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November 20, 2013
Project No. 04.B3033006.10

Carpinteria Valley Water District
Post Office Box 578
Carpinteria, California 93014

Attention: Mr. Charles Hamilton, General Manager

Subject: Carpinteria Groundwater Basin, Annual Report for 2012

Dear Mr. Hamilton:

This annual report presents a summary and description of groundwater conditions in the Carpinteria groundwater basin for calendar year 2012. This represents the 10th annual report that has been prepared to assist the Carpinteria Valley Water District (District) in its ongoing efforts (pursuant to its AB3030 Groundwater Management Plan) to manage the groundwater resources of the basin and provide information on water level and water quality conditions to all users of groundwater in the basin. The intent of the annual report is to provide a brief narrative and graphics that document the "health" of the basin's groundwater resources, trends in groundwater levels and water quality, information on land use, and annual groundwater pumpage. Information on the development of the program, selection of wells to be sampled, and surface water sampling points, etc., is available in prior reports prepared for the District.

Four large maps form an integral part of this report. Plate 1 - Water Level Hydrograph Map, April 2012, depicts wells in the basin used for purposes of water level measurements and to assess changes in groundwater in storage. This map shows the physical limits of the groundwater basin, locations of several key wells, historical variations in water levels, and water level contours during the period of April 2012. Plate 2 - Water Level Hydrograph Map, October 2012 depicts water level contours during October 2012. Plates 3 and 4 depict the location of wells that are used to monitor water quality in the basin. These two maps depict trends of several important water quality constituents for groundwater and surface water that are routinely obtained as part of the semiannual water quality data collection program. The data provide information on the concentration and spatial distribution of total dissolved solids (TDS), nitrate, and chloride. These maps are updated annually and are included in each annual report.

PRECIPITATION

Groundwater recharge occurs by direct infiltration of precipitation, streambed percolation, irrigation return flow, and to a limited extent, by underflow from the "hill and mountain" area. Precipitation in the Carpinteria area for the 2012 calendar water year was recorded at 12.43 inches at the Carpinteria Fire Station, and was about 37 percent below the long-term average. Precipitation data at the Carpinteria Fire Station have been collected continually since 1949, during which average annual precipitation was 19.77 inches. A graph showing the cumulative departure from average precipitation is presented as Figure 1. The departure from average precipitation is the difference between precipitation in a specific year and the average precipitation for the period. Figure 1 depicts the sum of these departures over

time (cumulative). Based on the cumulative departure from average precipitation at this station, there have been a series of cyclic wet and dry periods. Within the period of record, extended dry periods have occurred between 1949 and 1961 and again between 1984 and 1990. The current relatively dry cycle has now lasted from 1999 to 2012.

Groundwater Levels

Water level measurements were made by District staff on a bimonthly basis for approximately 33 wells in the basin during 2012. The locations of these wells are shown on Plates 1 and 2. The water level data were obtained from District staff and hydrographs prepared for 17 key wells, which are shown on Plates 1 and 2. The data from approximately 28 wells were then used to prepare water level elevation contours, which are shown on Plate 1 for the April 2012 period and on Plate 2 for the October 2012 period. The contours are representative of water levels within wells perforated in several depth zones. Therefore, the contours represent a composite of many different depth zones, not water level conditions in a single, common aquifer. As is usual, several wells included in the water-level measurement program or nearby wells were being pumped and the water levels in surrounding wells were influenced by pumping wells at the time of the water level measurements.

During April 2012, the time period presented on Plate 1, an apparent pumping depression was present in the central portion of the basin generally in the vicinity of the District office. The pumping trough was as deep as about 71 feet below sea level in the central portion of the groundwater basin associated with pumpage of the headquarters well at the time of the April 2012 measurement period. At that time, the pumping trough was approximately equal to sea level at the coast, as measured in shallow Well -30D1. Water levels throughout the District fell during the second half of calendar year 2012 in response to below average rainfall.

During October 2012, the time period presented on Plate 2, the apparent pumping trough in the central part of the District continued to be evident, as is common during the fall period and to a greater degree than during April 2012 due to seasonal groundwater pumpage. During the October water level measurements, the headquarters well, which is usually pumping extensively, caused water levels in that portion of the basin to decline to about 65 feet below sea level. The pumping trough lowered water levels in that portion of the basin and also lowered water levels at the coast to approximately 6 feet below below sea level (in Well -30D1). This condition could allow seawater intrusion due to a reversal of the natural seaward groundwater gradient. As in previous years, which have exhibited similar water level declines at the coast, there is no documented evidence of sea water intrusion in the basin.

Water level data from the 20-year period including the years 1993 to 2012 indicate that water levels are commonly higher in the winter and spring due to recharge from precipitation and seasonal reduction in groundwater pumpage, and relatively lower in summer and fall due to pumping of groundwater from wells within the District. In general, the hydrographs presented on Plates 1 and 2 illustrate that during the 6-year period of 2006 through 2012, water levels in Storage Unit No. 1 have locally declined by as much as 15 to 20 feet. Average annual groundwater pumping in the basin over this period was about 3,770 acre-feet per year (afy). During 2012, due to below average precipitation and annual groundwater pumpage in the range of 4,000 afy (refer to Figure 2), water levels in the central part of Storage Unit No. 1 have declined by 5 to 10 feet (refer to Plates 1 and 2) relative to 2011.

Within Storage Unit No. 2 water levels have likewise declined slightly, although the decline of less than 5 feet during 2012 was limited likely due to the very limited number of wells that are monitored in this part of the basin and the limited amounts of groundwater pumped from this storage unit.

Groundwater Use

Groundwater pumpage in the basin occurs both from District production wells (see Plates 1 and 2) and from about 100 private wells. Pumpage from District wells is metered. The District supplies imported water and/or local groundwater to numerous agricultural parcels of known acreage and crop type (lemon, avocado, greenhouse, flower fields). From these metered deliveries, unit water use values (so called determining factors) for various crop types can be used to estimate private groundwater pumpage. For calendar year 2012, unit water values were assigned to land uses based on 2010 land use imagery. Based on these calculations, a private pumpage estimate of 2,896 acre-feet was calculated. Summaries of District groundwater pumpage and imported water amounts for 2012 are included in Appendix A - Supporting Data "Public Water System Statistics".

Groundwater pumpage from the basin by the District in calendar year 2012 was 1,292 acre-feet. Water purchased and imported into the District in calendar year 2012 was 3,356 acre-feet. The volume of groundwater pumpage by the District was approximately 115 percent of the 20-year District average of about 1,039 afy. Groundwater pumpage in the District between calendar years 1993 and 2012 is presented in Figure 2 - Water Use and Precipitation Data, Carpinteria Valley, and in Table 1 - Water Use and Precipitation Data. Imported water volumes (Casitas MWD, State Project Water, and Lake Cachuma water) and seasonal precipitation totals are also provided in Appendix A. As indicated, groundwater pumpage from the basin between 1993 and 2012 has averaged about 3,582 afy, and ranged from as as low as 2,484 afy during 2001, to as high as 4,088 afy during the current year. Of the groundwater pumped, District pumpage has typically been about one-quarter to one-third of the total, which was the case during 2012.

Table 1. Water Use and Precipitation Data

Calendar Year	Rainfall (inches)	Estimated Private Pumpage (acre-feet)	Metered CVWD Pumpage (acre-feet)	Imported Water (acre-feet)	Total Pumpage (acre-feet)	District Use (percent)
1993	32.62	2,434	1,524	2,808	3,958	39
1994	15.02	2,780	1,305	3,206	4,085	32
1995	41.35	2,418	1,340	2,995	3,758	36
1996	25.86	2,597	1,410	2,896	4,007	35
1997	19.98	2,504	1,242	3,429	3,746	33
1998	41.35	2,481	469	3,549	2,950	16
1999	8.91	2,400 [1]	535	3,907	2,935	18
2000	18.99	2,400 [1]	1,210	2,959	3,610	34
2001	24.23	2,400 [1]	84	3,497	2,484	3
2002	12.28	3,116	662	3,774	3,778	18
2003	14.62	2,596	446	3,769	3,042	15
2004	19.42	2,698	1,265	3,884	3,963	32
2005	27.20	2,183	940	3,693	3,123	30
2006	16.86	2,270	1,142	3,147	3,412	33
2007	9.67	2,606	1,340	2,684	3,946	34
2008	19.22	2,865	1,074	2,842	3,939	27
2009	14.39	2,596	1,488	2,835	4,084	36
2010	26.30	2,294	742	3,157	3,036	24
2011	14.56	2,428	1,365	2,673	3,793	36
2012	12.43	2,896	1,192	3,356	4,088	29
Mean	20.76	2,543	1,039	3,253	3,582	28
Maximum	41.35	3,116	2,664	3,907	4,088	39
Minimum	8.91	2,174	84	2,673	2,484	3

Notes: 1) 1999 to 2001 private pumpage estimated based on long-term average.

