	343929120321001	COSB	3/2	6.18		3/4	6.63		0.45
Table 7		7N/35W-26L2	W of Union Sugar Ave	16	343929120321002	COSB	3/2	9.25		3/4	8.76		-0.49
Table 7		7N/35W-26F4	W Valley: Jordan Farm	14	343948120320901	COSB	3/2	35.13		3/4	19.8		-15.33
Table 7		7N/35W-26L4	W of Union Sugar Ave	17	343929120321004	COSB	3/2	17.07		3/4	14.09		-2.98
Figure 8		7N/35W-26F5	---	65	343948120320902	--	3/20	---		3/20	---		---
Table 7		7N/35W-27C1	Ocean Ave & Renwick	18	344001120331401	COSB	3/2	17.72		3/4	16.4		-1.32
Table 8		7N/35W-27P1	S. VAFB (Lom Terrace)	44	343923120332501	COSB	3/3	224.14		3/2	223.4		-0.74
Table 7		7N/35W-35A3	S Artesia Ave	19	343859120314003	COSB	3/2	21.27		3/4	21.4		0.13
Table 7		6N/34W-4G4	---	1151	343805120275501	USBR	3/20	48.6	EST	3/20	50.3	EST	1.7
Table 7		6N/34W-6C4	E of San Pasqual Rd	20	343815120300602	COSB	3/1	68.7		3/4	71.08		2.38
Table 8		7N/34W-12E1	N of Mission Hills	51	344219120250601	COSB	3/3	331.45		3/5	331.23		-0.22
Table 8		7N/34W-14L1	Mission Hills CSD	53	344117120255001	COSB	3/11	221.42	S	3/16	219.99		-1.43
Figure F-2		7N/34W-14F3	---	66	344130120255201	--	3/20	---		3/20	---		---
Table 8		7N/34W-14F4	Mission Hills CSD	52	344126120255201	COSB	3/11	234.35		3/16	230.59		-3.76
Table 8		7N/34W-15E1	Vandnbrg Village CSD	606	344134120272201	COSB	3/11	136.79		3/16	141.79		5
Table 8		7N/34W-15P2	Uplands E of Hyw 1	56	344101120265901	COSB	3/3	260.69		3/5	260.49		-0.2
Table 8		7N/34W-15D3	Vandnbrg Village CSD	602	344142120272301	COSB	3/11	143.13		3/16	136.32		-6.81
Table 7		7N/34W-20K4	USPrison E of Floradale	21	344017120285502	COSB	3/1	33.32	R	3/4	37.10	R	3.78
Table 7		7N/34W-22M6	---	57	344021120271301	USBR	3/20	51.7		3/20	36	EST	-15.7
Table 7		7N/34W-25F3	---	61	343940120245702	USBR	3/20	93.1		3/20	93.9		0.8
Table 7		7N/34W-26H3	Eastern Lompoc Valley	24	343943120252201	COSB	3/1	---	D	3/5	---	D	---
Table 7		7N/34W-26B4	---	58	343957120254501	USBR	3/20	70.9		3/20	69.6		-1.3
Table 7		7N/34W-26Q5	---	60	343924120254501	USBR	3/20	61.8		3/20	61.1		-0.7
Table 7		7N/34W-27G6	E of North A Street	25	343949120264901	COSB	3/2	42.3		3/5	35.57		-6.73
Table 7		7N/34W-27F9	---	1162	--	USBR	3/20	60.3		3/20	44.6		-15.7
Table 7		7N/34W-29E4	E of Floradale: J Fischer	26	343948120292002	COSB	3/1	37.84		3/4	34.64		-3.2
Table 7		7N/34W-29N6	E of Floradale: Bob Witt	27	343926120293001	COSB	3/1	33.96		3/4	36.85		2.89
Table 7		7N/34W-29N7	E of Floradale: Bob Witt	28	343926120293002	COSB	3/1	30.01		3/4	35.88		5.87
Table 7		7N/34W-30L10	SW cor Central & Leege	29	343941120300106	COSB	3/1	30.42		3/4	31.51		1.09
Table 7		7N/34W-31R2	NW of Floradale-Ocean	30	343828120293201	COSB	3/1	37.73		3/4	47.25		9.52
Table 7		7N/34W-32H2	E of Bailey: Wineman	31	343901120284201	COSB	3/1	37.5		3/4	36.15		-1.35
Table 7		7N/34W-34R1	---	63	343821120262701	USBR	3/20	60.2		3/20	56.2		-4
Table 7		7N/34W-35K9	Eastern Lompoc Valley	32	343840120254701	COSB	3/1	27.29		3/5	24.38		-2.91
Table 7		7N/34W-35K9	Eastern Lompoc Valley	32	343840120254701	USBR	3/20	32.6		3/20	27.8		-4.8