The estimates of the safe yield for the groundwater basin have been reassessed several times during the past 30 years. Most recently in 2012 Pueblo Water Resources, Inc. completed a modeling study of the District's groundwater basin and arrived at a revised "practical rate of withdrawal," or "operational yield" of the basin of 3,600 to 4,200 afy based on longterm hydrologic conditions. Prior to the most recent estimate, a value of 4,500 to 5,000 afy was considered the "safe yield" of the basin, (GTC, 1976 and 1986). In 2003, the District retained the firm of Integrated Water Resources, Inc. to perform an independent review of this value. The results of that study reasserted that a basin "safe yield" in the range of 4,500 to 5,000 afy was appropriate. Since that time, the District has discontinued reference to "safe yield" but has instead referred to an "operational yield," which is understood as a range of long term average annual pumpage at which no undesirable effects will occur.

The total groundwater pumpage has not exceeded the prior "safe yield" range of 4,500 to 5,000 afy, nor the upper limit of the current "operational yield" of 4,200 afy during the last 20 years. Further, the average pumpage of 3,582 afy is below the lower bound of the current "operational yield" of 3,600 afy.

GROUNDWATER QUALITY

Groundwater quality in the Carpinteria basin is monitored by collecting samples from as many as 30 wells and 6 surface water stations on a biannual basis (spring/fall). The data collection program was initiated by the District in early 1999. Laboratory analyses performed included a full range of inorganic chemical constituents typically referred to as "Irrigation Suitability Analysis."

Groundwater quality in the basin continues to be suitable for most uses. As shown on Plates 3 and 4, TDS concentrations for most wells range from 600 to 1,000 milligrams per liter (mg/l).

Of interest, nitrate concentrations (as nitrate) within Well -19MI have been elevated in past years with concentrations of over 400 mg/l in 2005. Since then, nitrate concentrations have declined to as low as 68 mg/l. In 2012, the nitrate concentrations were as high as 337 mg/l. By contrast, nitrate concentration within Well -19E1 was much lower, with a maximum concentration of 16 mg/l during 2012. During 2012, nitrate concentrations in Well -20R4 have moderated slightly from the prior year to about 98 mg/l. Nitrate concentrations within Well -28F7 (Lyons Well) have been rising modestly for the past several years, but seems to have moderated since about 2008 to a value of approximately 30 mg/l in 2012 (expressed as nitrate).

During 2012, chloride concentrations within Well -19MI and adjacent Well -19E1 either near or above 300 mg/l. Chloride concentrations in well -19MI have remained relatively steady and elevated for the past several years. Well -19M1 is 204 feet deep and likely has very shallow perforations although the actual depth interval is unknown. Well -19E1 is located approximately 900 feet north and is a relatively shallow well. As in past years, comparison of water quality data from the two wells shows that, although chloride concentrations are higher than many monitored wells, neither nitrate nor TDS in Well -19E1 are as elevated as those in Well -19M1.

Chloride concentrations within Well -30D1, located near the coast and originally completed to a depth of 210 feet, have been rising since 2008 from a concentration of less than 30 mg/l to as high as 78 mg/l in 2012. Within the well, neither nitrate nor TDS concentrations have been elevated during this time, relative to wells located in the central portion of the basin. Because the depths of the perforated interval in the well are not known, and because it has been noted that the measured total depth of the well is much shallower than 210 feet, this well is not considered an appropriate “sentinel” well for early warning of seawater intrusion.

Groundwater in the basin is generally characterized as calcium bicarbonate in chemical nature and locally demerited by the presence of elevated nitrate and chloride concentrations in shallow aquifers in Sections 19 and 20 of the basin. Other than the locally high nitrate concentrations in Section 19 and 20, and slightly elevated chloride concentrations in Well -30D1, the groundwater quality appears stable with no long-term trends toward impairment.

SUMMARY AND CONCLUSIONS

Based on the data for 2012 and the preceding years, aquifers in the Carpinteria basin continue to be adequately recharged during average to above average precipitation years, and provide a generally high quality of groundwater for the prevailing usages. During the spring and

fall of 2012 water levels in the central part of Storage Unit No. 1 continued to remain at elevations below sea level. Groundwater pumpage from the basin in 2012 was estimated to be approximately 4,088 afy, which exceeds the lower bound of the "operational yield" estimate of 3,600 afy and is near the upper bound of 4,200 afy. At this rate of pumpage and the continued below-average rainfall that occurred during calendar year 2012, water levels declined compared to the previous year. No adverse water quality conditions or trends are apparent in the basin other than the occurrence of elevated nitrate and chloride ion concentrations in two shallow wells in the western portion of the basin.

We recommend that the data collection program (water levels and water quality) be maintained in its current form in the subsequent years with the following modifications:

The nitrate concentration in the District's Lyons Well has been rising modestly and should be monitored at several intervals throughout a typical pumping cycle to determine if the concentrations are related to the duration of the pumping cycle. We would be pleased to assist in that process.

With the observed depression in water levels in the central part of Storage Unit No. 1 the District may consider expanding the water quality monitoring program to include additional wells and more frequent monitoring (perhaps quarterly) in that area for general mineral constituents, particularly chloride ion concentrations. The expanded monitoring should focus on qualified wells (suitable depth and perforated interval) located in Sections 19, 20, 28, and 29. In conjunction with this increased monitoring, several additional monitoring wells located in key areas where hydrogeologic data are lacking should be considered. These additional monitoring wells should be designed to monitor groundwater levels and groundwater quality in aquifers A though C and be provided with dedicated transducers to collect groundwater water level and electrical conductivity. Such data could be downloaded quarterly and graphs developed to depict trends in groundwater level and quality (i.e., salinity or conductivity measurements as an early indicator of possible seawater intrusion into the basin).

With the continuation of groundwater levels that are apparently below sea level at the coast (Well -30D1) and associated possibility of seawater intrusion, the District may consider installation of so-called "sentinel" wells at the coast completed to the depths of the four primary aquifers. The monitoring wells should be provided with dedicated pressure and conductivity transducers to monitor temporal changes in water quality.

CLOSURE

This report has been prepared for the exclusive use of the Carpinteria Valley Water District and their agents for specific application to the conditions of groundwater supply and quality in the Carpinteria groundwater basin in Carpinteria, California. The findings and conclusions presented herein were prepared in accordance with generally accepted hydrogeologic engineering practices. No other warranty, express or implied, is made.

Sincerely,

FUGRO CONSULTANTS, INC.

Timothy A. Nicely, CHg
Senior Project Hydrogeologist

Attachments: Figure 1 - Cumulative Departure from Average Precipitation
Figure 2 - Water Use and Precipitation Data
Plate 1 - Water Level Hydrograph Map, April 2012 Period
Plate 2 - Water Level Hydrograph Map, October 2012 Period
Plate 3 - Chemical Hydrograph Map - Western Extent
Plate 4 - Chemical Hydrograph Map - Eastern Extent
Appendix A - Supporting Data

Copies Submitted: (20) Addressee

REFERENCES

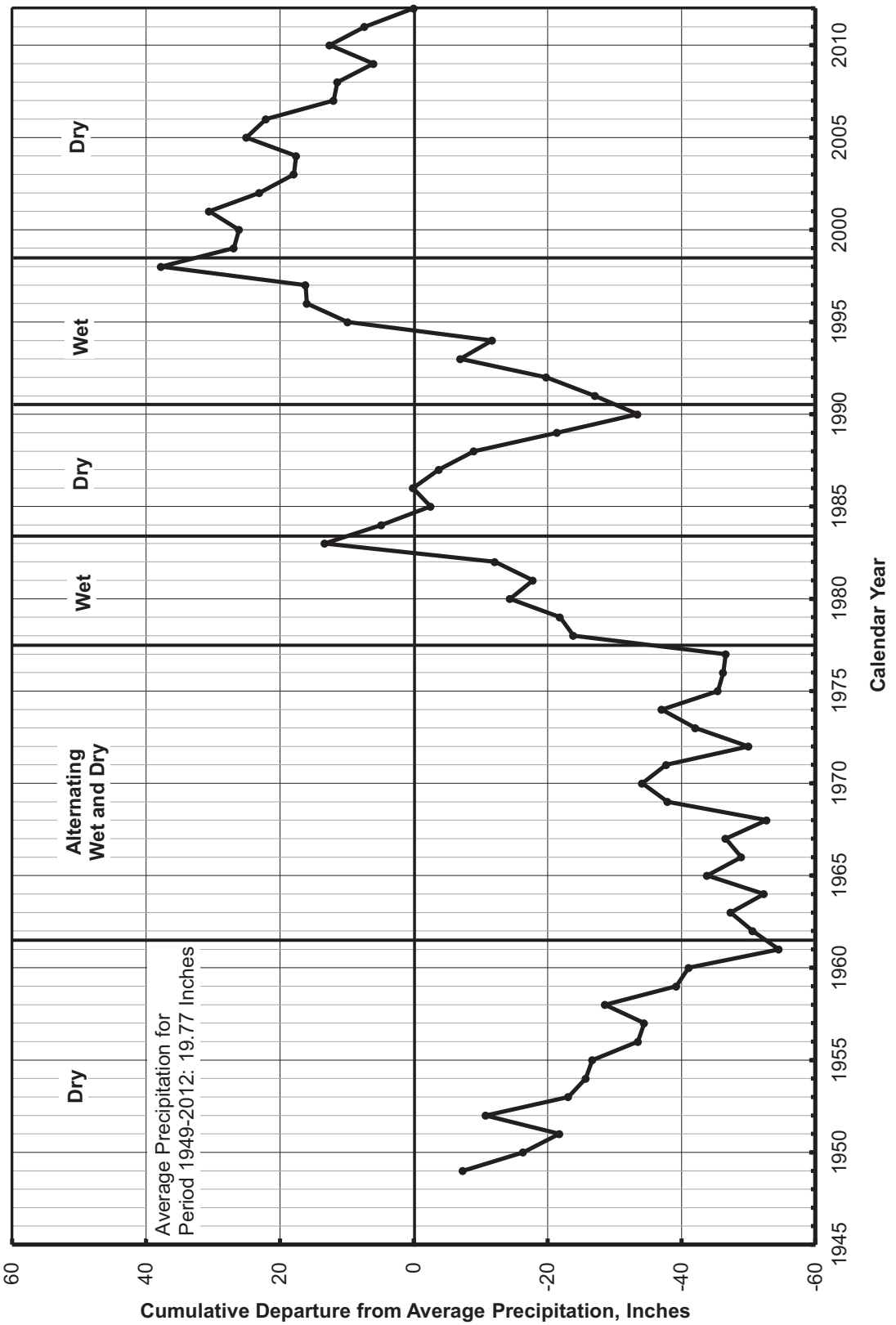
Geotechnical Consultants, Inc. (1976), *Hydrogeologic Investigation of the Carpinteria Ground Water Basin,* consultant's unpublished report prepared for the Carpinteria County Water District, June 11.

_____ (1986), *Hydrogeologic Update, Carpinteria Groundwater Basin*, consultant's unpublished report prepared for the Carpinteria County Water District, July.

Integrated Water Resources, Inc. (IWR, 2003) *Perennial Yield Review of the Carpinteria Valley Groundwater Basin*, consultant's unpublished report prepared for the Carpinteria County Water District, February 25.

Pueblo Water Resources, Inc. (2012) *Carpinteria Groundwater Basin Hydrogeologic Update and Groundwater Model Project*, consultant's unpublished report prepared for the Carpinteria County Water District, June 30.

FIGURES



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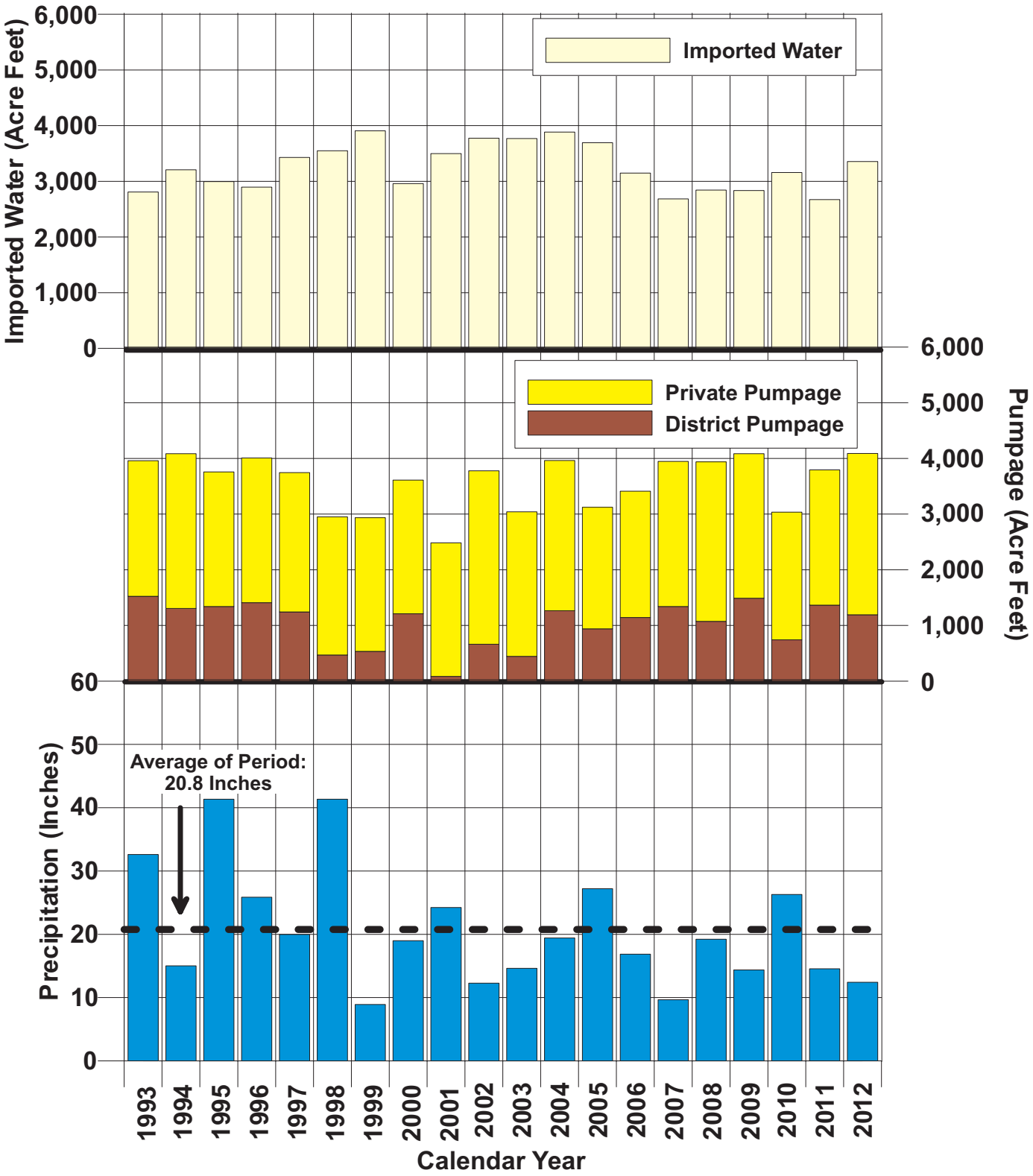
CUMULATIVE DEPARTURE FROM AVERAGE PRECIPITATION
Carpinteria Fire Station
Carpinteria Valley Water District

FIGURE 1



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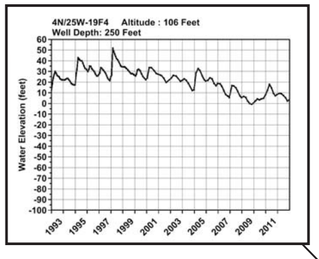
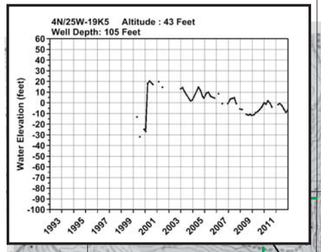
WATER USE AND PRECIPITATION DATA
Carpinteria Valley Water District