Appendix G
WELL INDEX
RANGE 33W, 32W
2022

Report Location	Map	Well ID #	Locality	SGMA DBID	USGS # Latitude-Longitude	GWL Source	2022 Date	2022 Depth to Water (ft)	2022 Status	2021 Date	2021 Depth to Water (ft)	2021 Status	change
Table 8		7N/33W-17M1	Upper Cebada Canyon	47	344100120224901	COSB	3/3	282.36		3/5	280.3	S	-2.06
Table 8		7N/33W-17N2	Upper Cebada Canyon	48	344051120224901	COSB	3/3	306.4		3/5	304.19		-2.21
Table 8		7N/33W-19D1	Lower Cebada Canyon	49	344035120235901	COSB	3/3	205.87		3/5	205.81		-0.06
Table 8		7N/33W-20G1	W of Tularosa Road	50	344025120221601	COSB	3/3	324.82	S	3/5	324.21		-0.61
Table 9		7N/33W-21N1	W Santa Rita Valley	79	343956120214001	COSB	3/8	303.25		3/5	303.24		-0.01
Table 9		7N/33W-21G2	Mid Santa Rita Valley	78	344025120211501	COSB	3/8	358.28		3/5	356.61		-1.67
Table 9		7N/33W-27G1	E Santa Rita Valley	80	343926120201001	COSB	3/8	383.44		3/5	400.46		17.02
Table 9		7N/33W-28D3	W Santa Rita Valley	81	343946120215301	COSB	3/8	307.77		3/5	307.26		-0.51
Table 9		7N/33W-36J1	Drum Cyn - Santa Rosa	82	343824120175201	COSB	3/8	134.77		3/5	132.82		-1.95
Table 9		6N/32W-2Q1	SYR Alluvial; Buellton	91	343719120124901	COSB	3/8	62.28		3/5	61.91		-0.37
Table 9		6N/32W-12K2	---	909	343649120114401	Buellton	4/4	45.9		3/15	37		-8.9
Table 9		7N/32W-31M1	Drum Cyn - Santa Rosa	75	343821120173601	COSB	3/8	81.24		3/5	80.07		-1.17