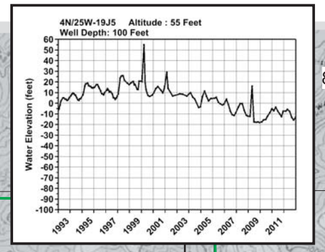
FIGURE 2

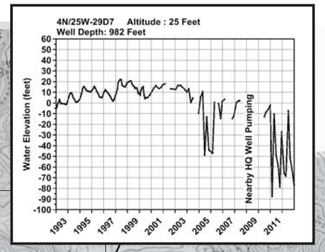
PLATES

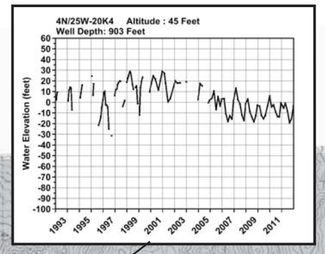
RANGE 26 WEST ← → RANGE 25 WEST

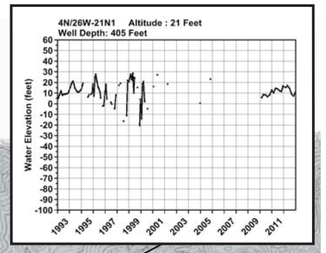


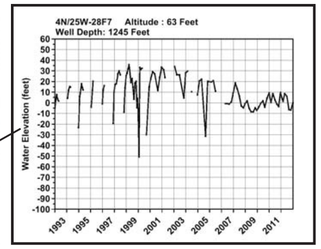


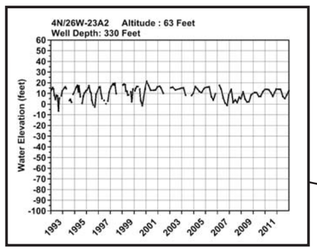


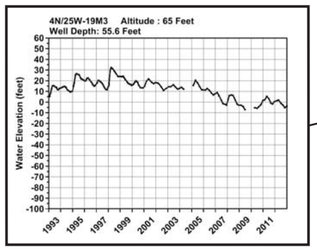


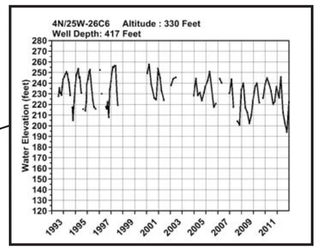


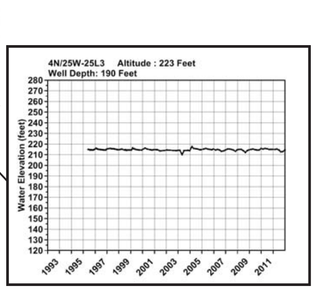


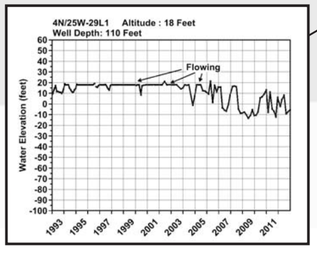


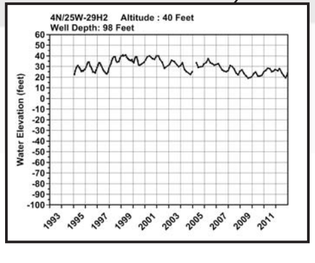


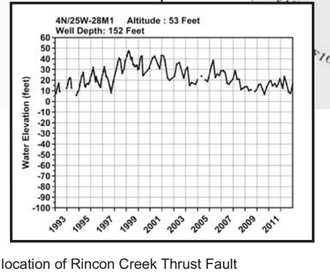


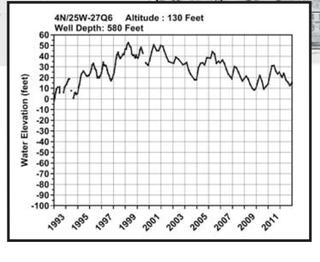


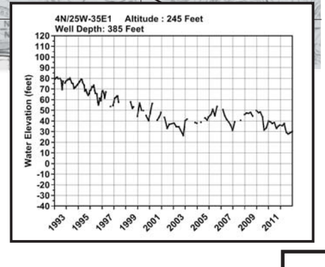


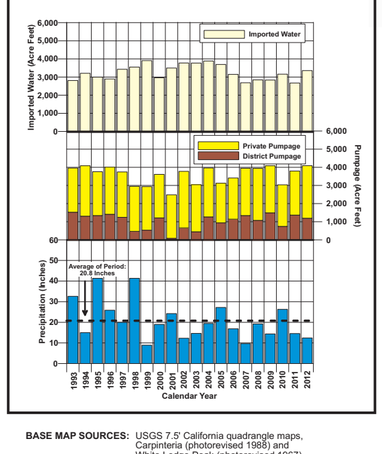












LEGEND

- H1 — Approximate location of well with long term hydrograph record
- F4 — Approximate location of well included in monthly water level data collection program
- D7 SANTA YNEZ — CVWD production well
- Casitas Pass Road Precipitation Station No. 383, Santa Barbara County
- Surface water quality monitoring station
- Groundwater basin boundary
- Approximate location of Rincon Creek Thrust Fault
- Water District boundary
- Contour of equal water level elevation in feet, April 2012 dashed where approximate, queried where inferred
- Principal direction of groundwater flow
- Water well hydrograph, altitude of water surface in feet

NORTH
0 3000 6000
FEET

BASE MAP SOURCES: USGS 7.5' California quadrangle maps, Carpinteria (photorevised 1988) and White Ledge Peak (photorevised 1967).

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WATER LEVEL HYDROGRAPH MAP APRIL 2012 PERIOD

Client: **CARPINTERIA VALLEY WATER DISTRICT**

Project No. 04.B3033006.10 | March 2013 | PLATE 1

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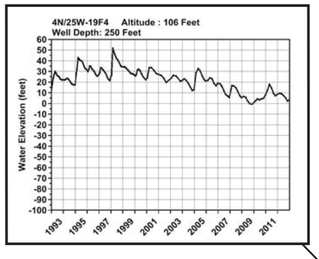

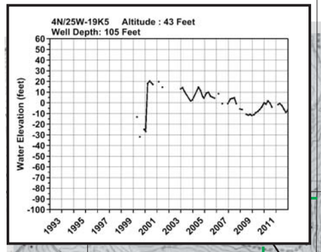

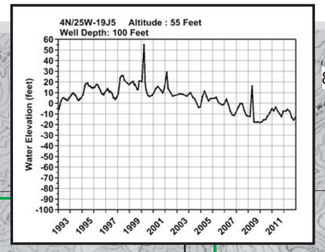

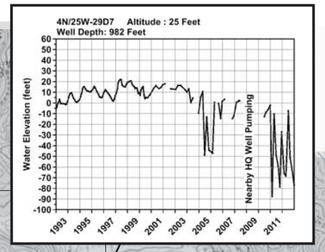

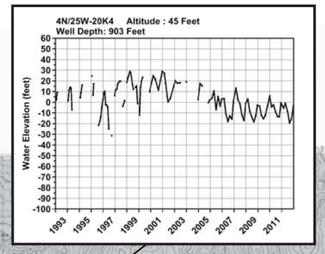

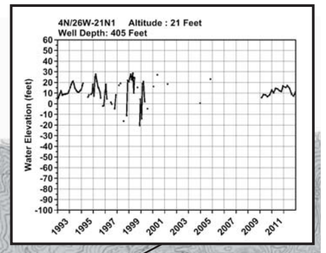

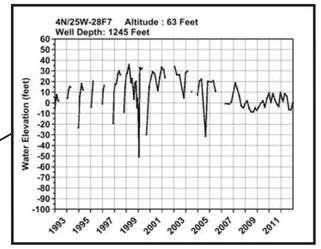

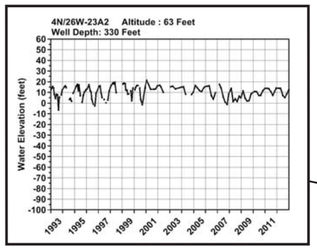

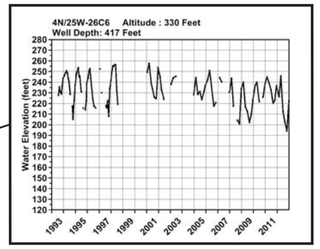

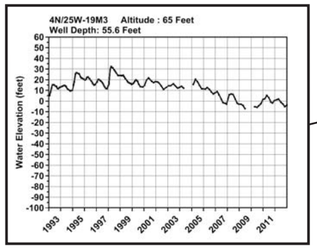

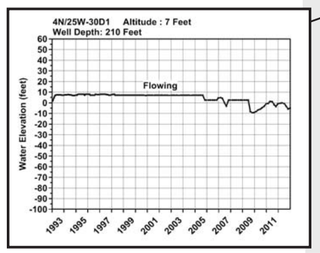

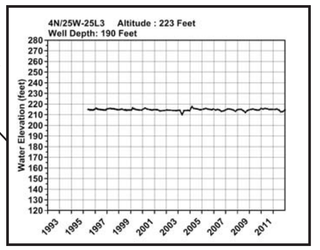

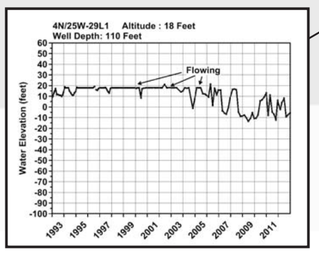

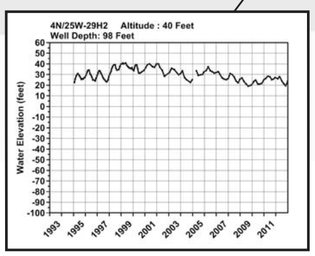

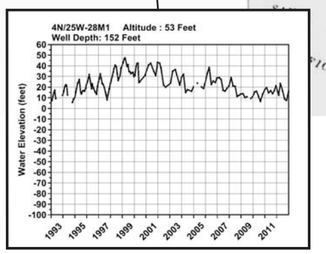

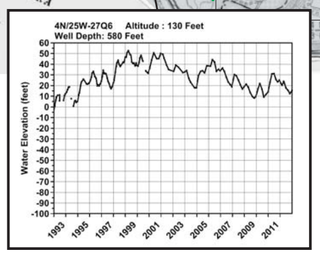

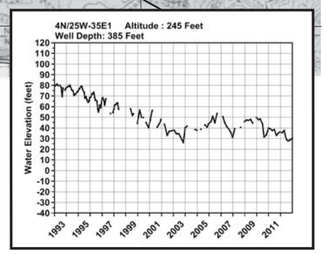

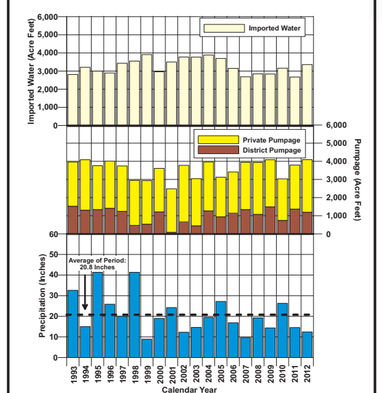

LEGEND

- H1 — Approximate location of well with long term hydrograph record
- F4 — Approximate location of well included in monthly water level data collection program
- D7 SANTA YNEZ — CVWD production well
- Casitas Pass Road Precipitation Station No. 383, Santa Barbara County
- Surface water quality monitoring station
- Groundwater basin boundary
- Approximate location of Rincon Creek Thrust Fault
- Water District boundary
- 20 — Contour of equal water level elevation in feet, October 2012, dashed where approximate, queried where inferred
- Principal direction of groundwater flow
- Water well hydrograph, altitude of water surface in feet

NORTH

0 3000 6000

FEET

BASE MAP SOURCES: USGS 7.5' California quadrangle maps, Carpinteria (photorevised 1988) and White Ledge Peak (photorevised 1967).