Appendix G
WELL INDEX
RANGE 31W, 30W, 29W
2022

Report Location	Map	Well ID #	Locality	SGMA DBID	USGS # Latitude-Longitude	GWL Source	2022 Date	2022 Depth to Water (ft)	2022 Status	2021 Date	2021 Depth to Water (ft)	2021 Status	change
Table 10		6N/31W-1P2	West of Refugio Road	112	343727120055801	COSB	---	---		3/10	---		---
Table 10		6N/31W-1P3	West of Refugio Road	113	343728120055101	COSB	3/9	117.96		3/10	111.66		-6.3
Table 10		6N/31W-2K1	Alamo Pintado Road	87	343741120064801	COSB	3/9	55.66	S	3/8	52.44		-3.22
Table 10		6N/31W-3A1	Hilltop West of Ballard	88	343759120072901	COSB	3/9	163.43		3/8	159.15		-4.28
Table 10		6N/31W-4A1	Ballard Cyn nr Solvang	89	343800120083001	COSB	3/9	113.09		3/8	111.27		-1.82
Table 9		6N/31W-7F1	Buellton Upland Well	90	343655120111201	COSB	3/28	76.69		3/8	75.91		-0.78
Table 10		6N/31W-10F1	Fredenborg Cyn: Solvng	83	343656120080601	COSB	3/9	87.51		3/8	84.48		-3.03
Table 10		6N/31W-11D4	Alamo Pintado Road	84	343705120071001	COSB	3/9	66.93		3/8	59.34		-7.59
Table 10		6N/31W-13D1	Santa Ynez: nr Hyw 246	111	343623120061201	COSB	3/9	120.73		3/10	118.45		-2.28
Table 10		7N/31W-23P1	Los Olivos: Matties Tav	93	344002120070001	COSB	3/9	87.14		---	---		---
Table 10		7N/31W-36L2	Refugio Rd N of Baseln	95	343831120055001	COSB	3/9	118.44		3/16	109.22		-9.22
Table 10		8N/31W-36H1	Midland School	98	344354120051501	COSB	3/10	32.44		3/10	47.02		14.58
Table 10		6N/30W-1R3	Happy Canyon	108	343718119592001	COSB	3/10	160.96		3/11	149.44		-11.52
Table 10		6N/30W-7G5	S Ynez off Meadowvale	109	343651120043401	COSB	3/9	90.17		3/10	84.06		-6.11
Table 10		6N/30W-7G6	S Ynez off Meadowvale	110	343651120043402	COSB	3/9	89.67		3/10	83.58		-6.09
Table 10		6N/30W-11G4	Happy Cyn: Westerly	107	343650120002501	COSB	3/28	187.47		3/11	167.00		-20.47
Table 10		7N/30W-16B1	Sedgewick Ranch	116	344127120023301	COSB	3/10	31.43		3/15	26.31		-5.12
Table 10		7N/30W-19H1	SY Upl: Long Cyn Loop	117	344028120041801	COSB	3/10	179.21		3/11	178.85		-0.36
Table 10		7N/30W-22E1	Bar-Go Ranch	118	344023120015101	COSB	3/10	9.47		3/15	9.83	S	0.36
Table 10		7N/30W-24Q1	Starlane Ranch	120	343956119592401	COSB	3/11	54.07		3/11	50.72		-3.35
Table 10		7N/30W-27H1	Bar-Go Ranch	122	343935120010801	COSB	3/10	10.73		3/15	12.63		1.9
Table 10		7N/30W-29D1	SY Upl: Long Cyn Loop	123	343946120035801	COSB	3/10	59.61		3/11	57.02		-2.59
Table 10		7N/30W-30M1	SY Upl: Long Cyn Loop	124	343921120051601	COSB	3/9	275.93	S	3/15	261.86	S	-14.07
Table 10		7N/30W-33M1	300 ft W of Mora Ave	126	343833120030901	COSB	3/28	251.14		3/10	244.22	R	-6.92
Table 10		8N/30W-30R1	Midland School	96	344420120041701	COSB	3/10	23.49		3/10	21.69	S	-1.8
Table 10		6N/29W-6F1	Happy Cyn: Kastner	101	343746119583101	COSB	3/10	19.17		3/11	17.95		-1.22
Table 10		6N/29W-6G1	Happy Cyn: Kastner	102	343746119582201	COSB	3/10	53.97		3/11	52		-1.97
Table 10		6N/29W-7L1	N of Rd to Phillips Rnch	103	343646119583001	COSB	3/11	258.44	F	3/15	230.02		-28.42
Table 10		6N/29W-8P1	Phillips Ranch @ House	104	343632119573301	COSB	3/11	---		---	---		---
Table 10		6N/29W-8P2	Phillips Ranch @ House	105	343632119573302	COSB	3/11	255.58		3/15	242.8		-12.78