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Tel.: (805) 650-7000, FAX: (805) 650-7010

WATER LEVEL HYDROGRAPH MAP OCTOBER 2012 PERIOD

Client: **CARPINTERIA VALLEY WATER DISTRICT**

Project No. 04.B3033006.10 | March 2013 | PLATE 2

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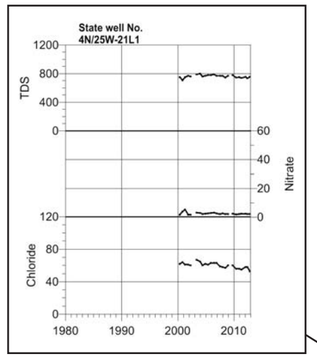
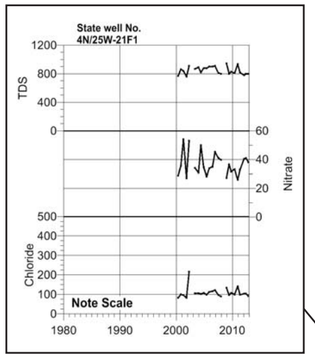
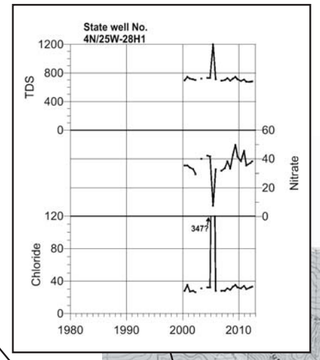
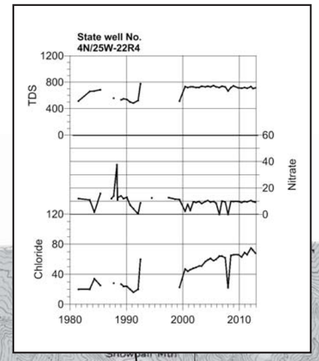
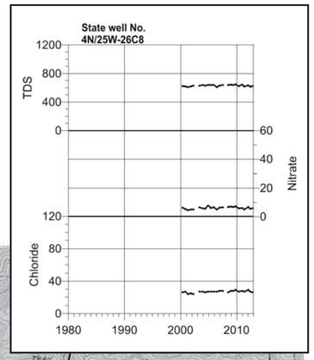
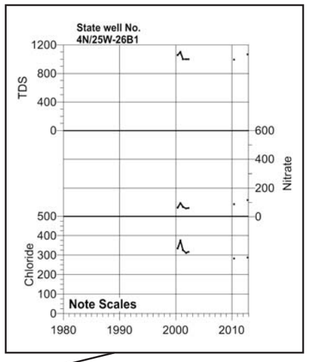


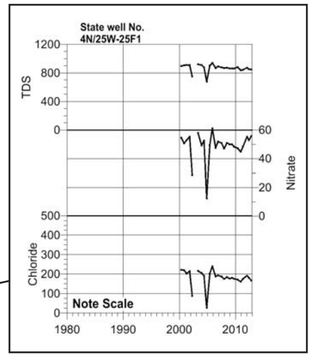


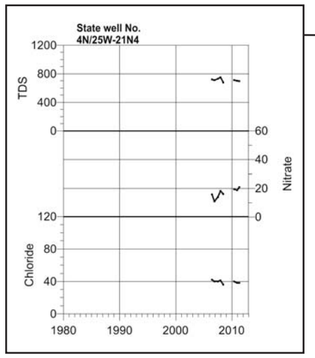


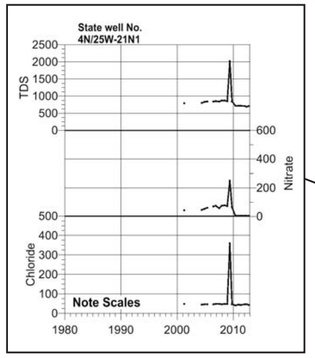


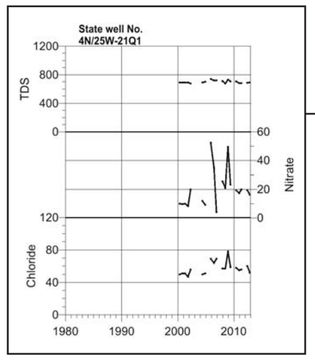


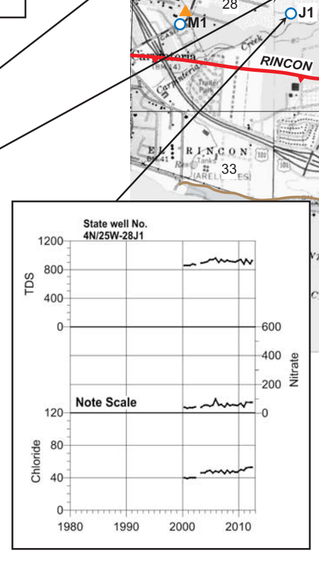


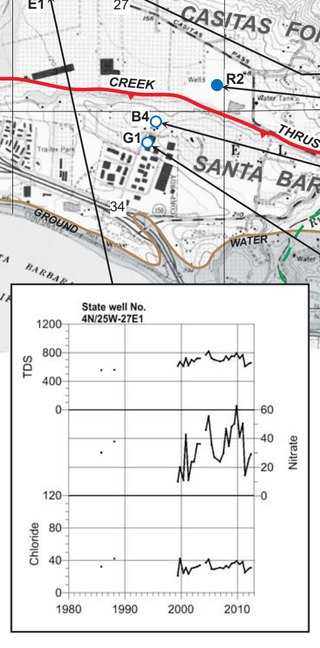


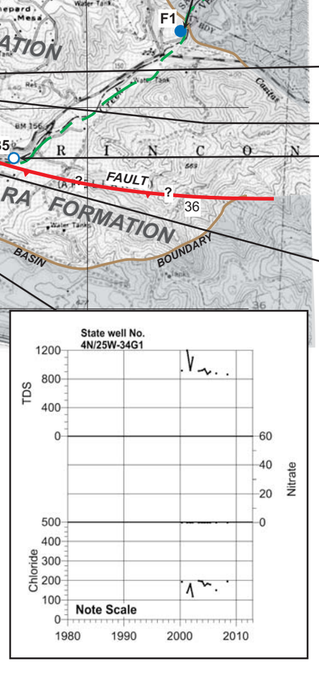


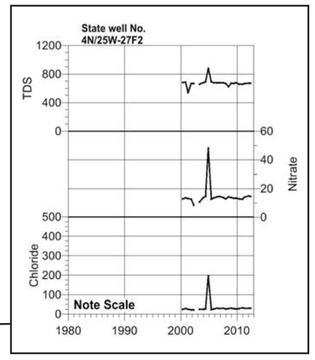


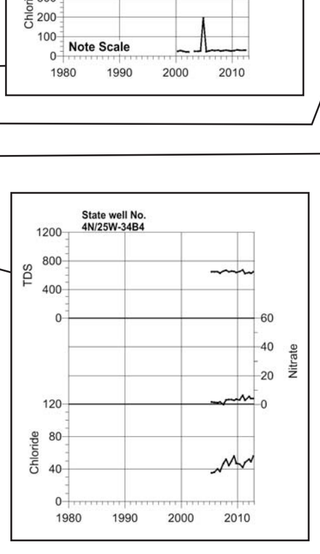


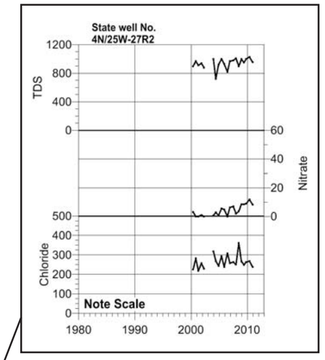






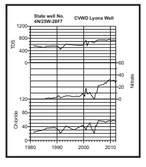






LEGEND

- **H1** — Approximate location of well with long term hydrograph record
- **F4** — Approximate location of well included in bimonthly water level data collection program
- **D7** — CVWD production well
- **SANTA YNEZ** — Casitas Pass Road Precipitation Station No. 383, Santa Barbara County
- Surface water quality monitoring station
- Groundwater basin boundary
- Approximate location of Rincon Creek Thrust Fault
- Water district boundary
- Chemical Hydrograph, all constituents in milligrams per liter (mg/l)



BASE MAP SOURCES: USGS 7.5' California quadrangle maps, Carpinteria (photorevised 1988) and White Ledge Peak (photorevised 1967).