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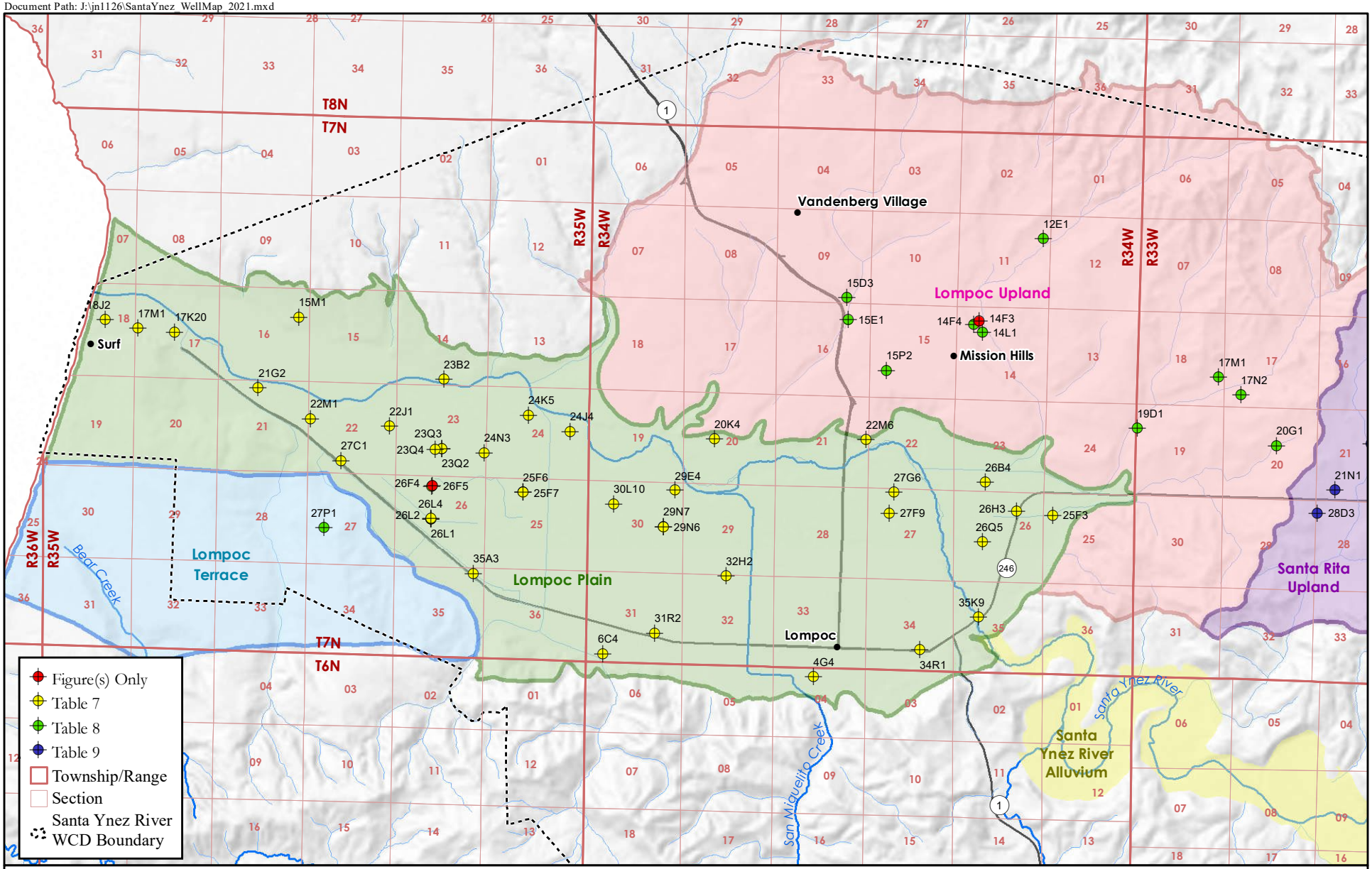

STETSON ENGINEERS INC.

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

FIGURE G-1

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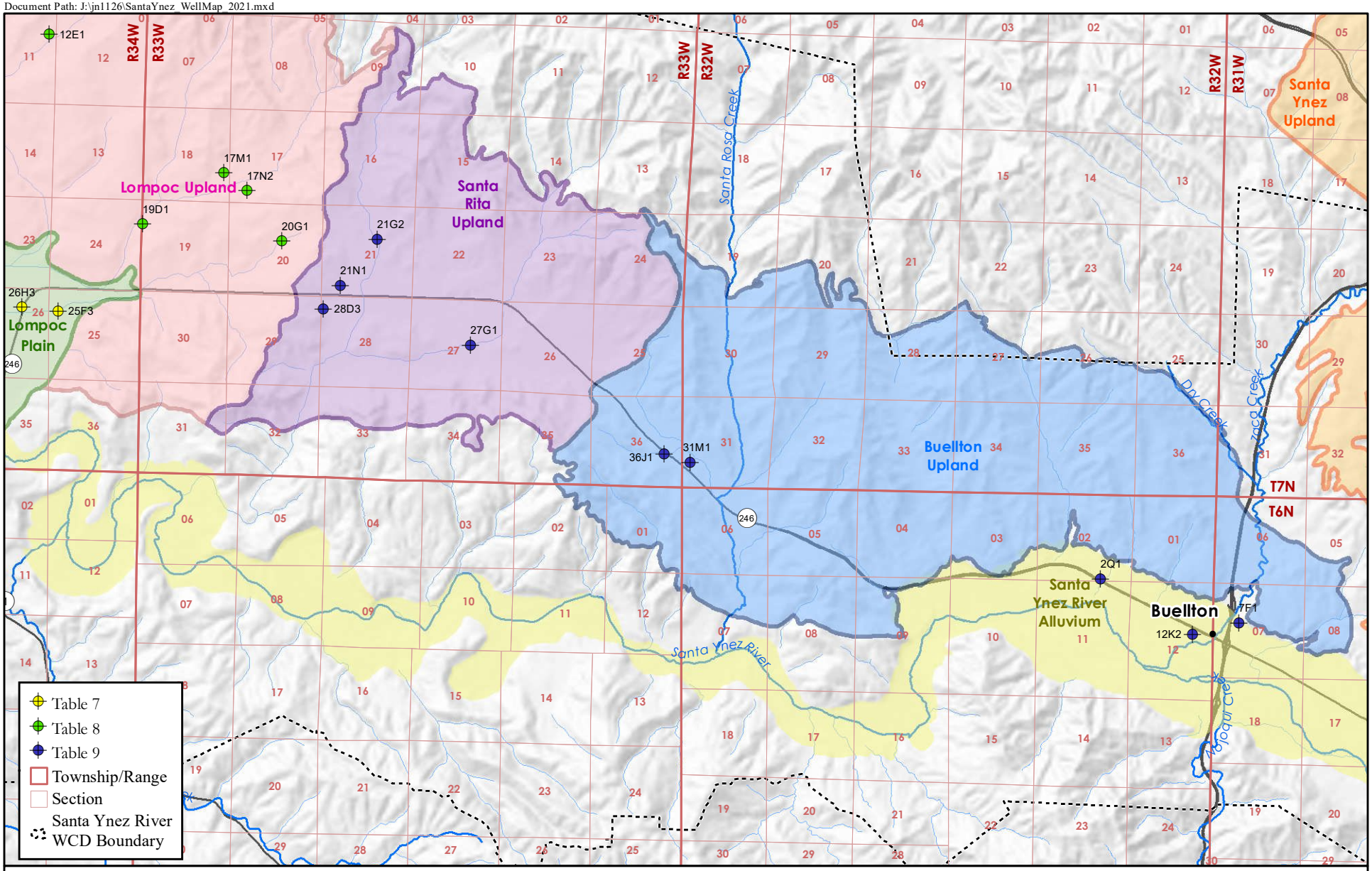

STETSON ENGINEERS INC.