NORTH

0 3000 6000

FEET

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Tel.: (805) 650-7000, FAX: (805) 650-7010

CHEMICAL HYDROGRAPH MAP (EASTERN EXTENT)

Client: **CARPINTERIA VALLEY WATER DISTRICT**

Project No. 04.B3033006.10 | March 2013 | PLATE 4

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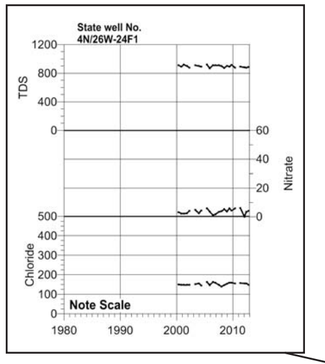

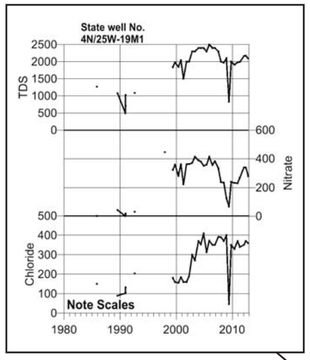

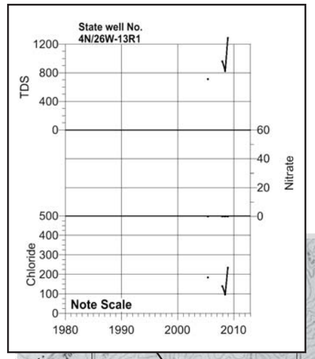

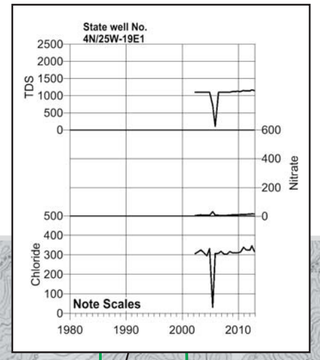

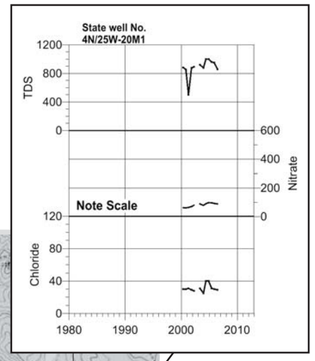

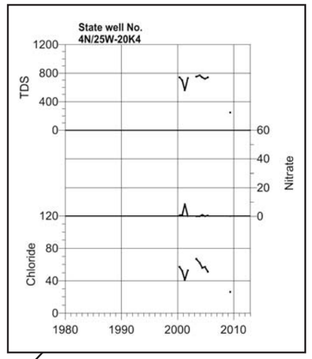

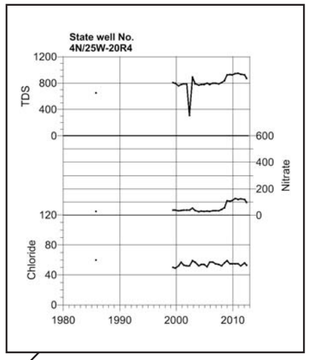

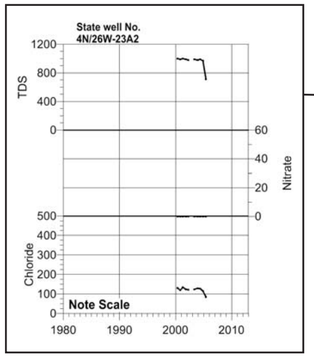

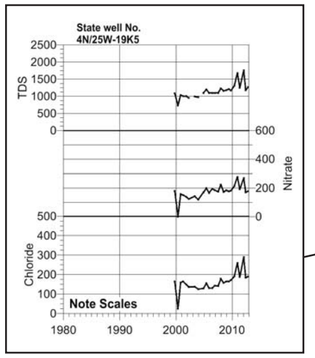

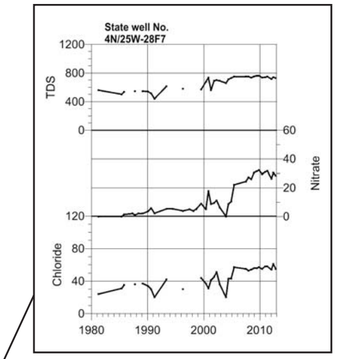

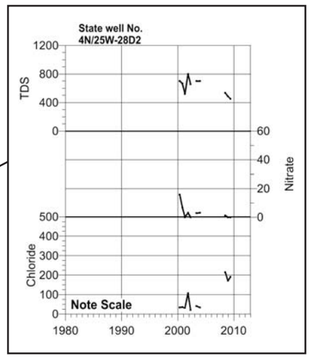

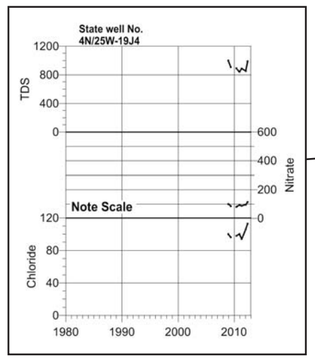

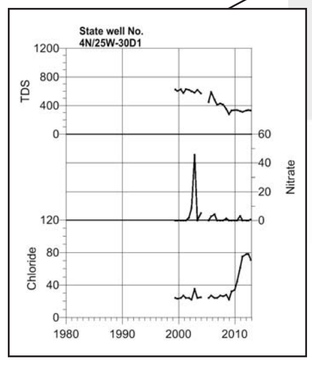

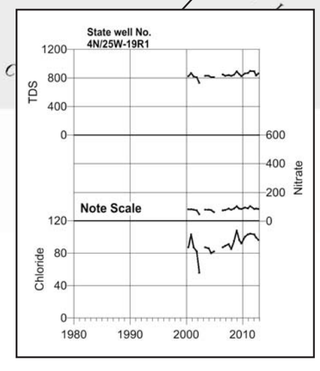

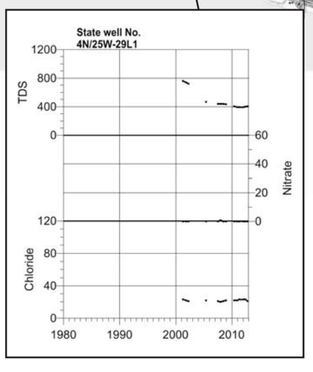

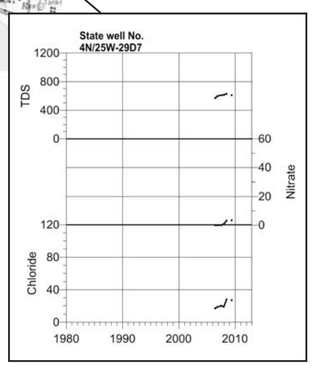

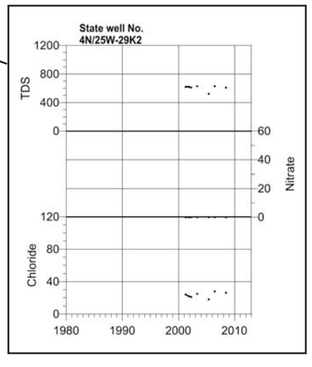

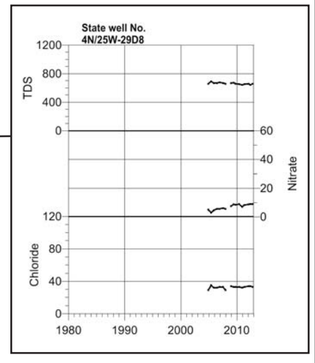

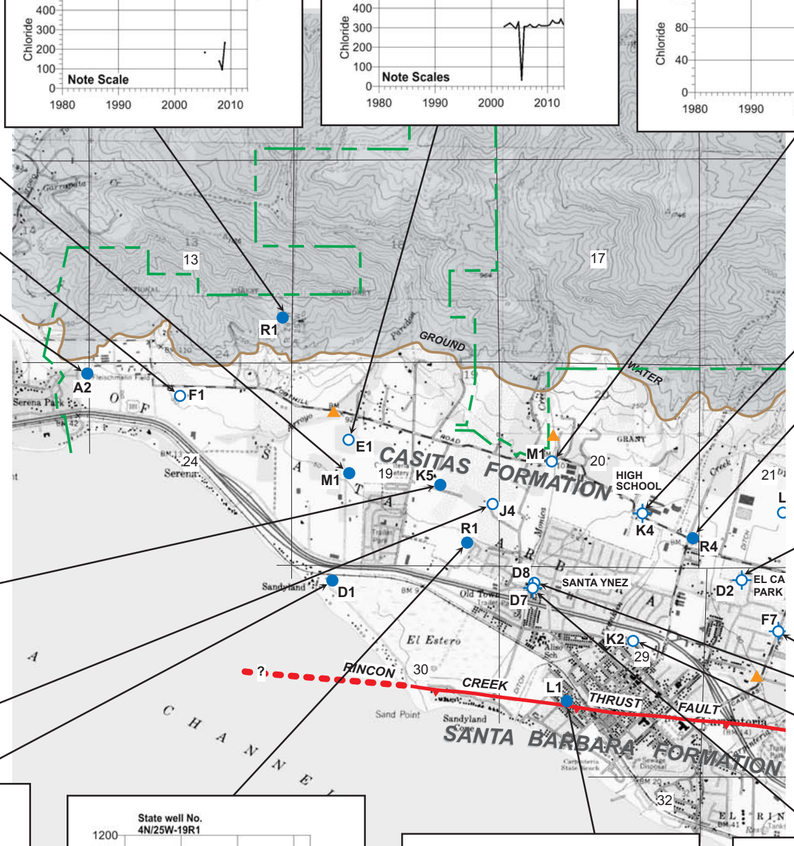

LEGEND

- Approximate location of well with long term hydrograph record
- F4 — Approximate location of well included in bimonthly water level data collection program (H1)
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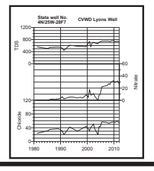

NORTH

0 3000 6000

FEET

BASE MAP SOURCES: USGS 7.5' California quadrangle maps, Carpinteria (photorevised 1988) and White Ledge Peak (photorevised 1967).

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CHEMICAL HYDROGRAPH MAP (WESTERN EXTENT)

Client: **CARPINTERIA VALLEY WATER DISTRICT**

Project No. 04.B3033006.10 | March 2013 | PLATE 3

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APPENDIX A
SUPPORTING DATA

State of California | DEPARTMENT OF WATER RESOURCES | California Natural Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year **2012**

Carpinteria Valley Water District
Robert McDonald, District Engineer
1301 Santa Ynez Avenue
Carpinteria, CA 93013
PWS#4210001 SRO

1. General Information

Please follow the provided instructions.

Contact : Robert McDonald
Title: District Engineer
Phone: 805-684-2816 ext. 107
Fax: 805-456-2148
E-mail: bob@cvwd.net
Website: www.cvwd.net
County: **Santa Barbara**
Population served: **15,141 (estimated)**
Names of communities served: City of Carpinteria & unicorpor

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential	3,064	0	0	0
Multi-family Residential	340	0	0	0
Commercial/Institutional	278	0	0	0
Industrial	58	0	0	0
Landscape Irrigation	46	0	0	0
Other	120	0	0	0
Agricultural Irrigation	427	0	0	0
TOTAL	4333.00	0	0	0

3. Total Water Into the System - Units of production: AF

(Select: **AF**=acre-feet; **MG**=million gallons; **CCF**=hundred cubic feet)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	8.78	135.08	87.58	107.20	143.95	46.22	47.83	143.17	140.70	136.45	90.75	104.30	1192.012
	Surface	0	0	0	0	0	0	0	0	0	0	0	0	0
	Purchased [1/]	291.00	185.63	229.96	151.69	274.82	420.78	487.00	371.49	355.04	315.91	230.98	41.39	3355.69
	Total Potable	299.78	320.71	317.54	258.8916	418.77	467	534.83	514.66	495.74	452.36	321.73	145.69	4547.702
Untreated Water		0	0	0	0	0	0	0	0	0	0	0	0	0
Recycled [2/]		0	0	0	0	0	0	0	0	0	0	0	0	0

1/ Potable wholesale supplier(s): Cachuma Project & SWP

2/ Recycled wholesale supplier(s):

Level of treatment:

4. Metered Water Deliveries - Units of delivery: AF

(Select: **AF**=acre-feet; **MG**=million gallons; **CCF**=hundred cubic feet)

If recycled is included, X box ↓		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A.SingleFamilyResidential		60.89	65.50	69.18	59.12	71.58	100.15	97.11	99.38	99.47	86.02	79.27	46.61	934.27
B.Multi-family Residential		35.34	38.26	36.65	35.03	37.48	48.53	48.59	48.46	49.16	43.46	41.22	32.41	494.59
C.Commercial/Institutional		29.56	32.80	34.79	29.75	42.78	57.12	58.26	61.67	56.96	45.92	39.63	19.81	509.07
D.Industrial		5.42	6.19	5.63	5.26	6.91	8.96	8.10	8.57	9.13	9.47	7.61	3.77	85.02
E.Landscape Irrigation		2.94	2.75	3.39	1.79	4.24	6.91	6.86	8.11	7.82	6.21	5.04	0.80	56.87
F.Other		0.61	0.52	1.10	0.24	0.45	1.38	1.56	1.66	1.71	2.11	1.18	0.32	12.82
Total Urban Retail (A thru F)		134.77	146.01	150.73	131.18	163.45	223.07	220.47	227.87	224.24	193.19	173.95	103.71	2092.642
Agricultural Irrigation		133.43	144.27	139.38	85.74	158.15	240.43	240.46	242.35	253.98	228.04	171.23	46.77	2084.231
Wholesale(*to other agencies)*		0	0	0	0	0	0	0	0	0	0	0	0	0

#VALUE!

2012 Land use

This sheet provides an estimate of private well extraction using the 2010 aerial image.

Calendar-year Well Extraction Estimate (Acre-feet - AF)

2012 Low* DT**	2012 Average DT	2012 High* DT	Long-term DT
1343	2896	4569	2304

Water-year Well Extraction Estimate (Acre-feet - AF)

2012 Low DT	2012 Average DT	2012 High DT	Long-term DT
1388	3018	4761	2484

Fiscal-year Well Extraction Estimate (Acre-feet - AF)

2012 Low DT	2012 Average DT	2012 High DT	Long-term DT
1208	2491	3885	2493

Determining Factors (Calendar-year)

	2012 Low DT	2012 Average DT	2012 High DT	Long-term DT	Acres Used for DT
Avocado	0.87	1.73	2.59	1.21	409
Cherimoyas / Fruit Trees	1.47	2.15	2.84	2.02	45
Covered Nurseries	1.93	2.93	3.93	3.21	79
Mixed Field Crops					***
Lemons	0.15	0.65	1.14	0.81	19
Open Nurseries	0.55	1.26	1.98	1.28	20
Turf / Pasture	1.50	1.50	1.50	1.50	****

* Low / High = 95% Confidence Interval Values for Average
** DT = Determining Factors
*** Insufficient number of parcels for calculating values (1); open nursery values entered
**** Derived from long-term rainfall / evapotranspiration data

Summary of Water Quality Data, Spring & Fall 2012
Carpinteria Valley Water District
Groundwater Basin Data Collection Program