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

0 0.75 1.5 Miles

N

FIGURE G-2

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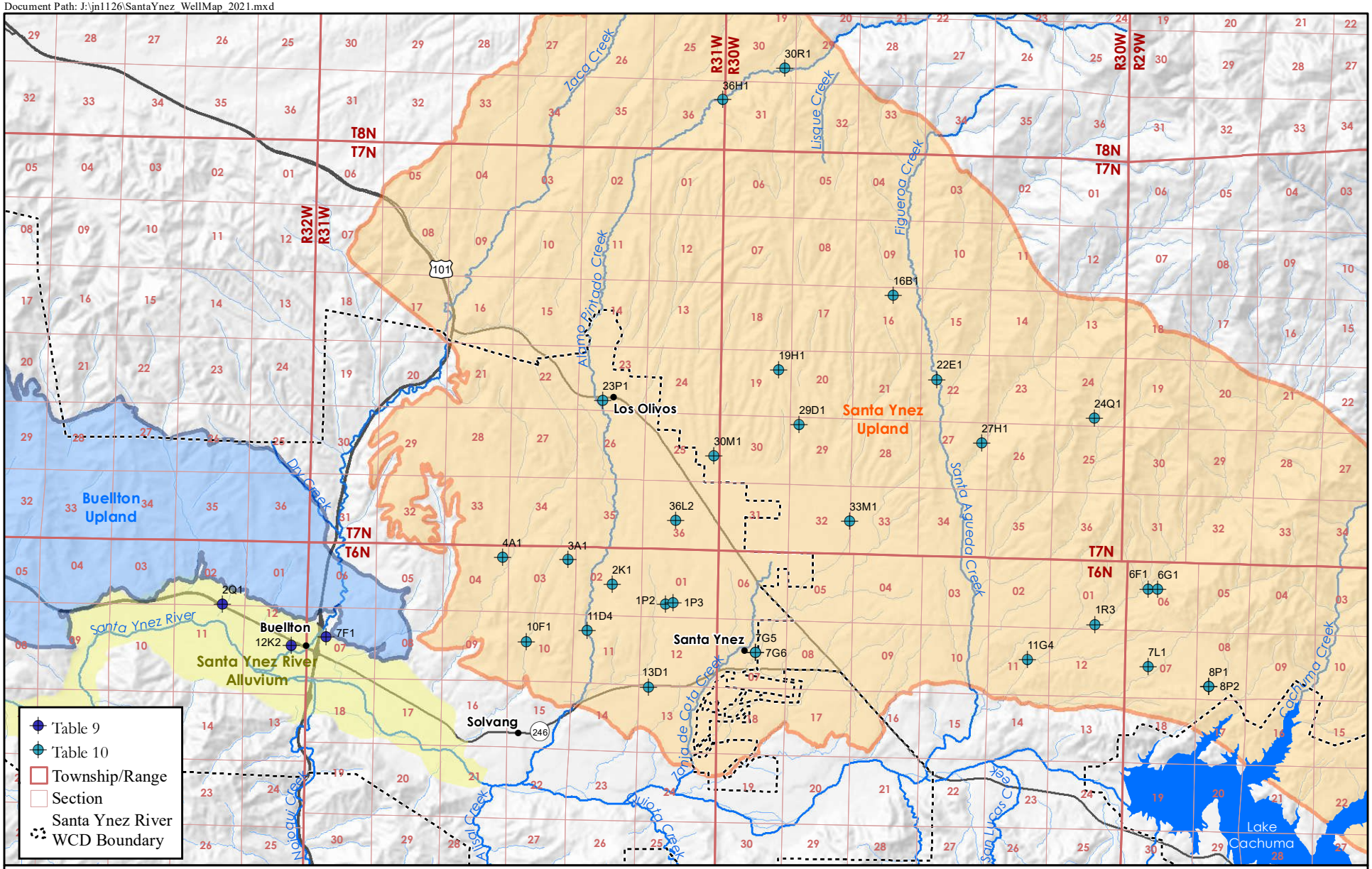

STETSON ENGINEERS INC.

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

FIGURE G-3