																		PH		E.C.					
Well No.	Owner/Name	Sample Date	Calcium	Magnesium	Potassium	Sodium	Carbonate	Bicarbonate	Sulfate	Chloride	Nitrate	Fluoride	Boron	Copper	Iron	Manganese	Zinc	Field	Lab	Field	Lab	SAR	TDS	Alkalinity	Hardness
4N/25W-19E1	Ocean Breeze	5/24/2012	123	34	1	199	<10	320	127	346	16.4	1.4	2	<0.01	<0.05	0.01	<0.02	NA	7.3	1275	1760	4.1	1170	260	447
		11/6/2012	130	37	1	194	<10	330	121	318	15.9	1.5	2.2	<0.01	<0.05	0.02	<0.02	7.65	7.3	1430	1810	3.9	1150	270	477
4N/25W-19J4	Carlton	5/22/2012	160	43	<1	53	<10	330	188	102	113	0.4	0.1	<0.01	0.08	<0.01	<0.02	NA	7.2	1017	1360	1	989	270	576
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4N/25W-19K5	Westland Floral	5/29/2012	176	53	1	79	<10	360	161	184	170	0.2	0.2	<0.01	0.08	<0.01	<0.02	NA	6.9	1214	1700	1.3	1180	300	657
		11/7/2012	202	62	1	87	<10	380	173	190	178	0.4	0.2	<0.01	<0.05	<0.01	<0.02	7.11	7	1742	1820	1.4	1270	310	759
4N/25W-19M1	Abbott	5/31/2012	321	83	2	197	<10	410	450	370	338	0.7	1	<0.01	<0.05	<0.01	<0.02	NA	6.8	NA	2870	2.5	2170	340	1140
		11/27/2012	320	81	2	195	<10	430	420	360	280	0.8	1.1	<0.01	0.12	<0.01	<0.02	7.18	6.7	2760	2830	2.5	2090	350	1130
4N/25W-19R1	Westland Floral	5/29/2012	143	37	1	50	<10	280	139	99	86.6	0.3	<0.1	<0.01	<0.05	0.04	<0.02	NA	7.1	877	1180	1	836	230	509
		11/7/2012	152	40	1	53	<10	300	138	96	83.6	0.5	<0.1	<0.01	<0.05	0.03	<0.02	7.65	7.5	1183	1190	1	864	250	544
4N/25W-20K4	CVWD (High School, Raw)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-20K4	CVWD (High School,Treated)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-20M1	Ocean Breeze/Foothill	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-20R4	Persoon	5/22/2012	106	34	1	79	<10	380	121	53	98	0.4	0.2	<0.01	<0.05	0.16	<0.02	NA	7.5	642	1150	1.7	872	310	404
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4N/25W-21F1	Rancho Antigua	5/22/2012	87	39	1	80	<10	420	28	103	40.9	0.5	0.2	0.05	<0.05	0.01	0.08	NA	7.8	879	1120	1.8	799	340	378
		11/7/2012	91	42	1	87	<10	420	27	92	38	0.4	0.1	0.09	<0.05	<0.01	0.13	7.75	7.7	1060	1070	1.9	798	340	400
4N/25W-21L1	Bradley	5/22/2012	88	30	1	75	<10	370	112	58	2	0.3	0.2	<0.01	<0.05	0.01	<0.02	NA	7.6	788	985	1.8	736	310	343
		11/7/2012	93	33	2	79	<10	380	112	53	2.2	0.3	0.1	<0.01	<0.05	0.01	<0.02	7.64	7.5	973	1000	1.8	754	320	368
4N/25W-21N?	Ocean Breeze	5/24/2012	86	28	1	71	<10	330	125	47	3.5	0.3	0.2	<0.01	<0.05	0.02	0.05	NA	7.3	750	913	1.7	692	270	330
		11/6/2012	87	31	2	73	<10	360	115	42	3.8	0.2	0.1	<0.01	<0.05	0.01	0.04	7.53	7.4	920	921	1.7	714	290	345
4N/25W-21N4	Brand Flowers	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-21Q1	Overgaag/Westerlay Roses	5/22/2012	80	27	<1	73	<10	340	86	60	19.3	0.5	0.1	<0.01	<0.05	0.36	<0.02	NA	7.6	795	934	1.8	686	280	311
		11/7/2012	83	29	1	76	<10	350	82	52	16.3	0.4	<0.1	0.02	<0.05	0.32	<0.02	7.66	7.5	905	932	1.8	690	290	326
4N/25W-22R4	Vedder	5/29/2012	106	30	1	55	<10	290	142	72	9.7	0.2	<0.1	<0.01	<0.05	<0.01	<0.02	NA	7.2	733	983	1.2	706	240	388
		11/6/2012	109	31	1	56	<10	300	138	68	9.2	0.2	<0.1	<0.01	<0.05	<0.01	<0.02	7.65	7.3	980	978	1.2	712	240	400
4N/25W-25F1	Nichols	5/22/2012	118	41	1	69	<10	280	110	181	52.9	0.4	<0.1	<0.01	0.15	<0.01	<0.02	NA	7.4	960	1300	1.4	853	230	463
		11/6/2012	117	41	2	70	<10	290	105	167	55.9	0.3	<0.1	<0.01	<0.05	<0.01	<0.02	7.45	6.1	1235	1270	1.4	848	240	461
4N/25W-26B1	Dautch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		11/5/2012	180	43	2	77	<10	260	100	288	115	0.2	<0.1	<0.01	1	<0.01	<0.02	7.6	6	1630	1700	1.3	1070	210	626
4N/25W-26C8	Thor	5/29/2012	94	28	1	38	<10	270	151	27	5.4	0.2	<0.1	<0.01	<0.05	<0.01	<0.02	NA	7.3	624	820	0.9	615	220	350
		11/27/2012	97	28	1	38	<10	280	150	26	5.7	0.2	<0.1	<0.01	<0.05	<0.01	<0.02	7.8	7.1	813	812	0.9	626	230	357
4N/25W-27E1	Phelps	5/24/2012	101	28	<1	36	<10	300	133	31	29.1	0.4	<0.1	<0.01	<0.05	<0.01	<0.02	NA	7.4	588	847	0.8	658	240	367
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4N/25W-27F2	CVWD (Smillie well)	5/23/2012	105	28	1	35	<10	310	146	31	14.6	0.3	<0.1	0.01	0.12	<0.01	0.15	NA	7.4	618	880	0.8	671	250	377
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4N/25W-27R2	Shepard Farms	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-28A1	Moore	5/22/2012	88	27	1	56	<10	320	108	46	19.4	0.4	0.1	<0.01	<0.05	0.02	<0.02	NA	7.4	685	895	1.3	666	270	331
		11/6/2012	87	27	2	57	<10	330	98	41	17.6	0.3	0.2	<0.01	<0.05	0.03	<0.02	7.58	6.6	877	870	1.4	660	270	328
4N/25W-28D2	CVWD (El Carro,Raw)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-28D2	CVWD (El Carro,Treated)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-28F7	CVWD (Lyons)	6/11/2012	115	30	2	57	<10	310	137	61	30.3	0.2	<0.1	<0.01	0.17	0.35	<0.02	7.7	6.9	965	968	1.2	742	260	410
		12/5/2012	111	29	1	53	<10	320	132	55	28.5	0.2	<0.1	<0.01	0.23	0.38	<0.02	8.3	6.3	970	971	1.2	730	270	396
4N/25W-28G3	Dal Pozzo	5/31/2012	148	40	1	54	<10	360	179	54	79.3	0.3	<0.1	<0.01	<0.05	0.02	<0.02	NA	7.3	9.63	1200	1	916	300	534
		11/5/2012	146	41	2	53	<10	400	174	52	94.5	0.3	0.1	<0.01	<0.05	0.22	<0.02	7.70	6.6	1211	1250	1	963	330	533
4N/25W-28H1	Huff	5/24/2012	100	28	1	44	<10	310	129	33	38.2	0.4	0.1	<0.01	0.05	<0.01	<0.02	NA	7.2	623	878	1	684	260	365
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4N/25W-28J1	Catlin	5/22/2012	146	40	1	49	<10	390	174	53	75.6	0.3	<0.1	<0.01	<0.05	<0.01	<0.02	NA	7.3	830	1220	0.9	929	320	529
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4N/25W-29D7	Santa Ynez Well (CVWD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-29D8	H.Q. Well (CVWD Raw)	8/6/2012	82	22	1	57	<10	330	108	34	8.9	0.3	<0.1	<0.01	<0.05	0.08	<0.02	8.35	7.4	815	835	1.4	643	270	295
		11/27/2012	90	24	2	64	<10	330	108	33	8.8	0.2	0.1	<0.01	<0.05	0.1	<0.02	NA	7.1		842	1.5	660	270	323
4N/25W-29D8	H.Q. Well (CVWD Finish)	8/6/2012	82	22	<1	59	<10	330	109	36	9	0.3	<0.1	<0.01	<0.05	<0.01	<0.02	7.65	7.4	807	834	1.5	647	270	295
		11/27/2012	89	24	2	65	<10	330	108	35	8.7	0.2	0.1	<0.01	<0.05	<0.01	<0.02	7.6	7.1	767	848	1.6	662	270	321
4N/25W-29K2	Pekins	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-29L1	Saragosa	5/31/2012	34	17	3	54	<10	230	37	23	<0.4	0.2	<0.1	0.01	0.87	0.03	1.9	NA	7.7	441	530	1.9	398	190	155
		11/27/2012	34	17	3	56	<10	230	43	21	<0.4	0.2	<0.1	<0.01	0.24	0.02	1.4	8.3	7.4	524	537	2	404	190	155
4N/25W-30D1	Sandyland/Slough Well	5/31/2012	19	12	2	63	<10	160	<2	78	<0.4	0.4	0.1	0.02	2.9	0.23	0.09	NA	7.9	460	522	2.8	334	130	96.8
		11/27/2012	17	11	3	68	<10	160	<2	71	0.5	0.4	0.1	<0.01	0.72	0.14	<0.02	8.8	8.1	464	513	3.2	331	130	87.7
4N/25W-34G1	Aluminum Filter	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/25W-34B4	Twin Pines	5/22/2012	87	26	1	48	<10	300	111	49	4	0.3	0.1	<0.01	<0.05	<0.01	<0.02	NA	7.5	695	846	1.2	627	240	324
		11/6/2012	86	26	2	54	<10	320	99	56	4.1	0.3	0.1	<0.01	<0.05	0.01	<0.02	8.1	6.9	868	870	1.3	647	260	322
4N/25W-35B5	Van der Kar	5/22/2012	151	53	2	93	<10	410	300	104	14.7	0.3	0.3	<0.01	<0.05	<0.01	<0.02	NA	7.7	1030	1470	1.7	1130	340	595
		11/6/2012	153	53	2	94	<10	400	300	100	17.5	0.3	0.3	<0.01	<0.05	<0.01	0.03	8.1	7	1205	1480	1.7	1120	330	600
4N/26W-13R1	Baker	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/26W-23A2	Zangger	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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4N/26W-24F1	Hickey Brothers	5/29/2012	78	35	1	132	<10	440	33	156	3.3	1	0.2	<0.01	0.26	0.11	<0.02	NA	7.1	982	1250	3.1	879	360	339
		11/5/2012	78	35	1	134	<10	450	36	148	4.1	0.9	0.3	<0.01	0.22	0.10	<0.02	8.60	6.9	1164	1230	3.2	887	370	339
Toro Creek		5/23/2012	135	47	<1	126	<10	410	240	160	9.3	0.5	0.2	<0.01	0.06	<0.01	<0.02	NA	8.1	1010	1520	2.4	1130	330	530
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Arroyo Paredon Creek		5/23/2012	113	40	4	277	<10	400	114	450	<0.4	2.6	2.8	<0.01	<0.05	<0.01	<0.02	NA	8.2	1482	2200	5.7	1400	330	447
		11/5/2012	91	27	4	469	<10	560	52	520	<0.4	2.8	5.6	<0.01	<0.05	<0.01	<0.02	8.67	8	2340	2480	11.1	1730	460	338
Santa Monica Creek		5/23/2012	84	27	<1	51	<10	300	136	35	<0.4	0.6	0.3	<0.01	<0.05	<0.01	<0.02	NA	8.3	582	839	1.2	634	240	321
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Carpinteria Creek		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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Gobernador Creek		5/22/2012	80	30	1	40	<10	270	146	26	2.8	0.4	<0.1	<0.01	<0.05	<0.01	<0.02	NA	8.2	631	789	1	596	220	323
		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rincon Creek		5/22/2012	88	40	2	90	<10	370	135	88	6.5	0.7	0.4	<0.01	<0.05	<0.01	<0.02	NA	8.2	777	1110	2	820	300	384
		11/5/2012	100	52	2	118	<10	420	173	123	9.5	0.5	0.5	<0.01	<0.05	<0.01	<0.02	8.51	8.1	1330	1350	2.4	998	350	463